

3rd European Congress for Bronchology and Interventional Pulmonology



23-25 April
2015
BARCELONA
SPAIN

XXI Congreso Nacional
Asociación Española de
Endoscopia Respiratoria y
Neumología Intervencionista



Final Programme and Book of Abstracts

Name:

www.ecbip2015.org

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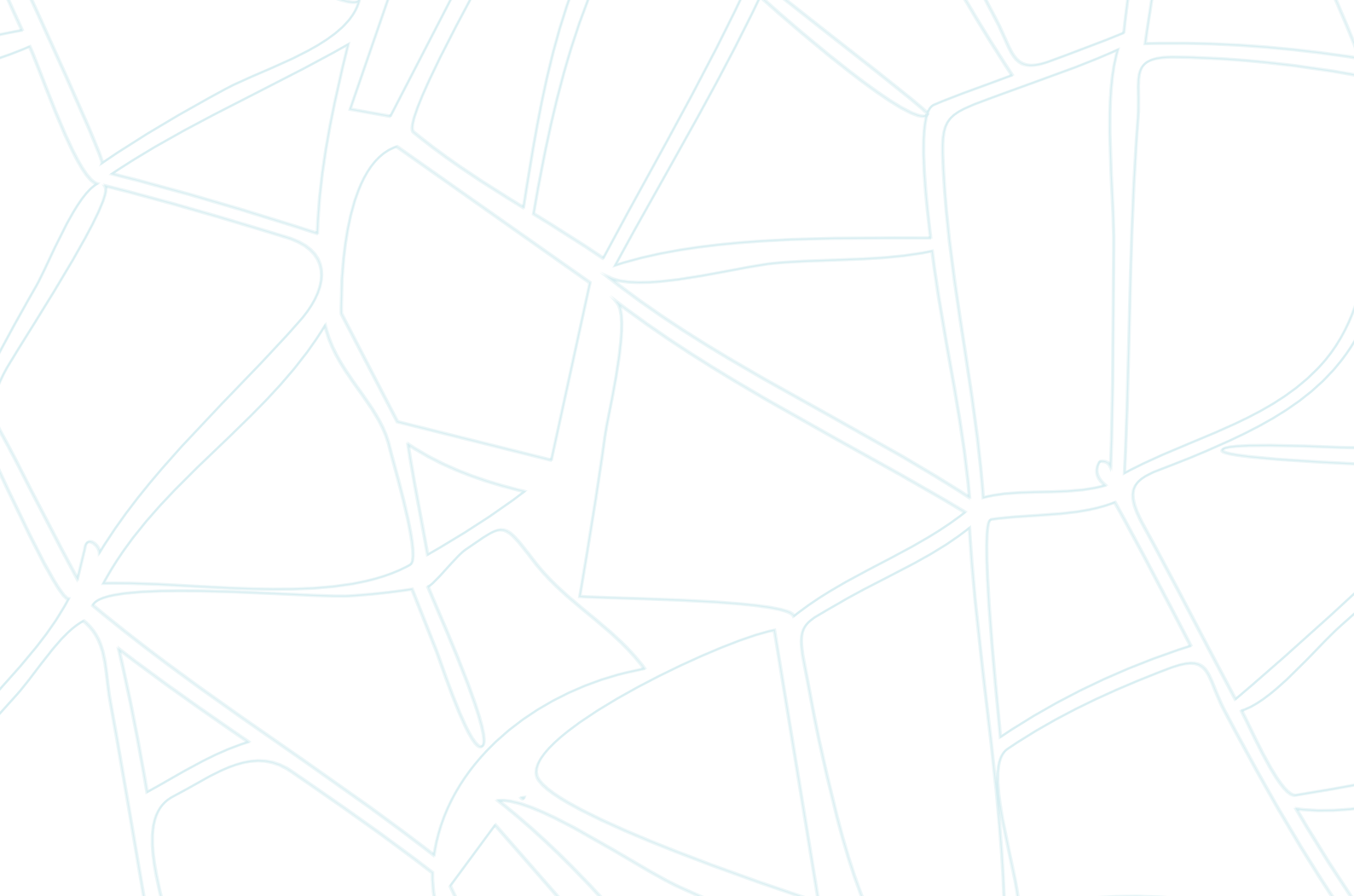
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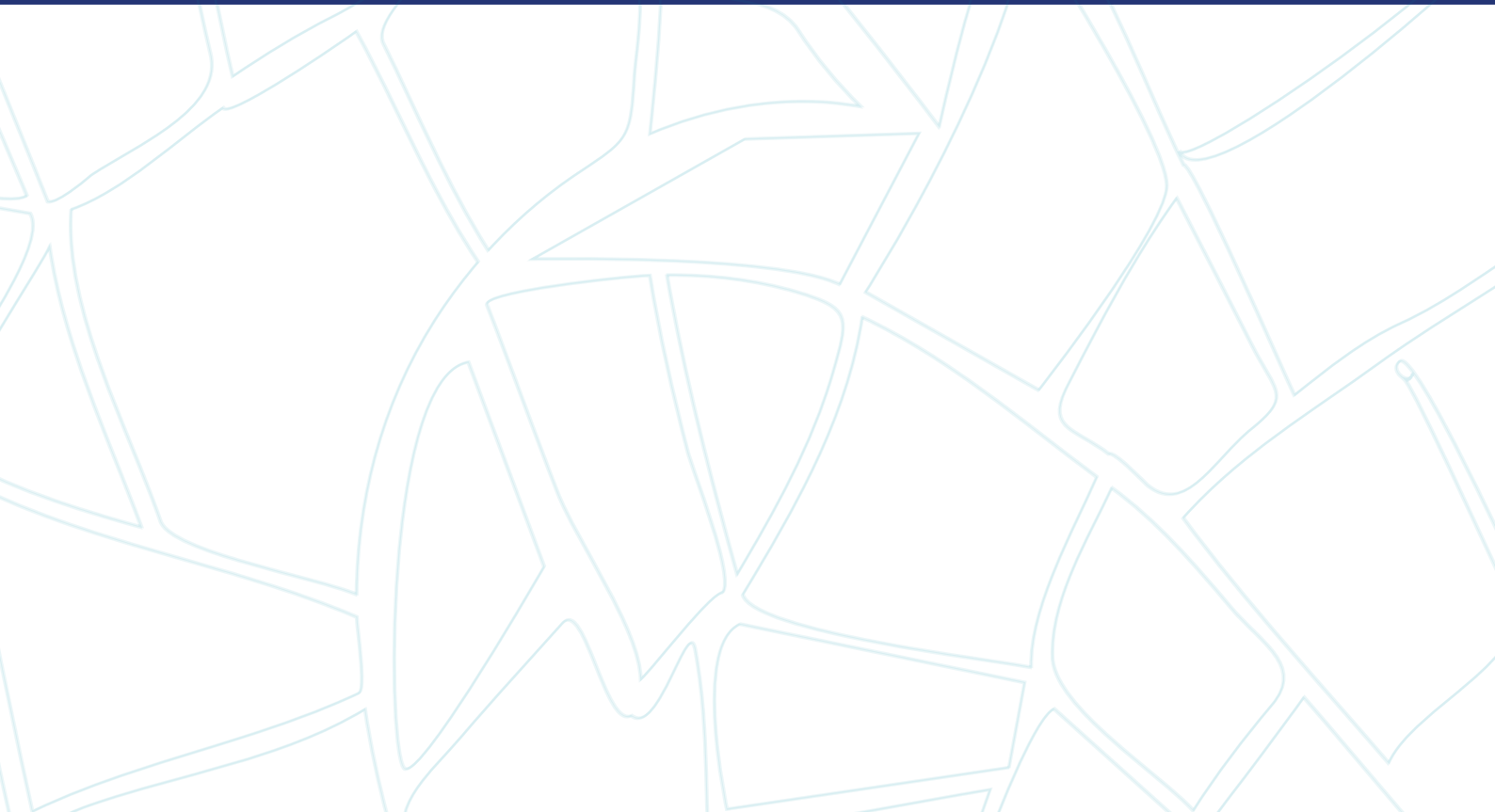
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General information



Welcome letter

The 3rd congress of the EABIP, together with the XXIth congress of the AEER, is finally here and, on behalf of all the Organizing Committee, I'm giving you the warmest welcome to Barcelona.

Three main pillars sustain this event: research, education and discussion, and for that reason, key leaders in Interventional Pulmonology are gathered as speakers, chairs and tutors. Actual research in our field is the future of our practice, so, efforts have been made in the final program to give the opportunity to show and decide amongst all the attending delegates, the best oral presentations. For the very first time, the Chris Bolliger award to the best oral communication will be offered. Education through 19 real hands-on workshops in different models has been possible thanks to the University of Barcelona settings and the collaboration and commitment from companies. Including workshops as an essential part of the program has been a decision we'll never regret. Sessions have been scheduled attending to colleagues requests and have been organized with the final aim to achieve conclusions after open discussions.

A part from that, take your time to get around the exhibition area where all the most important companies dedicated to endoscopy will be present. You can find ancillary instruments, flexible and rigid bronchoscopes, EBUS, laser, stents, tracheotomy canulas and fluoroscopy arch, among others.

All this is going to happen in 2 ½ days, so, get ready to learn, share experiences and when leaving, feel you are a better professional.



Dr Antoni Rosell

President of the Organising Committee

Organising Committee

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Jaume Sauleda Hospital Son Espases, Palma de Mallorca

Laia Setó Hospital Univ. de Bellvitge, L'Hospitalet de Llobregat, Barcelona

Alfons Torrego Hospital de Sant Pau, Barcelona

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Heidelberg, Germany

Nijmegen, The Netherlands

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Acknowledgements

The congress is organised by:

European Association of Bronchology and Interventional Pulmonology (EABIP)
Asociación Española de Endoscopia Respiratoria (AEER)

The Organising Committee thanks the endorsement and scientific support of :

University Hospital of Bellvitge
University of Barcelona
World Association for Bronchology and Interventional Pulmonology (WABIP)
European Society of Thoracic Surgeons (ESTS)
European Respiratory Society (ERS)
Sociedad Española de Neumología y Cirugía Torácica (SEPAR)
Société de Pneumologie de Langue Française (SPLF)
Societat Catalana de Pneumologia (SOCAP)

Technical Secretariat

The technical organisation of the congress, registration and hotel reservations have been managed by:



Pl. Europa 17-19, 1st floor
E-08908 L'Hospitalet de Llobregat, Barcelona (Spain)
Tel +34 938 823 878
ecbip2015@barcelocongresos.com

Information for speakers and authors

Invited presentations

The invited presentations take place in meeting rooms Jupiter and Urano in the ground floor of the hotel venue. Invited talks are allotted 30 minutes in total (25 minutes for presentation and 5 minutes for discussion).

Oral presentations

Oral presentations take place in meeting rooms Jupiter and Urano in the ground floor of the hotel venue. The time allocated for each oral presentation is 8 minutes in oral sessions 1 to 4 (Thursday and Friday) and 10 minutes in oral session 5 (Saturday), including 2 minutes for discussion in all cases.

Acceptable presentation formats are PPT and PPTX. Mac users please be sure to use the Microsoft PowerPoint software.

Speakers' room

The speakers' room is located in room Hadar, located in the first floor of the hotel venue. Lift and stairs are located in front of room Jupiter. Invited speakers and presenting authors are kindly requested to test and deliver their presentations to the technicians located in the speakers' room preferably the day before their presentations or at least one hour before. The technicians will migrate the presentation to the corresponding session's room.

Opening hours

Wednesday, 22 April	16.00-20.00
Thursday, 23 April	07.30-18.30
Friday, 24 April	08.00-18.30
Saturday, 25 April	09.00-13.30

Abstracts and Chris Bolliger Award

Only a selection of abstracts are presented orally during the congress. The rest of the accepted abstracts are included in this programme and also will be displayed in the exhibition area but not presented during the congress.

The best 8 papers will be presented in oral session 5 on Saturday morning. Attendees, through an interactive voting system, will decide the first (Chris Bolliger Award), second and third prizes (3.000 €, 2.000 € and 1.000 € respectively) which will be given to the corresponding authors during the closing ceremony. The Chris Bolliger Award and prizes are given by the European Association of Bronchology and Interventional Pulmonology (EABIP).

General information

Congress venue

The main congress venue is the Hotel Hesperia Tower.

HOTEL HESPERIA TOWER

Gran Via, 144 | E-08907 L'Hospitalet de Llobregat, Barcelona

Tel +34 93 413 50 00 | hotel@hesperia-tower.com

Registration	Hotel hall	Ground floor
Invited speakers and oral sessions	Rooms Jupiter and Urano	Ground floor
Exhibition (including coffees and lunch)	Rooms Neptuno and Mercurio	Ground floor
Speakers' room	Room Hadar	First floor
Workshop 1	Room Eiffel	Basement floor
Workshop 2	Room Sears	Basement floor
Workshop 3	Room Pisa	Basement floor
Workshop 4	Room Jim Mao	Basement floor
Workshop 5	Room Petronas	Basement floor
Workshop 6	Room Liberty	Basement floor
Workshop 10	Room Altair	First floor
Workshop 11	Room Antares	First floor

The rest of the workshops take place in the Faculty of Medicine located in front of the hotel. Please refer to the map of the area at the end of this programme.

Workshops from 7.1 to 7.6	Dissection room 1	Basement floor (Faculty)
Workshops from 8.1 to 8.2	Dissection room 2	Basement floor (Faculty)
Workshops from 9.1 to 9.3	Animal lab.	Building aside to Faculty

Internet

Wi-Fi internet connection is provided by the hotel venue. Please note that it is a complimentary and basic service.

Network: Hesperia Tower

User: ecip2015

Password: ecip2015

Transportation to the venue

The hotel venue is located near the University Hospital of Bellvitge and the Faculty of Medicine of the University of Barcelona. The nearest subway station is 'Hospital de Bellvitge' (subway red line L1). The hotel venue is about 10-15 minutes by taxi from the Barcelona International Airport 'El Prat'. The cost is around 25 €.



Language

The official language of the congress is English. Simultaneous translation to Spanish is provided in meeting rooms Jupiter and Urano in the venue (sessions 1 to 14 and oral sessions 1 to 5). No simultaneous translation is provided in the workshops.

Registration desk

The registration desk is located in the main hall of the hotel venue. Opening hours:

Wednesday, 22 April 16.00-20.00
Thursday, 23 April 07.30-18.30
Friday, 24 April 08.00-18.30
Saturday, 25 April 09.00-14.30

Registration fees

Registration fee	Including 2 workshops (a)	Including 1 workshop (b)	Excluding workshops
EABIP and AEER members	EUR 560	EUR 460	EUR 360
Non-members	EUR 670	EUR 570	EUR 470
Company representatives	No admittance	No admittance	EUR 160
Nurses	No admittance	No admittance	EUR 140
Medicine/Nursing students	No admittance	No admittance	Free

(a) Limited to 375 delegates

(b) Limited to 125 delegates

Member and non-member fees include: attendance to scientific sessions, opening and closing ceremonies, workshops (2, 1 or any), exhibition area, congress documents and final programme, coffee breaks, lunch (Thursday and Friday) and congress dinner (Friday).

Company representative and Nurses: The same except the congress dinner.

Students: Only attendance to sessions with invited speakers and oral sessions.

Hotel reservation

Hotel rates at the hotel venue, Hesperia Tower, are:

Single room EUR 156,50

Double room EUR 181,00

All prices are per room and per night and include breakfast, 10% VAT and tourist tax. Any additional cost is at the attendee's own expense.

Any change or cancellation must be addressed to the Technical Secretariat (Barceló Congressos) in writing: ecbip2015@barcelocongresos.com

Cancellations received before January 23rd 2015 will be fully refunded.

For cancellations received between January 23rd and February 23rd 2015 the amount corresponding to one night will be charged as penalty.

For cancellations received after February 23rd 2015 and no-shows the entire period will be charged as penalty.

Refunds will be processed always after the congress.

Before March 23rd 2015 there will be no penalty in case of reduction in the number of nights.

Coffees and lunch

Coffees during morning and afternoon breaks and finger-lunch (Thursday and Friday) will be served in the exhibition area and foyer in the hotel venue. Please refer to the schedule for dates and times. Coffee-breaks, for those attending the workshops in the Faculty of Medicine, will be served in the dissection room 1 and animal lab.

Congress dinner

Date: Friday, 24 April, at 20:45 h.

Place: Hotel W Barcelona

Address: Pl. de la Rosa dels Vents 1, E-08039 Barcelona

Tel +34 93 295 28 00

The nearest subway station is 'Barceloneta' (subway yellow line L4). From that point, 15 minutes walking distance to the Hotel W Barcelona.

Admission: All registered delegates except reduced registration fees: company representatives, nurses and students.

Extra tickets: 90 € per person. Limited seats.

Bus departure from the venue (Hotel Hesperia Tower) at 20.15 h and return after dinner.

Dress code: Business casual

Non-liability

The Organisation has the right, for any reason beyond their control, to modify or cancel, without prior notice, the sessions or any of the arrangements, timetables, plans or other items. The Organisers and Barceló Congressos are not be responsible for any loss, damage, expenditure or inconvenience caused to participants, and their belongings, either during or as a result of the conference. Please check the validity of your own insurance.

Practical information

Attendance certificate

All participants will receive online a certificate of attendance after the celebration of the congress. The CME certificate will be sent 6-10 weeks after the congress.

Badges

Badges are essential for admission to sessions, exhibition, coffee-break and lunch area.

Banks and exchange

This service is available at all banks, open to the public Monday through Friday, from 8:15 to 14:00 h. It is also available at currency exchange shops as well as in the main hotels and travel agencies.

Credit Cards

Most hotels, restaurants and shops in Barcelona accept major credit cards.

Currency

The currency in Spain is the Euro. All fees and rates are charged in Euros. No other currency will be accepted.

Electricity

Electric appliances in Spain work with 220 volts, 50 Hz and plugs conform to the European system of round pins with two holes.

Emergencies

The emergency phone number is 112, valid and free in the entire Spanish territory.

Lost and found

A lost and found service will be available at the Registration desk.

Safety

Barcelona is a safe city, however, as in all touristic cities, pickpockets may be around the Airport, Railway Station and the city centre. Please take the usual precautions and do not leave valuables unattended.

Shopping hours (estimate)

Monday to Saturday from 10:00 to 13:30/14:00 and from 16:30 to 20:00. Department stores do not close at midday.

Useful telephones

Taxi	933 033 033	Taxi for disabled people	935 519 368
Airport	902 404 704	Railway company (Renfe)	902 320 320

Value Added Tax (VAT)

VAT will be charged at the official rate prevailing at the date when the invoice is issued. Neither the Organisation nor Barceló Congressos accepts responsibility for any changes, which may occur due to an official increase in VAT.

Weather

The climate in Barcelona is Mediterranean and mild. Extreme temperatures seldom occur. During the day the temperature in April is between 15 and 20°C (60-70°F).

Continuing medical education (CME)



Accreditation statement

The 'Joint Meeting of the 3rd European Congress for Bronchology and Interventional Pulmonology (ECBIP) and XXI Congreso Nacional de la Asociación Española de Endoscopia Respiratoria y Neumología Intervencionista (AEER)' is accredited by the European Accreditation Council for Continuing Medical Education (EACCME) to provide the following CME activity for medical specialists. The EACCME is an institution of the European Union of Medical Specialists (UEMS), www.uems.net.

Credit designation statement

The 'Joint Meeting of the 3rd European Congress for Bronchology and Interventional Pulmonology (ECBIP) and XXI Congreso Nacional de la Asociación Española de Endoscopia Respiratoria y Neumología Intervencionista (AEER)' is designated for a maximum of (or 'for up to') 15 hours of European external CME credits. Each medical specialist (excluding students, nurses, etc.) should claim only those hours of credit that he/she actually spent in the educational activity.

Claiming CME credits

The EACCME credit system is based on 1 ECMEC per hour. The attendance to scientific sessions (invited speakers' sessions and oral sessions) will be controlled by RFID (radio frequency identification).

Certificates of accreditation

Certificates of accreditation will be sent by e-mail between 6 and 10 weeks after the end of the congress.

Agreement with other medical associations

Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME credit to AMA credit can be found at www.ama-assn.org/go/internationalcme. Live educational activities, occurring outside of Canada, recognized by the UEMS-EACCME for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.





Scientific programme

Schedule

WEDNESDAY
22 APRIL 2015

16:00 Registration
20:00

THURSDAY
23 APRIL 2015

07:30 Registration

08:20 Opening ceremony

	HOTEL ROOM JUPITER	HOTEL ROOM URANO	HOTEL	FACULTY OF MEDICINE
09:00	Session 1 Interv. pulmonology modulation	Session 2 Treating obstructive lung disease	Group A Workshops 1 to 6	Group A Workshops 7.1 to 7.6
10:30	Coffee-break Exhibition area and Faculty of Med.			
11:00	Session 3 Organization of a bronch suit	Session 4 Laringotracheal problems	Coffee-break in hotel at 10:30 h	Coffee-break in Faculty at 10:30 h

12:30 Lunch | Exhibition area

14:30	Session 5 Linear EBUS	Session 6 Solitary pulmonary nodule	Group B Workshops 1 to 6	Group B Workshops 7.1 to 7.6
16:00	Coffee-break Exhibition area and Faculty of Med.			
16:30	Oral session 1 TBNA and miscellanea	Oral session 2 Interv. bronchoscopy in benign diseases	Coffee-break in hotel at 16:00 h	Coffee-break in Faculty at 16:00 h

18:00 EABIP General Assembly

FRIDAY
24 APRIL 2015

	HOTEL ROOM JUPITER	HOTEL ROOM URANO	HOTEL	FACULTY OF MEDICINE
09:00	Session 7 Basic sciences	Session 8 Paediatric bronchoscopy	Group C Workshops 1 to 6	Group C Workshops 7.1 to 7.6
10:30	Coffee-break Exhibition area and Faculty of Med.			
11:00	Session 9 Stents	Session 10 Nearly solved problems	Coffee-break in hotel at 10:30 h	Coffee-break in Faculty at 10:30 h

12:30 Lunch | Exhibition area

14:30	Session 11 Interstitial diffuse lung disease	Session 12 Pleura: Tumour and effusion	Group D Workshops 1 to 6	group D Workshops 7.1 to 7.6
16:00	Coffee-break Exhibition area and Faculty of Med.			
16:30	Oral session 3 COPD and basic research	Oral session 4 Pleura and malignant diseases	Coffee-break in hotel at 16:00 h	Coffee-break in Faculty at 16:00 h

18:00 AEER General Assembly

20:45 Congress dinner (Hotel W Barcelona) Bus departure at 20:15

SATURDAY
25 APRIL 2015

	HOTEL ROOM JUPITER	HOTEL ROOM URANO	HOTEL	FACULTY OF MEDICINE
10:00	Session 13 Lung cancer screening	Session 14 Pleura : Pneumothorax	Group E Workshops 1 to 6	Group E Workshops 7.1 to 7.6
11:30	Coffee-break Exhibition area and Faculty of Med.			
12:00	Oral session 5 Best oral presentations		Coffee-break in hotel at 11:30 h	Coffee-break in Faculty at 11:30 h
13:30	Closing ceremony			

* Official language is English. There are simultaneous translation to Spanish in meeting rooms Jupiter and Urano.

Scientific programme

Wednesday, 22 April 2015

16.00-20.00 Registration

Thursday, 23 April 2015

07.30 Registration

08.15-08.50 **Room Jupiter | Opening ceremony**

Antoni Andreu, General Manager, Hospital Univ. de Bellvitge

Ramon Pujol, Head of the Clinical Sciences Dept., Faculty of Medicine, Univ. de Barcelona, Campus de Bellvitge

Jordi Dorca, Head of the Pulmonology Dept., Hospital Univ. de Bellvitge

Henri Colt, President of WABIP

Herve Dutau, President of the EABIP

Javier Flandes, President of the AEER

Antoni Rosell, President of the Organising Committee

09.00-12.30 19 practical workshops | Hotel venue and Faculty of Medicine

09.00-10.30 Session 1 and 2

Room Jupiter | Session 1

How is interventional pulmonology modulated?

Chairs: Jouke Annema (The Netherlands) and Jean Michel Vergnon (France)

- [Educational programs](#), by Henri Colt (WABIP Bronchoscopy International, Laguna Beach, CA, USA)
- [Medical journals](#), by Stephano Gasparini (Univ. Politecnica delle Marche, Azienda Ospedali Riuniti, Ancona, Italy)
- [Board certification](#), by Georgie Eapen (The University of Texas, MD Anderson Cancer Center, Houston, Texas, USA)

Room Urano | Session 2

Treating obstructive lung disease

Chairs: Enrique Cases (Spain) and Ralf Eberhardt (Germany)

- [Thermoplasty in refractory asthma](#), by Alfons Torrego (Hospital de la Santa Creu i Sant Pau, Barcelona, Spain).
- [Hyperinflation in COPD](#), by Pallav Shah (Royal Brompton Hospital, Imperial College London, UK).
- [Managing complications of endoscopic treatment for obstructive lung diseases](#), by Arschang Valipour (Otto-Wagner-Hospital, Wien, Austria).

10.30-11.00 Coffee-break | Exhibition area and Faculty of Medicine

11.00-12.30 Session 3 and 4

Room Jupiter | Session 3

Organization of a bronch suit

Chairs: Ralf Eberhardt (Germany) and Eduard Monso (Spain)

- [Safety and quality in interventional pulmonology](#), by Semra Bilaceroglu (Izmir Dr Suat Seren Training and Research Hospital for Thoracic Medicine and Surgery, Bostanli, Izmir, Turkey).
- [Why do I need to change my bronch suit ?](#), by Javier Flandes (Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain).
- [Ergonomics](#), by Ole Broberg (Technical University of Denmark, Kgs. Lyngby, Denmark).

Room Urano | Session 4

Laryngotracheal problems

Chairs: Nikos Koufos (Greece) and Rocco Trisolini (Italy)

- [Percutaneous tracheotomy](#), by Taran Singh Tatla (London North West Healthcare NHS Trust, London, UK).
- [Laryngotracheal stenosis](#), by Septimiu Murgu (University of Chicago, Illinois, USA).
- [Rare benign diseases](#), by Septimiu Murgu (University of Chicago, Illinois, USA).

12.30-14.30 Lunch | Exhibition area

14.30-18.00 19 practical workshops | Hotel venue and Faculty of Medicine

14.30-16.00 Sessions 5 and 6

Room Jupiter | Session 5

Linear EBUS

Chairs: Javier Flandes (Spain) and Ramon Rami-Porta (Spain)

- [10 years experience in endosonography - practical remarks](#), by Artur Szlubowski (John Paul II Hospital, Krakow, Poland).
- [Evidence based and cost-effectiveness](#), by José Alberto Fernández-Villar (Complejo Hospitalario Universitario de Vigo, Pontevedra, Spain).
- [From guidelines to the future](#), by Jouke Annema (University of Amsterdam, Academic Medical centre, Amsterdam, The Netherlands).

Room Urano | Session 6

Solitary pulmonary nodule

Chairs: Paola Gasche-Soccal (Switzerland) and Syed Arshad Husain (UK)

- [Virtual bronchoscopy systems](#), by Ralf Eberhardt (Thoraxklinik am Universitätsklinikum Heidelberg, Germany).
- [Electromagnetic navigation systems](#), by Luis Seijo (Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain).
- [Radial EBUS](#), by Christophe Doods (University Hospitals Leuven, Belgium).

16.00-16.30 Coffee-break | Exhibition area and Faculty of Medicine

Room Jupiter | Oral session 1

Chairs: Noelia Cubero (Spain) and Zsolt Papai (Hungary)

TBNA conventional and EBUS-TBNA

O-1 | EBUS/TBNA and EUS/FNA using ultrasound bronchoscope in lung cancer staging
Victor Sokolov, Larisa Telegina, Sergey Sokolov, Victor Kazakevitch, Nadezhda Volchenko, Elena Slavnova.

O-2 | EBUS-TBNA for lung cancer staging in the CT-negative mediastinum
Viviane Figueiredo, Paulo Cardoso, Marcia Jacomelli, Ricardo Terra, Pedro Araujo, Paulo Pego-Fernandes.

O-3 | Endobronchial Ultrasound (EBUS)-guided Drainage of a Mediastinal Abscess
Kaid Darwiche, Jane Winantea, Lutz Freitag, Stephan Eisenmann, Ruediger Karpf-Wissel.

O-4 | Linear endosonography for sarcoidosis stage 0: Does it make sense?
Jonas Yserbyt, Kurt Tournoy, Ingel Demedts, Andre Heremans, Philippe Pierard, Thierry Pieters, Peter Driesen, Vincent Ninane, Christophe Doms.

O-5 | Initiation of a new endobronchial ultrasound-guided biopsy (EBUS) service at a district general hospital dramatically reduces waiting time between referral to diagnosis in lung cancer patients
Syed Arshad Husain, Leon D'Cruz, Abderahman Kamaledeen.

O-6 | Molecular diagnostic in radial-EndoBronchial UltraSound (EBUS) diagnosed peripheral pulmonary adenocarcinoma
Florian Guisier, Samy Lachkar, Bérengère Obstoy, Aude Lamy, Olivia Abramovici-Roels, Mathieu Salaun, Luc Thiberville.

O-7 | Features and safety of deep sedation in endosonography. Comparative study between the airway and the esophageal route
Carmen Centeno Clemente, Felipe Andreo García, Enrique Cases Viedma, Pere Vila Caral, Jose Sanz Santos, Andres Briones Gómez, Carlos Martínez Rivera, Raquel Martínez-Tomás, Juan Ruiz Manzano, Nancy Pérez Rodas.

O-8 | Co-administration of fentanyl with low-dose midazolam has a significant effect on lowering anxiety levels in patients undergoing endobronchial endoscopy
Syed Husain, Leon D'Cruz, Abderahman Kamaledeen.

O-9 | A novel multimodal image guiding system for navigated endobronchial ultrasound (EBUS): Human pilot study
Hanne Sorger, Tore Amundsen, Erlend Fagertun Hofstad, Thomas Lango, Hakon Olav Leira.

Miscellanea

O-10 | Diagnostic accuracy and safety of a novel frontal core biopsy device in CT-guided percutaneous transthoracic biopsies of pulmonary and pleural lesions
Sebahat Ocak, Fabrice Duplaquet, Jacques Jamart, Birgit Weynand, Monique Delos, Philippe Eucher, Michael Dupont, Luc Delaunois, Yves Sibille, Caroline Dahlqvist.

O-11 | Using customized endotracheal tube to stent airway obstruction in infants with absent pulmonary valve syndrome: Innovative technique
Sami Alhaider, Abdullah Alzayed.

Room Urano | Oral session 2

Chairs: Rosa María López-Lisbona (Spain) and Hans Daniels (The Netherlands)

Interventional bronchoscopy in benign diseases

O-12 | Transbronchial cryobiopsies in rigid bronchoscopy -A review of diagnostic yield, times and complications

Filiz Oezkan, Marta Cuyás Cortadellas, Lutz Freitag, Thomas Wessendorf, Thomas Hager, Kaid Darwiche.

O-13 | Endoscopical management of tracheomalacia using electrocautery-laser

Mauricio Cespedes Roncancio, Mauricio Gonzalez Urrea, Alberto Franco, Pedro Manuel Pacheco.

O-14 | The Value of High-frequency Oscillation during Fiberoptic Bronchoscopy in the Diagnosis of Smear-negative Pulmonary Tuberculosis, Randomized Controlled Trial

Somcharoen Thienchairoj, Viratch Tangsujaritvijit, Detajin Junhasavastdikul.

O-15 | Endoscopic management of benign tracheal stenoses-single center experience

Spasoje Popevic, Zivka Uskokovic-Stefanovic, Milan Grujic, Branko Ilic.

O-16 | Bronchoscopic evaluation of the lower airways in patients with persistent severe asthma

Natalia Megadja, Sebastián Gagatek, Carmen Centeno, Carla Torres, Felipe Andreo, Carlos Martínez Rivera, David Ramos Barbón, Gloria Bonet Papell, Anna Plana Bonamaisó, José Sanz Santos, Juan Ruiz Manzano.

O-17 | Central airway stenosis misdiagnosed as asthma/COPD

Spasoje Popevic, Zivka Uskokovic-Stefanovic, Milan Grujic, Branko Ilic.

O-18 | The place of airway stenting in the medico-surgical management of iatrogenic tracheal injuries: A 10 years retrospective analysis

Rachid Tazi-Mezalek, Sophie Laroumagne, Philippe Astoul, Pascal Thomas, Hervé Dutau.

O-19 | Endoscopical treatment of acquired complete tracheal stenosis and total aphonia

Mauricio Cespedes Roncancio, Mauricio Gonzalez Urrea, Alberto Franco, Pedro Manuel Pacheco.

O-20 | Tracheal and bronchial granular cell tumours: A French retrospective study on 30 patients

Maxime, Roger; Lachkar, Samy; Salaun, Mathieu; Vergnon, Jean Michel; Febvre, Michel; Mehdaoui, Anas; Thiberville, Luc.

18.00-19.00 Room Urano | EABIP General Assembly

Friday, 24 April 2015

09.00-12.30 19 practical workshops | Hotel venue and Faculty of Medicine

09.00-10.30 Sessions 7 and 8

Room Jupiter | Session 7 Basic sciences

Chairs: Lutz Freitag (Switzerland) and Antoni Rosell (Spain)

- [Why do devices for interventional bronchoscopy sometimes fail ?](#), by Lutz Freitag (University Hospital Zurich, Switzerland).
- [Engineers meet bronchoscopists](#), by Joaquim de Ciurana (Universitat de Girona, Spain).
- [Chemists meet bronchoscopists](#), by Salvador Borrós (Universitat Ramon Llull, Barcelona, Spain).
- [Mathematicians meet bronchoscopists](#), by Debora Gil (Computer Vision Center, Universitat Autònoma de Barcelona, Spain).

Room Urano | Session 8 Paediatric bronchoscopy

Chairs: Rosa Cordovilla (Spain) and Leonardo Donato (France)

- [Paediatric interventional bronchoscopy](#), by Leonardo Donato (University Hospital Strasbourg, France).
- [Tracheobronchial stents in children. New biodegradable stents](#), by Juan Antón Pacheco (Hospital 12 de Octubre, Madrid, Spain).
- [Paediatric diagnostic bronchoscopy](#), by Antonio Moreno-Galdó (Hospital Univ. Vall d'Hebron, Barcelona, Spain).

10.30-11.00 Coffee-break | Exhibition area and Faculty of Medicine

11.00-12.30 Session 9 and 10

Room Jupiter | Session 9 Stents

Chairs: David Breen (Ireland) and Pablo Díaz-Jiménez (Spain)

- [Evidence based medicine: Airway stent insertion and follow up in patients with malignant central airway obstruction](#), by Septimiu Murgu (Univ. of Chicago, Illinois, USA).
- [Silicone stents and rigid bronchoscopes](#), by Herve Dutau (North Univ. Hospital, Marseille, France).
- [Metalic stents](#), by Prudencio Díaz-Agero (Hospital Univ. La Paz, Madrid, Spain).

Room Urano | Session 10 Nearly solved problems

Chairs: Ramon Rami-Porta (Spain) and Grigoris Stratakos (Greece)

- [Carcinoids](#), by Hes Brokx (VU Univ. Medical Center, Amsterdam, The Netherlands).
- [Fistulas](#), by Kaid Darwiche (Ruhrlandklinik-West German Lung Center, University Duisburg-Essen, Germany).
- [Excessive dynamic airway collapse](#), by Septimiu Murgu (Univ. of Chicago, Illinois, USA).

12.30-14.30 Lunch | Exhibition area

14.30-18.00 19 practical workshops | Hotel venue and Faculty of Medicine

14.30-16.00 Sessions 11 and 12

Room Jupiter | Session 11

Interstitial diffuse lung disease

Chairs: Carlos Agustí (Spain) and Alfons Torrego (Spain)

- [Overview and choosing the best diagnostic test](#), by Maria Molina (Hospital Universitari de Bellvitge, Barcelona, Spain).
- [Criobiopsy diagnostic yield and controversy](#), by Venerino Poletti (Ospedale GB Morgagni, Forli, Italy).
- [Confocal endomicroscopy: New optical systems for diagnoses](#), by Luc Thiberville (Rouen University Hospital, Charles Nicolle Hospital, Rouen, France).

Room Urano | Session 12

Pleura: Tumour and effusion

Chairs: Mohammed Munawar (UK) and Bojan Zaric (Serbia)

- [Mesothelioma](#), by Phillipe Astoul (Hôpital Nord, Aix-Marseille Univ., Marseille, France).
- [Medical thoracoscopy instruments](#), by Ales Rozman (Univ. Clinic Golnik, Slovenia).
- [Diagnosis and treatment of malignant pleural effusion: Thoracoscopy / talc poudrage or tunneled pleural catheter](#), by Najib M. Rahman (University of Oxford, Headington, Oxford, UK).

16.00-16.30 Coffee-break | Exhibition area and Faculty of Medicine

16.30-18.00 Oral sessions 3 and 4

Room Jupiter | Oral session 3

Chairs: Michela Bezzi (Italy) and José Sanz Santos (Spain)

Endobronchial management of obstructive lung disease (COPD)

O-21 | [Bronchoscopic lung volume reduction with coils \(BLVR-Coils\) for treatment of patients with emphysema](#)

Turhan Ece, Zuleyha Bingol, Yasemin Ates.

O-22 | [Safety of bronchial thermoplasty procedure with a modified protocol. Experience in a single centre](#)

Ana Maria Muñoz Fernández, Ana Rodrigo-Troyano, Virginia Pajares Ruiz, Cristina Burrel Dicke, Vicente Plaza Moral, Alfons Torrego Fernández.

O-23 | [Low cost biological lung volume reduction therapy for advanced emphysema](#)

Mostafa Bakeer, Taha Abd El-Gawad, Raed El-Metwaly, Ahmed El-Morsi, Mohamed El-Badrawy, Solafa El-Sharawy.

Basic research and innovation

O-24 | Development and first clinical application of a novel nasogastric feeding tube for prevention of ventilator associated pneumonia (VAP)

Heinrich D. Becker, Doron Besser, Michael Wattenberg.

O-25 | Correlation between transbronchial and suction catheter biopsy in the diagnosis of peripheral pulmonary lesions

Goran Stojanovic, Milana Panjkovic, Bojan Zaric, Nensi Lalic, Evica Budisin, Branislav Perin, Marijela Potic.

O-26 | Centrelines and airways extraction from lung CT for navigated bronchoscopy: A comparison of three methods

Pall Jens Reynisson, Marta Scali, Hakon Olav Leira, Toril Anita Nagelhus Hernes, Erlend Fagertun Hofstad, Frank Lindseth, Hanne Sorger, Erik Smistad, Tore Amundsen, Thomas Lango.

O-27 | New visualization technique for navigational bronchoscopy: Technical development on anchored to centerline curved surface and implementation on lung patient

Pall Jens Reynisson, Hakon Olav Leira, Toril Anita Nagelhus Hernes, Erlend Fagertun Hofstad, Christian Askeland, Frank Lindseth, Hanne Sorger, Tore Amundsen, Thomas Lango.

O-28 | Automatic registration of CT images to patient during bronchoscopy - A clinical pilot study

Thomas Lango, Erlend Fagertun Hofstad, Hanne Sorger, Hakon Olav Leira, Tore Amundsen.

O-29 | Quasi-real time digital assessment of central airway obstruction

C. Sánchez, D. Gil, R. Tazi, M. Diez, J. Bernal, Y. Ruiz, L. Planas, F.J. Sánchez, A. Rosell.

Room Urano | Oral session 4

Chairs: Semra Bilaceroglu (Turkey) and Jaume Sauleda (Spain)

Pleural diseases and thoracoscopy

O-30 | Analysis of the clinical activity of a pleural disease unit

Javier Fernández Álvarez, Javier Pérez Pallarés, María Hernández Roca, María del Mar Valdivia Salas, Pedro Menchón Martínez, Pedro García Torres, Rocío Ibáñez Meléndez, Carlos Castillo Quintanilla, Francisco Javier Bravo Gutierrez, Mercedes Guillamón Sánchez, Jose Javier Martínez Garcerán, Juan Luis de la Torre Álvaro, Antonio Santa Cruz Siminiani.

O-31 | Fibulin-3 as a blood marker for therapy response in pleural mesothelioma

Ales Rozman, Mateja Marc Malovrh, Katja Adamic, Mira Silar, Peter Korosec.

O-32 | Prognostic factors in patients with malignant pleural effusion secondary to lung cancer: Preliminary results

Maribel Botana-Rial, Cecilia Mouronte-Roibás, Virginia Leiro-Fernández, Manuel Núñez-Delgado, Alberto Fernández-Villar.

O-33 | Amount of tube drainage in patients undergone lung resection due to non small cell lung cancer

Nuri Duzgun, Hidir Esme, Mustafa Calik, Burhan Apiliogullari, Ferdane Melike Duran.

O-34 | Ultrasound-guided forceps for pleural biopsy

Gamal Agmy, Yousef Ahmed, Lamiaa Shahban, Nermen Kamal.

O-35 | Follow up of non-determined exudative pleural effusions

Katja Adamic, Mateja Marc Malovrh, Tjasa Subic, Alez Rozman.

Interventional bronchoscopy in malignant diseases

O-36 | Argon plasma coagulation (APC) as a therapeutic technique in malignant central airway obstruction

Bojan Zaric, Goran Stojanovic, Evica Budisin, Nensi Lalic, Aleksandar Tepavac, Vladimir Stojic, Branislav Perin.

O-37 | Fully covered self expandable metal stents performance

Leopoldo Carnevalli, Rosa López-Lisbona, Noelia Cubero, Mathew Salamonsen, Juan Antonio Botero, Rachid Tazi, Arturo Morales, Enric Boza, Antoni Rosell

O-38 | Central airways obstruction by lung cancer in the intensive care unit: aggressive bronchoscopic intervention facilitates extubation and radical cancer treatment

Johannes M.A. Daniels, Jan Jaap Spijkstra, Max Dahele, Adrianus J. de Langen.

O-39 | Narrow band imaging and auto-fluorescence bronchoscopy: meta-analyses of diagnostic accuracies

Imran Iftikhar, Meredith Donley, Ali Musani.

O-40 | Improvement in endoscopic diagnosis of lung cancer by the use of narrow-band imaging (NBI) patterns

Carles Grimau, Guadalupe Bermudo, Luis Urrelo, Miguel Gallego, Neus Combalia, Rosa Escoda, Cristina Blazquez, Eduard Monso.

18.00-19.00 Room Urano | AEER General Assembly

20.45 Hotel W Barcelona | Congress dinner (Bus departure at 20.15)

Saturday, 25 April 2015

10.00-13.30 19 practical workshops | Hotel venue and Faculty of Medicine

10.00-11.30 Session 13 and 14

Room Jupiter | Session 13
Lung cancer screening

Chairs: Luis Seijo (Spain) and Thomas Sutedja (The Netherlands)

- [NELSON update in the perspective of European LC screening](#), by Christophe Dooms (University Hospitals Leuven, Belgium).
- [The premise and promise of lung cancer screening and mortality reduction](#), by Harry de Koning (Erasmus MC, Rotterdam, Netherlands).
- [Bronchoscopic interventions \(diagnostic, staging and local treatment\) for peripheral early stage lung cancer](#), by Kaid Darwiche (Ruhlandklinik-West German Lung Center, University Duisburg-Essen, Germany).

Room Urano | Session 14
Pleura: Pneumothorax

Chairs: Najib Rahman (UK) and Mark Slade (UK)

[Treatment of recurrent spontaneous primary pneumothorax: surgeon or interventional pulmonologist?](#)

- [Pro surgeon](#), by Paul van Schil (Antwerp Univ. Hospital, Belgium).
- [Pro interventional pulmonologist](#), by Julius Janssen (Canisius Wilhelmina Hospital, Nijmegen, The Netherlands).
- [Persistent air leak](#), by Rosa Cordovilla (Hospital Universitario de Salamanca, Spain).

11.30-12.00 Coffee-break | Exhibition area and Faculty of Medicine

12.00-13.30 **Room Jupiter | Oral session 5**

Chairs: Hervé Dutau (France) and Antoni Rosell (Spain)

Best oral presentations

O-41 | [3D endobronchial ultrasound visualization \(3D-EBUS\) - A novel navigation system for multimodal image-guided intervention](#)

Hanne Sorger, Erlend Fagertun Hofstad, Tore Amundsen, Thomas Lango, Hakon Olav Leira.

O-42 | [Prognosis value of epigenetic alterations of tumor suppressor genes in cytology samples obtained by EBUS-FNA](#)

Virginia Leiro-Fernández, Loretta De-Chiara, Maribel Botana-Rial, Diana Valverde-Pérez, Manuel Núñez-Delgado, Ana González-Piñeiro, Mar Rodríguez-Guirondo, Alberto Fernández-Villar

O-43 | [Effect of low dose propofol and ketamin on emergence in children undergoing flexible bronchoscopy with sevoflurane-remifentanil anaesthesia](#)

Hasan Yuksel, Arzu Keçi, Ozge Yilmaz, Ismet Topcu, E Cevikkalp, Tulin Ozturk.

O-44 | [Prospective randomized trial evaluating ketamine for adult bronchoscopy](#)
Oren Fruchter, Yair Manevich, Uri Carmi, Dror Rozengarten, Mordechai R. Kramer.

O-45 | Effectiveness of simulation with virtual reality in Bronchoscopy training: Preliminary results of the use of BronchMentor(TM) system

E.M. Borriello, F. Allidi, I. Bellesi, S. Orsi, L. Corbetta.

O-46 | Effect of paclitaxel delivered nanoparticles to treat tracheal stenosis

Joan Gilabert, Rosa Lopez-Lisbona, Noelia Cubero, Salvador Borros, Antoni Rosell, Ana Montes.

O-47 | Concordance of histological diagnosis in interstitial lung disease: cryo-biopsy versus open lung biopsy

Rosa Cordovilla, Diana Arcos Cabrera, Dolores Ludeña, Jose María González Ruiz, Gonzalo Varela, Nuria Novoa, Marcelo Jiménez, Jose Luis Aranda.

O-48 | Assessment of radial EBUS-GS for disposition of fiducial gold marker in small peripheral lung nodule before stereotaxic radiation therapy

Samy Lachkar, Berengere Obstoy, Mathieu Salaun, Suzanna Bota, Delphine Lerouge, Luc Thiberville.

13.30-14.00 Room Jupiter | Closing ceremony

Presentation of ECBIP 2017, by Semra Bilaçeroğlu (EABIP President-elect).

Best oral presentations awards.

Conclusions by Herve Dutau (President of EABIP), Javier Flandes (President of AEER) and Antoni Rosell (President of the Organising Committee).



Workshops

The Organising Committee thanks the financial and logistic support of the industry in organising the practical workshops. The list of companies is detailed in page 141.

Simultaneous real hands-on workshops of 3 hours each are programmed during the congress. Each workshop is limited to 5-15 persons depending on the model used (phantom, animal or cadaver). The simultaneous workshops are repeated 5 times during the dates of the congress (Thursday morning and afternoon, Friday morning and afternoon and Saturday morning). Attendance to workshops (2, 1 or any) is according to your registration fee. The ticket(s) corresponding to the workshop(s) you selected when register are included in your congress badge folder.

If you are interested to upgrade your registration by increasing the number of Workshops that you will attend, please contact the Technical Secretariat located at the main hall. Price: 100 € each workshop. Limited seats. Available places will be announced at our twitter profile @ECBIP2015.

Taking pictures and making video recordings in the cours of the Workshops, including breaks, is not be allowed.

Timetable

Group A	Thursday 23 April	09.00-12.30 h.	incl. break of 30 min. at 10.30 h <i>Coordination: Matthew Salamonsen and Meritxell de la Hera</i>
Group B	Thursday 23 April	14.30-18.00 h.	incl. break of 30 min. at 16.00 h <i>Coordination: Marta Díez-Ferrer and Meritxell de la Hera</i>
Group C	Friday 24 April	09.00-12.30 h.	incl. break of 30 min. at 10.30 h <i>Coordination: Arturo Morales and Laia Setó</i>
Group D	Friday 24 April	14.30-18.00 h.	incl. break of 30 min. at 16.00 h <i>Coordination: Marta Díez-Ferrer and Laia Setó</i>
Group E	Saturday 25 April	10.00-13.30 h.	incl. break of 30 min. at 11.30 h <i>Coordination: Arturo Morales and Yasmina Gutiérrez-Rodríguez</i>

Place

Workshop 1	Room Eiffel	Basement floor	Hotel Hesperia Tower
Workshop 2	Room Sears	Basement floor	Hotel Hesperia Tower
Workshop 3	Room Pisa	Basement floor	Hotel Hesperia Tower
Workshop 4	Room Jim Mao	Basement floor	Hotel Hesperia Tower
Workshop 5	Room Petronas	Basement floor	Hotel Hesperia Tower
Workshop 6	Room Liberty	Basement floor	Hotel Hesperia Tower
Workshop 10	Room Altair	First floor	Hotel Hesperia Tower
Workshop 11	Room Antares	First floor	Hotel Hesperia Tower

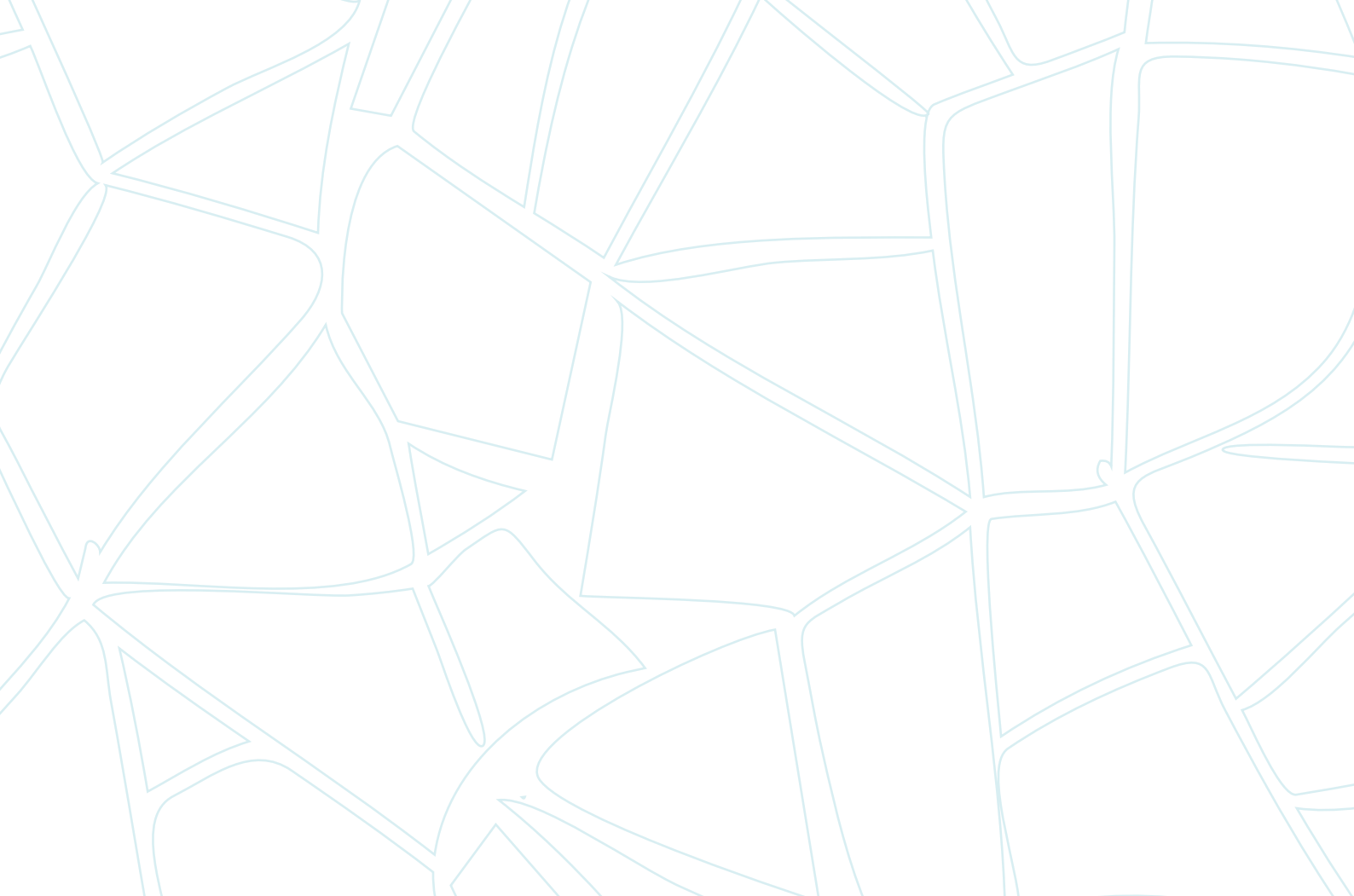
Workshop 7.1	Stretcher 1	Dissection room 1	Faculty of Medicine
Workshop 7.2	Stretcher 2	Dissection room 1	Faculty of Medicine
Workshop 7.3	Stretcher 3	Dissection room 1	Faculty of Medicine
Workshop 7.4	Stretcher 4	Dissection room 1	Faculty of Medicine
Workshop 7.5	Stretcher 5	Dissection room 1	Faculty of Medicine
Workshop 7.6	Stretcher 6	Dissection room 1	Faculty of Medicine
Workshop 8.1	Stretcher 1	Dissection room 2	Faculty of Medicine
Workshop 8.2	Stretcher 2	Dissection room 2	Faculty of Medicine
Workshop 9.1	Stretcher 1	Animal lab.	Faculty of Medicine
Workshop 9.2	Stretcher 2	Animal lab. (a)	Faculty of Medicine
Workshop 9.3	Stretcher 3	Animal lab.	Faculty of Medicine

(a) Introduction in classroom nr. 101 (First floor, Faculty of Medicine)

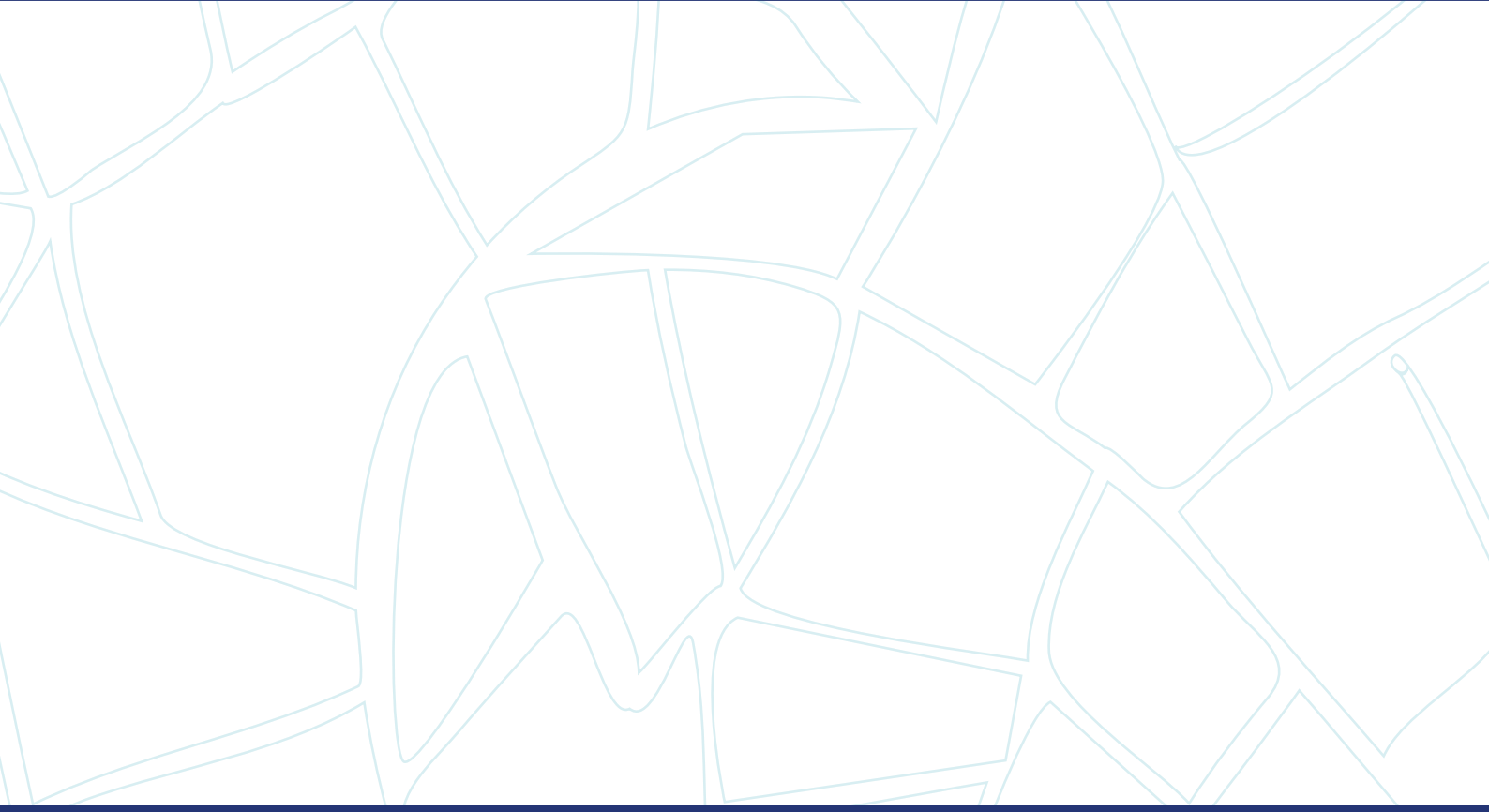
Titles

Workshop 1	Self expandable metal stents
Workshop 2	Treatment with valves: Diseased lung in emphysematous patients and treatment of damaged lung resulting in air leaks
Workshop 3	Bronchial thermoplasty
Workshop 4	Electromagnetic bronchoscopy navigation
Workshop 5	Coils for the treatment of advanced heterogeneous and homogeneous emphysema
Workshop 6	Rigid bronchoscopy and stent placement
Workshop 10	EBUS-TBNA and EBUS GuideSheath procedure - Get the basics right
Workshop 11	Electromagnetic bronchoscopy and percutaneous navigation
Workshop 7.1	Rigid bronchoscopy (basic)
Workshop 7.2	Rigid bronchoscopy (silicone stents)
Workshop 7.3	Introduction to percutaneous tracheostomy
Workshop 7.4	Criobiopsy
Workshop 7.5	Laser
Workshop 7.6	EBUS needles: from cytology to histology
Workshop 8.1	EBUS-TBNA
Workshop 8.2	Conventional TBNA
Workshop 9.1	Indwelling tunneled pleural catheter
Workshop 9.2	EBUS-TBNA and EBUS GuideSheath procedure - Advanced
Workshop 9.3	EBUS-TBNA

Notes



Book of abstracts



Oral presentations

Oral session 1

Thursday 23 April | 16:30-18:00 | Room Jupiter
TBNA conventional and EBUS-TBNA
Miscellanea

O-01 to O-09
O-10 to O-11

Oral session 2

Thursday 23 April | 16:30-18:00 | Room Urano
Interventional bronchoscopy in benign diseases

O-12 to O-20

Oral session 3

Friday 24 April | 16:30-18:00 | Room Jupiter
Endobronchial management of obstructive lung disease (COPD)
Basic research and innovation

O-21 to O-23
O-24 to O-29

Oral session 4

Friday 24 April | 16:30-18:00 | Room Urano
Pleural diseases and thoracoscopy
Interventional bronchoscopy in malignant diseases

O-30 to O-35
O-36 to O-40

Oral session 5

Saturday 25 April | 12:00-13:30 | Room Jupiter
Best oral presentations

O-41 to O-48

O-1

EBUS/TBNA and EUS/FNA using ultrasound bronchoscope in lung cancer staging

Victor Sokolov, Larisa Telegina, Sergey Sokolov, Victor Kazakevitch, Nadezhda Volchenko, Elena Slavnova.

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PA Herzen Moscow Research Oncological Institute, Moscow, Russia.

Purpose: to analyze results of EBUS/TBNA with following EUS/FNA using ultrasound bronchoscope in lung cancer staging. **Materials and methods.** EBUS/TBNA and EUS/FNA using ultrasound bronchoscope in one session was performed from January 2014 till December 2014 in 69 patients with confirmed or highly suspected non-small cell lung cancer. This group included patients with peripheral (42), central (18) lung cancer and suspected metastatic intrathoracic lymph nodes without tumor origin (9). Examination started with EBUS/TBNA of upper paratracheal, lower paratracheal and bifurcation lymph nodes. Following EUS/FNA was used for lymph node groups, unreachable or difficult to access by EBUS-TBNA Results. We have made combined examination of 189 lymph nodes, including EBUS-TBNA - in 105, EUS-FNA - in 84. The mean number of punctured lymph nodes per patient - 2,7. EBUS-TBNA was revealed lung cancer metastases in 69 lymph nodes. Metastatic lung adenocarcinoma confirmed in 36, squamous-cell cancer in 27, small-cell cancer in 6 and hyperplasia - in 30 lymph nodes. EUS-FNA revealed lung cancer metastases in 69 lymph nodes. Metastatic lung adenocarcinoma was confirmed in 39, squamous-cell cancer in 27, small-cell cancer in 3 and hyperplasia in 12 lymph nodes using EUS/FNA. EUS-FNA has identified 42 metastatic lymph nodes additional to EBUS/TBNA results, whereas EBUS-TBNA - only 18. In 12 EUS/FNA results were superior to EBUS-TBNA. In combined EBUS-TBNA and EUS-FNA examination with ultrasound bronchoscope, lymph node metastases were confirmed in 60 patients, lung cancer stage was changed (N1→N2) in 42 of them. Lymph node hyperplasia was detected by EBUS-TBNA and EUS-FNA in 9 patients with previously suspected metastatic intrathoracic lymph nodes. **Conclusions.** Combined EBUS/TBNA and EUS/FNA using ultrasound bronchoscope is a high-precise and safe procedure for preoperative lung cancer staging. Increased accessibility of all major mediastinal lymph node groups is the main advantage of such examination.

O-2

EBUS-TBNA for lung cancer staging in the CT-negative mediastinum

Viviane Figueiredo (1), Paulo Cardoso (2), Marcia Jacomelli (1), Ricardo Terra (2), Pedro Araujo (2), Paulo Pego-Fernandes (2).

Contact email: cardosop@gmail.com

(1) Heart Institute (InCor) HCFMUSP, Respiratory Endoscopy, Sao Paulo, Brazil.

(2) Heart Institute (InCor) HCFMUSP, Division of Thoracic Surgery, Sao Paulo, Brazil.

Purpose: Analyze the preliminary data of EBUS-TBNA for mediastinal staging in lung cancer patients without mediastinal adenopathy based on CT scan assessment. **Materials-Methods-Approach:** Prospective study of patients with a diagnosis of primary lung cancer with mediastinal lymphnodes smaller than 10mm in diameter on CT scan evaluated between October/2013 and October/2014. EBUS-TBNA was performed under sedation using the Olympus BF-UC180F EBUS scope and lymphnodes greater than 5mm in diameter were sampled in hilar and mediastinal stations. **Results:** 40 patients (68% males; average age 69+-12 years) entered the study and the mean interval between CT scan and EBUS procedure was 42 days. The most prevalent histology of the primary tumors was adenocarcinoma (78%) and a prevalence of lung masses (71%) with an average size of 5+-1,8cm and lung nodules (27%) with an average size of 1,9+-0,6cm in diameter. Six hundred and thirty six EBUS-TBNA punctures were carried out in 126 lymphnodes and N2 disease was found in 19,5%, N3 in 2,4% with a sensitivity of 96,3%, specificity of 100% and a negative predictive value of 95%. **Conclusions:** EBUS-TBNA was precise for the detection of mediastinal lymphnode metastases in the absence of mediastinal adenopathy based on CT.

Endobronchial Ultrasound (EBUS)-guided Drainage of a Mediastinal Abscess

Kaid Darwiche (1), Jane Winantea (1), Lutz Freitag (2), Stephan Eisenmann (1), Ruediger Karpf-Wissel (1).

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(1) Dept. of Interventional Pneumology, Ruhrlandklinik, Univ.-Clinic Essen, Essen, Germany.

(2) Dept. of Pulmonology, University Hospital Zurich, Zurich, Switzerland.

Background: A mediastinal abscess is a life-threatening complication of either descending oropharyngeal infection (descending mediastinitis) or oropharyngeal and cardiothoracic interventions. Other less common reasons for its development are traumatic endotracheal intubation, immunodeficiency caused by intravenous drug-abuse, tuberculosis and diabetes. Recently, the development of a mediastinal abscess after EBUS-TBNA and EUS-FNA was reported. The Mortality in this condition is high. Management strategies include computed tomography (CT)-guided drainage, cervicotomy/mediastinoscopy or even thoracotomy. Here we present a successful therapeutic use of EBUS-guided drainage. **Case presentation:** A 37-year-old female patient underwent EBUS-TBNA because of enlarged mediastinal lymph nodes and infiltration of the right lower lobe. Further diagnostic workup revealed pulmonary embolism, pneumonia and reactively enlarged lymph nodes. After antibiotic treatment the patient recovered and anticoagulation therapy was initiated. Six weeks later the patient was referred to our department with fever and mild chest pain. Chest CT-scan revealed a subcarinal mass of 4 cm without any other pulmonary abnormalities. An EBUS was repeated that revealed a large mass highly suspicious of a mediastinal abscedation. Performing EBUS-TBNA and applying suction on the needle, only a small amount of putrid secretion was released. The microbiological culture remained negative. Using a rigid needle and a small biopsy forceps, the hole in the bronchial wall was enlarged. This led to a release of a high quantity (about 40 ml) of pus into the airways, which was immediately aspirated. A small-bore catheter was placed through the fistula into the mediastinal abscess and sterile saline was flushed and aspirated until the recovered liquid became clear. The catheter was removed. Endoscopic and radiologic follow-ups were uneventful. The fistula was closed with fibrin after two days and the subcarinal lesion decreased in size. **Conclusion:** We present a case with successful EBUS-guided drainage of a mediastinal abscess occurring after EBUS-TBNA.

O-4

Linear endosonography for sarcoidosis stage 0 : does it make sense ?

Jonas Yserbyt (1), Kurt Tournoy (2), Ingel Demedts (3), Andre Heremans (4), Philippe Pierard (5), Thierry Pieters (6), Peter Driesen (7), Vincent Ninane (8), Christophe Doods (1).

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- (1) University Hospitals Leuven, Department of Pulmonology, Leuven, Belgium.
- (2) Department of Pulmonology, Onze-Lieve-Vrouw Ziekenhuis, Aalst, Belgium.
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- (4) Department of Pulmonology, Imeldaziekenhuis, Bonheiden, Belgium.
- (5) Department of Pulmonology, Centre Hospitalier Universitaire, Charleroi, Belgium.
- (6) Pneumology Department, Cliniques Universitaires Saint-Luc, Brussels, Belgium.
- (7) Department of Pulmonology, AZ St. Elisabeth en St. Jozef, Turnhout, Belgium.
- (8) Chest Service, Saint-Pierre University Hospital, Brussels, Brussels, Belgium.

Purpose : To assess the prevalence of a specific diagnosis in the non-cancer patient with enlarged lymph nodes invisible on chest X-ray and the sensitivity of linear endosonography to correctly establish the specific diagnosis. **Background :** Linear endosonography with lymph node sampling facilitates the diagnostic work-up of fortuitously discovered and enlarged mediastinal lymph nodes on chest CT in patients with a normal chest X-ray. Its diagnostic value in sarcoidosis stage 0 remains to be evaluated. **Methods :** Between June 2011 and March 2013, this multicenter prospective observational clinical trial recruited 101 patients without clinical suspicion of malignancy but with enlarged intrathoracic lymph nodes on Computed Tomography invisible on chest X-ray. All patients were subjected to linear endosonography. If no specific diagnosis was obtained either an additional invasive biopsy or follow up was recommended. **Results :** A specific diagnosis other than reactive or normal lymph nodes was made in 49% of patients, of whom endosonography correctly diagnosed 86% (95%CI 72%-94%). Sarcoidosis stage 0 was found in 36% of whom endosonography correctly diagnosed 89% (95%CI 73%-96%). Unexpected malignancy was found in 7%. Endosonography resulted in two false positive diagnoses. The negative likelihood ratio of endosonography was 0.10 (95%CI 0.04-0.22). **Conclusion :** Endosonography is a primary test to diagnose sarcoidosis stage 0. It obviates more invasive tests, but clinical follow up is still recommended.

O-5

Initiation of a new endobronchial ultrasound-guided biopsy (EBUS) service at a district general hospital dramatically reduces waiting time between referral to diagnosis in lung cancer patients

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Purpose: To demonstrate the advantage of EBUS in a location other than a tertiary referral centre. We relate our experience with a newly established endobronchial ultrasound-guided biopsy (EBUS) service at a district general hospital, serving a local catchment area. Previously fast-track unexplained lymphadenopathy/ query lung cancer patients were required to travel over 50 miles to the nearest centre for cancer staging and biopsy. The logistics of referral and travel arrangement delayed the eventual commencement of radio-chemotherapeutic treatment and increased the potential of metastatic spread of disease during the time-lag between cyto-histological diagnosis and treatment. **Methods:** Local database of patients was audited for time between referral, procedure and diagnosis. **Results:** The average waiting time between referral for EBUS at a tertiary referral centre and laboratory diagnosis was previously 41 days. On establishment of the new EBUS service at our hospital, this waiting time was significantly reduced to just 12 days. Diagnosis was reported in less than 1 week from referral in 98% of patients (n=89). Following establishment of the service locally, only two patients experienced a waiting time between referral to diagnosis greater than 2 weeks. This was due to the patients' anticoagulation regimens not being suspended prior to EBUS. **Conclusion:** EBUS in a non-tertiary setting can expedite the care pathway for cancer patients, especially those with small-cell lung cancers, where the rate of metastatic spread from primary lesion is much more rapid and follows an aggressive disease pathway. Rapid diagnosis using ROSE (rapid on-site evaluation) by a histopathologist, facilitated by EBUS, has helped us achieve quick diagnostic and therapeutic targets.

O-6

Molecular diagnostic in radial-EndoBronchial UltraSound (EBUS) diagnosed peripheral pulmonary adenocarcinoma

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Purpose : To determine the efficiency of molecular analysis performed on radial-EBUS samples from peripheral lung adenocarcinoma. **Methods :** All patients undergoing bronchoscopy with radial-EBUS for peripheral lung nodules in our institution between January 2010 and July 2014 were enrolled. In case of adenocarcinoma diagnosis, molecular analysis for EGFR, Kras, ALK, Her2, PI3K and Braf were performed by routine procedures in our somatic genetic laboratory. **Results** A total of 516 procedures were performed during the study period, of which 193 (37%) led to a lung adenocarcinoma diagnostic. Among samples of adenocarcinoma nature, 118 (61%) were evaluable for molecular analysis, allowing the identification of 46 abnormalities (Kras mutation 29, EGFR mutation or deletion: 10, Her2 mutation: 1, Braf mutation: 1, ALK rearrangement: 5). The feasibility of molecular analysis on radial-EBUS diagnosed adenocarcinoma rose from 45% in 2010-2011 to 70% in 2012-2013 and 89% since January 2014. **Conclusion:** Molecular analysis of radial-EBUS diagnosed adenocarcinoma is feasible in a large majority of samples. Optimizing the use of samples lead to better efficiency of molecular analysis.

Features and safety of deep sedation in endosonography. Comparative study between the airway and the esophageal route

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Objective: To compare the required doses of sedatives, sedation level achieved and complications in patients who underwent transesophageal ultrasound using a convex probe bronchoscope (EUS-B) or endobronchial ultrasound (EBUS). **Material and Methods:** We included 38 patients sedated with propofol and remifentanil infusion and controlled by anesthesiologist. Two groups were established: group A (EUS-B) of 19 patients and group B (EBUS) with a cohort of 19 patients. Blood pressure (BP), heart and respiratory rate, oxygen saturation and depth of sedation with the visual analogue scale of sedation (VAS) were monitored. Patients received supplemental oxygen (FiO₂ 50%). Complications were registered. Mann Whitney U test was used for quantitative variables and the Chi-square test for qualitative variables. The level of significance was set at ≤ 0.05 . **Results:** When comparing both groups no significant differences between baseline variables were observed. Significant differences were observed in total doses of propofol: 279 mg vs. 401 mg ($p = 0.003$) and remifentanil: 83 mcg vs. 139 mcg ($p = 0.002$), weight and time adjusted doses : Propofol 6.6 vs. 8,2 mg/Kg/h ($p=0,029$) and remifentanil 0.03 vs. 0.04 mcg/Kg/min ($p = 0.009$) and the mean of the VAS EVS: 8.75 vs 9.56 ($p = 0.020$) . Apnea and desaturation were less frequent in the group of EUS-B: 1 vs. 3 ($p = 0.290$) and 0 ($n = 18$) versus 5 ($p = 0.039$). The SBP was reduced more than 25% of baseline in 74% of the patients in group A and 79% in group B. In group A there were 4 complications requiring pharmacologic treatment (hypotension) and in group B 3 (2 hypotension and 1 desaturation that required Boussignac CPAP). **Conclusions:** Patients who underwent EUS-B required fewer doses of sedatives, less sedation depth and had fewer respiratory complications.

O-8

Co-administration of fentanyl with low-dose midazolam has a significant effect on lowering anxiety levels in patients undergoing endobronchial endoscopy

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Purpose: To study the effect of sedation on patient's self-reported anxiety levels and overall satisfaction during endobronchial ultrasound-guided biopsy of mediastinal lymph nodes. **Materials and Methods:** Patients recruited in the study were those referred for diagnostic and staging biopsy in a fast-track lung cancer and unexplained lymphadenopathy pathway. Informed and written consent were obtained from all patients prior to the procedure and the study was conducted according to guidelines of the Helsinki Declaration of the World Medical Organization. All patients were initially administered bolus injections of midazolam via the IV route and clinically observed levels of anxiety were noted. Fentanyl and midazolam were subsequently titrated accordingly in patients whose anxiety remained high while the bronchoscope was advanced into the airway. Anxiety levels were self-reported and scored via a questionnaire survey which was given to patients 2 hours following the recovery period post-procedure. Vital statistics including heart and respiratory rates were monitored throughout the procedure. The collected data was analysed using the student T-test (2-tailed) and p values calculated. **Results:** Co-administration of fentanyl and midazolam had a dramatic effect in reducing anxiety levels of patients undergoing bronchoscopy ($p < 0.001$) Administration of low-dose (< 3.00 mg) midazolam alone did not seem have an anxiety reducing effect on patients ($p = 0.495$). **Conclusion:** Coadministration of fentanyl with low-dose midazolam is an effective and safe method to reduce patient anxiety during bronchoscopy. The potentiating effect of fentanyl on midazolam has been widely reported in the literature and is preferred since high dose midazolam use can precipitate respiratory depression and arrest when used in non-critical care setting

A novel multimodal image guiding system for navigated endobronchial ultrasound (EBUS): human pilot study

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Purpose: To test the clinical usefulness of a new multimodal image guiding system with navigated endobronchial ultrasound (EBUS) for mediastinal lymph node sampling. **Methods:** A patient referred to the Dept of Thoracic Medicine for lung cancer staging by EBUS consented to study participation. Preoperative computer tomography (CT) revealed a lung tumor and enlarged mediastinal lymph nodes in the 4L and 10L position. CT images were imported and processed in our in-house platform for electromagnetic (EM) navigated bronchoscopy and EBUS, including airway centerline extraction, and lymph node and airway segmentation. Automatic, centerline based CT-to-patient registration was performed in the first phase of EBUS. In addition to video-bronchoscopy, the intraoperative position of the distal end of the EBUS-scope was displayed together with corresponding 2D CT slices, 3D segmented airways and lymph nodes from CT, and real-time 2D or reconstructed 3D ultrasound (US) images for localizing, visualizing and sampling the 4L lymph node target. **Results:** The EM navigated EBUS system presented high quality fused CT and US images, facilitated fast, precise and successful target localization and sampling, and provided a comprehensive overview visualization of the current position of the EBUS-scope. There were no complications or operator reported adverse interference of the new equipment during the EBUS procedure. **Conclusions:** The multimodal image guided EBUS system proved feasible for precise mediastinal lymph node visualization, guiding and sampling in the clinic. The system is currently subject to a human pilot study.

O-10

Diagnostic accuracy and safety of a novel frontal core biopsy device in CT-guided percutaneous transthoracic biopsies of pulmonary and pleural lesions

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Purpose. To compare the diagnostic performance and safety of CT-guided percutaneous transthoracic core-needle biopsies (CNBs) of thoracic lesions using a novel core biopsy device (Spirotome) to fine-needle biopsies (FNBs) using a screw needle (Rotex). **Methods.** 102 CNBs were consecutively performed in 99 and 102 FNBs in 92 patients. The needle size was 14-gauge for CNBs and 22-gauge for FNBs. Medical charts were retrospectively reviewed to statistically evaluate results and complications. **Results.** There was a non-significant trend for better overall diagnostic accuracy (94% vs 82%), sensitivity (92% vs 88%), specificity (100% vs 94%), positive predictive value (100% vs 99%), and negative predictive value (81% vs 63%) for the diagnosis of malignancy with CNBs than FNBs. Benign lesions, cancer types and subtypes were more accurately defined by CNBs than FNBs. When indicated in cancer patients, molecular biology analyses were feasible in 80% of CNBs, while never in FNBs. Pneumothorax rate was significantly higher with CNBs (31% vs 19%; $P=0.004$), but chest tube insertion rate was similar with CNBs and FNBs (10% vs 11%). Incidence of pneumothorax and chest tube insertion was also significantly higher in presence of emphysema ($P=0.017$ and 0.001) and deeper lesions ($P=0.010$ and 0.044), independently of the needle. Other complications were less frequent and their incidence was similar in both groups, except one case of severe hemoptysis leading to death after CNB. **Conclusions.** CT-guided percutaneous transthoracic CNBs with Spirotome have a similar overall diagnostic accuracy than FNBs, but provide a better characterization of benign and malignant lesions, and allow molecular biology analyses in the majority of cancer patients. These advantages of CNBs, attributed to the bigger needle size, are obtained without increasing the rate of chest tube insertion for pneumothorax. Spirotome therefore appears as a valuable tool, especially in patients with high probability of lung carcinoma.

O-11

Using customized endotracheal tube to stent airway obstruction in infants with absent pulmonary valve syndrome: Innovative technique

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Introduction: Absent pulmonary valve syndrome (APVS) is a rare cardiac malformation with massive pulmonary insufficiency secondary to severe tracheobronchial compression from enlarged central and hilar pulmonary arteries. Historically, APVS was often described as a rare variant of tetralogy of Fallot (TOF), comprises 3-6% of all infants with TOF, and characterized by absent or underdeveloped pulmonary valve, severe pulmonary regurgitation, and aneurysmal dilatation of the main pulmonary artery and its branches. Beside the right-side cardiac failure, infants with APVS typically present with manifestations of airway obstruction that include: respiratory distress, stridor, and/or wheezing early in neonatal period. Surgical interventions in children with APVS thus address both the cardiovascular abnormalities in conjunction with the resultant airway obstruction. In infants with APVS, the compression of the developing tracheobronchial tree during intrauterine life can lead to tracheobronchomalacia, obstructive emphysema, and even pneumothorax. Almost 15% of newborns with APVS die before any surgical intervention due to acute cardiorespiratory failure. **Purpose:** To describe an innovative technique of using customized endotracheal tube (ETT), introduced endoscopically, to stent the obstructed airway in infants with APVS. **Materials:** Two cases of APVS with severe main bronchus obstruction were successfully managed by airway stenting using customized ETT. **Conclusion:** Customized ETT to stent dynamic airway obstruction represents an innovative therapeutic intervention that can improve the outcome in infants with APVS.

O-12

Transbronchial cryobiopsies in rigid bronchoscopy - A review of diagnostic yield, times and complications

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Purpose In most centres interstitial lung diseases are diagnosed via video-assisted thoracotomy if histological confirmation is necessary. However, in the last five years transbronchial cryobiopsy has become an important diagnostic tool. Our purpose was to analyze diagnostic yield, safety, time-efficiency and complications of transbronchial cryobiopsies performed in our centre in the last six months. **Materials and Methods** Data of 17 patients (9 male, 8 female), who received transbronchial fluoroscopy-guided cryobiopsies in rigid bronchoscopy was reviewed retrospectively. Age, Gender, bronchoscopy times, intra-procedural and post-procedural complications and histological results were recorded. **Results** Transbronchial cryobiopsies were diagnostic in 15 (four non-specific interstitial pneumonia, three cryptogenic organizing pneumonia, three desquamative interstitial pneumonia, one extrinsic allergic alveolitis, one idiopathic pulmonary fibrosis, one lymphocytic alveolitis, one metastasis of corpus cancer, one coccidiomycosis) out of 17 patients (88.2%). Intrabronchial bleeding occurred in 11 cases (8 minimal, 3 moderate), none required interventional procedures. Pneumothorax occurred twice (11.7%), one required a chest tube for three days. Total rigid bronchoscopy time was 27 min (range 15-40 min). **Conclusions** Transbronchial cryobiopsies are a safe, time-efficient alternative to surgical lung biopsies and provide a high diagnostic yield.

Endoscopic management of tracheomalacia using electrocautery-laser

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Background: Tracheobronchomalacia is a central airway disease characterized by narrowing of airway lumen secondary to weakness of the tracheal and bronchial walls, which collapse during the different respiratory phases, producing varying degrees of obstruction. A high level of suspicion is required for diagnosis, which is performed directly through fiberbronchoscopy or dynamic computed tomography. Standard treatment includes pharmacological management for associated diseases; nevertheless, surgery such as the tracheobronchoplasty for posterior wall strengthening is often required for severe cases. Silicone 'Y' stents can also be used in high surgical risk patients. Methods: between 2009-2014, we performed electrofulguration (using electrocautery-laser) of the posterior membranous wall in 38 adult patients with tracheomalacia at two institutions of Pereira, Colombia. The aim of electrofulguration-laser is to produce fibrosis of the wall in order to strengthen it. This was performed through endoscopy under general anesthesia, initiating electrofulguration-laser (15 watts) through a rigid bronchoscope at the most compromised bronchus using a monopolar electrode in continuous mode, producing a burn of posterior walls. During the procedure, visual control was kept and supplementary oxygen was administered with a FiO₂ <40%, as a precaution to avoid fire at surgery room. Results: in all patients disease improvement was observed immediately during procedure, with a decrease of the transverse diameter and an increase of the anterior-posterior diameter. Additionally, a significant decrease of the posterior wall movement was achieved. Patients left the procedure without mechanical ventilation. No complications occurred. Conclusions: with this technique a clinical, tomographical, endoscopic, functional and spirometric improvement was achieved in all the treated patients. Additionally this was performed in one surgical time, decreasing surgical and anesthetic risk, with a safer performance compared to open surgery, which is associated with high mortality in these cases. Follow-up of these patients also shows an improvement of quality of life and their respiratory function.

O-14

The Value of High-frequency Oscillation during Fiberoptic Bronchoscopy in the Diagnosis of Smear-negative Pulmonary Tuberculosis, Randomized Controlled Trial

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Background and Rationale: The diagnostic yield of bronchoalveolar lavage(BAL) for diagnosis of pulmonary tuberculosis(PTB) is low. The vibrator device was useful for sputum induction. This was a preliminary trial to evaluate the usefulness of the high-frequency oscillation(HFO) for BAL sampling in patients suspected PTB. We aim to assess the value of high-frequency oscillation during fiberoptic bronchoscopy(FOB) for diagnosis of patients with suspected PTB. **Materials and Methods:** The suspected PTB patients (diagnosed clinically or radiologically) with 2 negative consecutive sputum AFB smears were recruited. Patients were chosen to use the HFO device by randomization (Using block of four stratified by radiologic pattern) while the other group underwent standard BAL. The BAL fluid and post-bronchoscopic sputum were processed for AFB stains, culture and PCR-TB. Final diagnosis of PTB was defined as a recovery of positive culture at any step of the diagnostic procedures. In cases with negative AFB or culture recovery, active PTB was diagnosed only if definite clinical or radiologic improvement after chemotherapy was evidenced. **Results:** Of the eighty patients participated in this study, PTB was definite diagnosed in 32 patients. Culture for TB were found in nine patients (HFO were five and non-HFO were four patients). The diagnostic yield of HFO with BAL culture was 27.8% and non-HFO was 21.1%. ($p=0.714$). The diagnostic yield of HFO with post-bronchoscopic sputum culture was 22.2% and non-HFO was 21.1%($p=1.0000$). The diagnostic yield of PCR-TB with HFO was 33.3% and non-HFO was 21.1%($p=0.476$). **Conclusions:** The addition of HFO during FOB did not result in significant differences in the diagnostic yield of PTB detection in smear-negative PTB patients. However, there was a trend of increasing sensitivity of BAL PCR for TB in the patients receiving HFO. Further study with larger size of study population may be needed.

O-15

Endoscopic management of benign tracheal stenoses-single center experience

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Purpose: In symptomatic benign tracheal stenosis the gold standard is surgical resection, often after interventional bronchoscopy and mechanical dilatation. **Methods:** In Clinic for Lung Diseases, University Clinical Center of Serbia we inserted mainly tracheal silicone stents (Dumon) under general anaesthesia in 18 patients with tracheal stenosis with long or complicated strictures, poor respiratory, cardiac, neurological status or postoperative restenosis. In all patients mechanical dilatation was performed before stent insertion. **Results:** In 14 patients stent was later extracted and replaced in 10 patients, while in 4 patients we achieved satisfactory airway diameter and we decided to follow them periodically. In 3 patients stent was not extracted (lost to follow-up or died) and in one patient we placed a stent because of long subglottic tracheal stenosis and due to extensive granulation and ingrowth removal was impossible. He is currently awaiting surgery. **Conclusion:** Stenting is one of the options reserved for inoperable symptomatic tracheal stenoses, whether due to endoscopic finding or general contraindications/risks for surgery.

O-16

Bronchoscopic evaluation of the lower airways in patients with persistent severe asthma

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Introduction: Bronchoscopy is useful in patients with difficult-to-control asthma to rule out other related conditions. There are few studies that refer to lesions or findings in these patients. The aim of the study was to describe bronchoscopic findings. **Material and Methods:** A retrospective study was performed from January 2011 to November 2014. 39 patients with persistent severe asthma according to the Spanish Guidelines on the Management of Asthma (2009) were included. In 15 patients (38.5%) sedation with propofol and remifentanyl was used. In the rest midazolam and/or propofol was administered in different combinations. Lidocaine was used in all cases. We excluded patients with COPD, other respiratory disease and current smokers. Protected catheter brush, bronchial biopsies, bronchoalveolar lavage and bronchial aspirate were performed in all cases. Dynamic airway collapse was defined as the reduction of lumen greater than 50% during exhalation, due to laxity of the posterior membranous wall, in contrast to tracheomalacia, where cartilaginous portion is affected. The inflammatory mucosa was assessed in all aspects: e.g. with regard to thickening, edema or erythema. **Results:** 29 patients (77%) were women, with a mean age of 57(+/-11). At the time of the study 72% of patients had an obstructive pattern (mean FEV1 of 62% ±17 predicted). In 5 cases (13%) the bronchoscopy was normal. The most frequent pathological findings were: diffuse inflammatory mucosa (49%), bronchial collapse (41%), bronchial stenosis (41%), diffuse mucous secretions (38%), friable mucosa (31%) and tracheal collapse (15%). Less frequent were anatomical abnormalities (13%), diffuse mucopurulent secretions and local mucosal thickening. In only one patient (2.6%) was tracheomalacia observed. Instances of saber-sheath trachea, bronchial or tracheal protrusion were sporadic. **Conclusions:** Most patients with severe asthma presented abnormalities in bronchoscopy. The most frequent findings were diffuse inflammatory mucosa, secretions and dynamic airway collapse. One patient had tracheomalacia.

Central airway stenosis misdiagnosed as asthma/COPD

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Purpose: Other intraluminal obstructions can mimick asthma. Methods: In 2013-2014. period in our clinic 7120 bronchoscopies were done. Under the diagnosis of bronchial asthma/COPD refractory to bronchodilators, we examined 458 patients (6.43%). 6 patients due to worsening of obstruction were examined in Urgent pulmology department and reffered to bronchoscopy, while 14 patients demanded change of attending physician due to worsening of symptoms despite the therapy, and suspicion of something other then obstructive disease was raised. In other patients bronchoscopy was performed due to stridor, haemoptisis and reccurent lower respiratory tract infections. Results: Endoscopic finding was positive in 8.55% (39 patients). Osteoplastic tracheopathy was found in 1 patient, EDAC in 1 patient, amyloidosis in 1 patient, tracheomalatia in 2 patients, foreign bodies in 6 patients. In 4 patients endobronchial tuberculosis was diagnosed by biopsy, while in 13 patients obstruction was due to malignancy. Only in 4 patients benign airway (mainly postintubation) stenoses were found. In conclusion, bronchoscopy has to be taken into consideration in patients with unusual presentation of asthma/COPD.

The place of airway stenting in the medico-surgical management of iatrogenic tracheal injuries: a 10 years retrospective analysis

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Background: iatrogenic tracheal injuries (ITI) are rare but serious complications of endotracheal tube (ETT) placement and of tracheostomy. ITI is suspected in front of clinical and/or radiological signs of sub-cutaneous emphysema, pneumothorax, respiratory failure or inefficient mechanical ventilation. Bronchoscopy confirms the diagnosis. Treatment can be surgical or conservative. We conducted a 10 years retrospective chart analysis of patients who suffered from tracheal injuries following intubation or tracheostomy using bronchoscopic management with airway stents. Material and methods: we analyzed 35 charts of patients recorded between 2004 and 2014. Location of the injury, mechanism of the injury and patients' clinical status were registered. Patients presenting tracheoesophageal fistula (TEF) underwent surgical repair. Patients who did not require mechanical ventilation (MV) were treated conservatively with endoscopic surveillance. Mechanically ventilated patients were managed by placing ETT or tracheostomy cuffs distally to tracheal wound when ITI was located in the upper trachea, or by Y-stent placement when the ITI was located in the lower trachea and ETT or tracheostomy cannula were subsequently inserted inside of the Y-stent. Results: four patients presented TEF, 3 underwent surgical repair and one patient was treated with an esophageal stent because of surgical contra-indication. Seven patients did not require MV were managed conservatively. Of the 24 remaining ventilated patients, 7 patients were treated with Y-stent placement and 18 by placing the ETT or tracheostomy cuff distal to ITI. Ultimately, 24 patients were treated conservatively (68.57%), 7 with airway Y-stents (20%), 1 with esophageal stent (2.86%) and 3 surgically (8.57%). Overall management success rate was 88.57%, 4 patients (11.43%) deceased secondary to co-morbidities. Conclusions: conservative management should be considered in non-ventilated patients and in ventilated-patients presenting ITI located in the upper trachea. Airway stenting should be considered as a valid option in ventilated-patients when ITI are located in the lower trachea. Surgery should be reserved in case of TEF or conservative management failure. We propose a decisional algorithm that could be helpful in daily practice.

Endoscopic treatment of acquired complete tracheal stenosis and total aphonia

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Background: Tracheal stenosis an complication after prolonged mechanical ventilation and tracheostomy. This is consequence of tissue repair and scar formation after those injuries, leading to progressive airway narrowing and related clinical symptoms. In cases of complete stenosis, total aphonia can also result. Open surgery is the standard procedure, may be contraindicated in some patients (location, magnitude and comorbidities). Thus, endoscopic techniques are useful treatment options. **Methods:** In this study we report a series of 35 adult cases of complete subglottic stenosis with total aphonia treated and followed-up between 2009 and 2014 in two institutions of Pereira, Colombia. All subjects had previous tracheostomy and were successfully treated with endoscopy and stent placement. Under general anesthesia, rigid bronchoscope was placed under vocal cords. Tracheal tube was removed and Schieppati needle was used to pass through the center of the stenosis. After dilation of stenosis was performed. Dumon subglottic tracheal stent was placed immediately below the vocal cords, closing the tracheostomy. **Results:** All patients were successfully treated and all recovered speech, with 100% of recovery of the airway and normal spirometry. No significant complications were observed. Follow up has been conducted during a range of four years (first patient) to one months (last patient); it included clinical evaluation, CT-scan, bronchoscopy and pulmonary function tests, which were normal in all patients. **Conclusion:** This highly efficient and less invasive procedure (with no contraindications and one surgical time) implies a low surgical risk, compared to open tracheal resection surgery. Leads to a minimum level of surgical complications, allowing for complete recovery of the normal airway, speech and esthetical neck appearance. Improving the quality of life of these patients and even a lower cost are also benefits of these procedures. After an extensive review of literature we did not find any series reported using a method similar.

O-20

Tracheal and bronchial granular cell tumours : a French retrospective study on 30 patients

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Introduction : Granular cell tumours (GCT, Abrikossoff tumours) are rare, benign tumours, arising from Schwann cells. Tracheal and/or bronchial involvement has been rarely described. The objective of this study is to describe population characteristics, clinical and bronchoscopic data, as well as therapeutic options for bronchial or tracheal GCTs. Methods : All cases of tracheal or bronchial GCT observed from 1994 to 2013 in the Groupe d' Endoscopie de Langue Française centers were retrospectively analyzed. Results : Thirty-five cases, including 10 tracheal and 25 bronchial lesions, in 30 patients were reported. GCTs were more frequent in males (sex ratio = 1,5), the mean age at diagnosis was 48 y. (13 - 76 y.). 82,6% of patients were smokers. Diagnosis was suspected on haemoptysis (13,6%), pneumonia (22,7%), or the tumour was asymptomatic (27,3%). Synchronous lung carcinoma was found in 3 patients (10%). Tumour diameter was higher in tracheal (23,8 mm) vs. bronchial (9,8 mm) GCTs. The macroscopic aspect during bronchoscopy was usually a white, well-limited lesion without hypervascularization. All of the GCTs were confirmed benign on histological assessment. Treatment information was not available for 7 patients. Seven patients did not receive any treatment. Endoscopic mechanic resection combined with electrocautery was performed in 12 patients from which complete resection was obtained in 9/12 patients (75%). No adverse event has been reported. Surgical resection was performed in 4 patients with complete resection in all case There was no recurrence of GCT during a median follow-up of 19 months Conclusion : This is the largest series on proximal GCTs, which suggests that endoscopic resection could be performed in most of the cases as a first line treatment

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Bronchoscopic lung volume reduction with coils (BLVR-Coils) for treatment of patients with emphysema

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Objectives: The bronchoscopic lung volume reduction (BLVR) is a minimally invasive method to reduce hyperinflation in severe emphysema. BLVR coil is a bronchoscopic nitinol device designed to reduce hyperinflation and improve elastic recoil in severe emphysema. Retrospective analysis to establish whether unilateral BLVR using Coils is effective and safe in severe heterogeneous emphysema patients. **Methods:** Coils have been implanted unilaterally, either in the upper or in the lower lobe. Patients were analyzed at 30 days and 180 days after treatment. Endpoints are the changes in pulmonary function tests, exercise capacity and quality of life. **Results:** Twelve patients; FEV1 < 45 %, DLCO > 20 %, RV > 175 %, PaCO2 < 60 % were treated with BLVR-Coils. Clinically important improvement were seen in pulmonary function tests, exercise capacity and quality of life. **Conclusion:** BLVR-Coils is effective for treatment of patients with heterogeneous emphysema.

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Safety of bronchial thermoplasty procedure with a modified protocol. Experience in a single centre

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Introduction: Bronchial thermoplasty (BT) is a new treatment using flexible bronchoscopy for severe and uncontrolled asthma despite an adequate medical management. The Alair« catheter (Boston Scientific) has in its distal extreme electrodes to apply radiofrequency. Standard protocol indicates application from distal to proximal visual bronchi, guided by 5 mm marks, and without losing visual contact of the catheter tip. We evaluate the safety of a new protocol of BT, which consists in introducing the catheter up to the last mark, 2 cm above the electrode, losing visual control of its distal extreme. It would increase the treated bronchial area and may improve the efficacy of BT. **Methods:** Patients treated with BT in our centre were included. Procedure length, number of activations and adverse events (AE) intra and 24h post-procedure were collected. AE were classified into: -Mild: bleeding not requiring endoscopic techniques, mild bronchoespasm, cough, odinofagy, chest discomfort. -Moderate: bleeding requiring aspiration during >3 minutes, moderate bronchoespasm, atelectasis, pneumonia without criteria for severity. -Severe: bleeding that lead to stop procedure, severe bronchoespasm, respiratory insufficiency, hospitalization in critics unit. **Results:** 9 patients were included (88,9% women; 50 ± 17.11 years). Mean FEV₁ post-bronchodilator 82 ± 15 %. 27 procedures were performed (RLL, LLL and UL): mean activations $71,66 \pm 19,79$, $64,55 \pm 14,99$ and $93,37 \pm 47,45$, respectively; and mean time $64,3 \pm 18,58$, $59,2 \pm 14,14$ and $73,88 \pm 23,28$, respectively. During the procedure, 7/9 (77,8%) patients had mild AE. 92,6% suffered AE in the post-procedure, being the 92% (23/25) mild to moderate and 8% (2/25) severe (one severe bronchoespasm and respiratory insufficiency, and one case of collapse of the treated lobe and intense hypoxemia). **Conclusions:** The application of the modified protocol did not increase the number of adverse events, compared with previously described in clinical trials.

Low cost biological lung volume reduction therapy for advanced emphysema

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Background: Bronchoscopic lung volume reduction (BLVR) using biological agents, is one of the new alternatives to lung volume reduction surgery. **Objectives:** To evaluate efficacy and safety of biological BLVR using low cost agents including autologous blood and fibrin glue. **Methods:** 8 male patients were enrolled and divided into two groups: group A in which autologous blood was used and group B fibrin glue was used. The agents were injected through a triple lumen balloon catheter via fiberoptic bronchoscope. Changes in high resolution CT (HRCT) volumetry, pulmonary function tests, symptoms, and exercise capacity were evaluated at 12-week post procedure as well as for complications. **Results:** In group A at 12-week post procedure there was significant improvement in the mean value of modified medical research council (mMRC) score, 6-min walk distance (6MWD), residual volume / total lung capacity (RV/TLC) ratio, forced expiratory volume in one second /forced vital capacity (FEV1/FVC) ratio, HRCT volumetry (p-value: 0.014, 0.014, 0.008, 0.008, 0.003 respectively). In group B at 12-week post procedure there was significant improvement in the mean value of FEV1/FVC ratio (p-value: 0.012), however, the improvement in the mean value of mMRC score, 6MWD, RV/TLC ratio, HRCT volumetry was not significant (p-value: 0.058, 0.075, 0.164, 0.402 respectively). All patients tolerated the procedure and were discharged 1 day later, except one in group B who developed exacerbation that was controlled by medical therapy. **Conclusion:** These Preliminary results indicate that BLVR using low cost biological agents was safe, less invasive, less costly and effective in treating advanced emphysema.

Development and first clinical application of a novel nasogastric feeding tube for prevention of ventilator associated pneumonia (VAP)

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Purpose: First in human study to assess the efficacy, safety, tolerance and functionality of a new nasogastric feeding tube for prevention of VAP in the clinical setting in the intense care unit (ICU). **Material and Methods:** Aspiration of gastric contents (GER) occurs in 50% to 75% of ventilated patients and is a main cause of VAP with high morbidity and mortality. As prevention of aspiration by application of balloon probes proved unsuccessful, we developed a dedicated nasogastric feeding and aspiration tube (NGAT/Nutriseal) for sealing of the esophagus. By application of a vacuum to 6 channels within the external wall of the tube that open at two sites in the esophagus, the wall collapses snugly around the tube and potentially accumulated fluid is aspirated via the suction ports. After approval by the FDA , based on long term animal feasibility and safety studies we performed a study on 8 ventilated patients with silent aspiration detected by positive pepsin test in tracheal/pharyngeal aspirates. Pepsin test (PepTest/United Kingdom) was performed 2-3 times per day. Tolerance, function and complications were documented. **Results:** In 5/8 patients after exchange of the conventional feeding tube by the NGAT pepsin dropped from elevated levels to 0. In the remaining 3 patients it was significantly reduced. Introduction of the NGAT was easy, a stylet was never required. Tolerance by patients was satisfactory and no complications were observed. **Conclusions:** The new NGAT is safe, well tolerated and may reduce the risk of VAP by preventing GER in ICU patients on mechanical ventilation. Further prospective clinical studies will be conducted in near future.

Correlation between transbronchial and suction catheter biopsy in the diagnosis of peripheral pulmonary lesions

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Background: A universal method of bronchoscopic tissue sampling in endobronchial invisible peripheral pulmonary lesions (PPL) is transbronchial biopsy (TBB) with forceps. Suction catheter biopsy (SCB) is another technique, not widely known, for obtaining a tissue sample from peripheral lung parenchyma. **Objectives:** Aim of this study was to evaluate the specificity and sensitivity of transbronchial biopsy and fluoroscopically guided suction catheter biopsy in the diagnosis of peripheral lung lesions, as well as to determine the correlation between these two methods as sampling techniques for peripheral lung lesions **Methods:** All the procedures were performed by bronchoscopists in a bronchoscopy unit at the Institute for Pulmonary Diseases of Vojvodina in Serbia equipped with rotating C-arm fluoroscope. Procedures were performed with local anesthesia and sedation. Flexible bronchoscope (BF-1T180 and BF-1TQ180 Olympus Corporation, Tokyo, Japan) was used for all diagnostic procedures. C-arm fluoroscope was used to navigate suction catheter and TBB forceps to the PPL. **Results:** In 809 patients between January 2009 and December 2013 TBB and SCB were performed for evaluation of peripheral lung lesions. 530 (65.5%) were male and 279 (34.5%) were women, mean age 60 years. Most of the lesions had the appearance of nodules/ masses or infiltrates and the mean diameter of lesion was 4.1 cm. The definitive diagnosis was made in a total of 525 (64.9%) patients, of which 364 patients with proven lung cancer as a definitive diagnosis. 523 (64.6%) patients had a confirmed same diagnosis on samples from the two techniques. In 55 patients complications have developed: 7 (0.9%) pneumothorax and 48 (5.9%) bleeding. **Conclusions:** suction catheter biopsy is effective, useful and safe technique for bronchoscopic sampling of peripheral lung lesions. The combination of aspiration catheter biopsy and TBB results in higher diagnostic yield.

Centrelines and airways extraction from lung CT for navigated bronchoscopy: a comparison of three methods

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Abstract Purpose: Our motivation is reduced preparation time for planning and navigation in bronchoscopy diagnostics, decreased procedure time, and an increased diagnostic yield in navigated bronchoscopy. **Method:** Visualization during navigated bronchoscopy, the segmentation time and methods differs. We compared three different approaches to obtain airway centerlines and surface from state-of-the-art software systems with an in-house automatic open access method (Tube Segmentation Filter, TSF). CT lung images of 17 patients were processed in MIMICS (Materialize, Leuven, Belgium), which provides a basic module and a pulmonology module (beta version), OsiriX (Pixmeo, Geneva, Switzerland), and in the TSF method. We evaluated the efficiency of the procedures by counting the number of clicks needed to process the data and number of branches achieved. **Results:** The TSF method was the most automatic, while the pulmonology module of Mimics resulted in the highest number of branches. TSF method is the method which demands the least number of clicks to process the data compared to the other methods **Conclusion:** The TSF method is able to segment the airways and extract the centerline in one step. The number of branches is lower for the TSF method than for Mimics. OsiriX demands the highest number of clicks to process the data, the segmentation is often sparse and extracting the centerline requires the use of another software system. Two of the software systems performed satisfactory with respect to be used in preprocessing CT images for navigated bronchoscopy, i.e. the TSF method and the Pulmonology module of Mimics. The level of automaticity and the resulting high number of branches plus the fact that both centerline and the surface of the airways were extracted, are requirements we considered particularly important.

New Visualization Technique for Navigational Bronchoscopy: Technical Development on Anchored to Centerline Curved Surface and Implementation on Lung Patient

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Abstract Purpose: To make a novel visualization technique for improved accuracy and overview in planning and guidance in bronchoscopy diagnostics, decreased procedure time, and an increased diagnostic yield in navigated bronchoscopy. **Method:** We introduce Anchored to Centerline Curved Surface (ACCuSurf) an Anchored Anyplane Surface (AAS), a 3D structure that differs from the traditional 2D orthogonal slices and virtual bronchoscopy used in navigated bronchoscopy. The AAS surface is a 3D CT-based curved surface map showing the route from the trachea to the target(s) within the airways along the centerlines of the airways (anchored to the centerlines and target lesion). The surface is created from the airways centerline by taking perpendicular strips from each centerline point to the lung data ends on right and left. The surface follows the topology along the airways curvature centerline to the target point(s) such as lesions or tumors. The surface is splined and smoothed with fourth degree Bezier spline curve. **Results:** We demonstrate on patient CT data how to create the AAS surface with fourth Bezier equation using MATLAB and visualize the results in a navigation platform for image-guided interventions. **Conclusion:** Compared to 3D reconstruction and virtual bronchoscopy, the AAS retains the anatomic details from the original CT by implementing 3D topographical information. We believe that the AAS display can improve navigation during bronchoscopy because the physician should be able to sense directions and overview quicker and better, making it more user friendly for the pulmonologist to steer through the airways, in particular with multiple targets in a patient. Finally we also believe that the technique may possibly ease steering in navigational bronchoscopy with tracked biopsy instruments outside the airway lumen.

Automatic registration of CT images to patient during bronchoscopy. A clinical pilot study

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Purpose: To optimize the intra-operative automatic registration procedure for \hat{o} CT to patient anatomy alignment during navigated bronchoscopy. **Methods:** Our intraoperative registration method, an automatic CT to patient based registration during the initial phase of navigated bronchoscopy, was performed in six bronchoscopy patients. An electromagnetic tracking sensor was mounted to the tip of a conventional bronchoscope, and position data was acquired during the procedure of topical anesthetic in the airways. An iterative closest point (ICP) registration algorithm was then run matching tracking data with the airway centerline, extracted from the CT images preoperatively. In an ICP algorithm the distance between two clouds of points, in this case the tracking data and the CT centerline, is minimized by transforming (translation and rotation) one of the clouds of points to the other. In this registration algorithm we have, in addition to the distances, utilized the orientations of the bronchoscope by matching it to the running direction of the CT centerline. A good correspondence between the orientation of the bronchoscope and the running direction of the centerline is an indication that the correct set of branches is matched. **Results:** The registration method was successfully applied to the data from all six patients. The positions of the bronchoscope tip aligned to the CT centerline with a mean distance range 4.7 - 6.5 mm. **Conclusions:** We have developed and evaluated an automatic registration algorithm for electromagnetic navigated bronchoscopy in patients. It functioned to its purpose and did not affect the bronchoscopy workflow.

Quasi-real time digital assessment of Central Airway Obstruction

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Introduction. Documenting severity of static or dynamic Central Airway Obstruction (CAO) is relevant to establish a diagnosis, decide to treat, measure the effect of treatments and perform the follow-up of patients. Visual estimation is the common method to calculate airway narrowing but it is prone to a large inter and intravariability. A standardized and real time of measurement of CAO is desirable. **Objective.** To test the reliability of a new method to extract anatomical information on-line from videobronchoscopy images based on computation of objective measures. **Method.** Airway narrowing is computed as the ratio (stenosis index, SI) between the areas delimited by a healthy reference ring and the obstructed lumen, which are extracted from images as follows. To account for their circular geometry, images are transformed to polar coordinates centred at the lumen. In such domain, two radial curves (one for each structure) are iteratively deformed to optimize a parametric energy based on a physical model of the way bronchoscopy images are obtained. Energy parameters are learned using statistical tools that ensure results comparable to manual annotations. 20 videos from patients presenting a tracheal stenosis were recorded and the degree of the stenotic area was calculated off-line by two independent experts using ImageJ. The average expert was compared to our automatic SI using a t-test for paired data. Clinically relevant area discrepancy was considered 15%, which is the minimum difference representing a change of 1 mm in the diameter. **Results.** Our method presents a non clinically relevant 9% of discrepancy in the calculated stenotic area. It can be done in the same bronchoscopy suit in less than 10 seconds of on-line processing. **Conclusions.** Our methodology allows reliable measurements of airway narrowing in the operating room for CAO standardization. To fully assess its clinical impact, a prospective clinical trial should be done.

Analysis of the clinical activity of a Pleural Disease Unit

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PURPOSE: Describe the clinical activity of a Pleural Disease Unit in our hospital since it was created. **MATERIALS-METHODS** approach: Descriptive, retrospective study from 11/5/2011 to 12/17/2014 of the entire healthcare activity of our Pleural Unit since it was created. All patients were evaluated in the unit, the field of study and the procedures performed were documented. **RESULTS:** During this time period 2036 pleural acts were performed, all guided by ultrasound chest. In 18.9% of cases there wasn't objective pleural effusion on ultrasound. The 63.53% were men and the rest women. The average age was 64.99 ± 17.65 years. In 445 patients (21.92%) the evaluation was performed as the outpatients. Patients were referred from services Pulmonology (63.16%), Internal Medicine (13.8%) and Oncology (12.03%) followed Digestive lesser extent (1.96%) and Hematology (1.62%). 711 diagnostic thoracentesis were made and 585 therapeutic, 1028 thoracentesis overall. 60 PAAFs, 34 CNBs and 185 pleural biopsies were performed, all made with Tru-cut needle. 177 chest drains, 70 spills of infectious nature, 38 of which they stated fibrinolysis, 68 massive malignant pleural effusions (4 of them required fibrinolysis) and 13 pneumothorax, among other etiologies were placed. Finally in this period of time 57 Pleurx were placed. Less than 1% of patients had complications. **CONCLUSIONS:** The creation of specific pleural units is a benefit in the study and management of patients with pleural pathology. The systematic use of thoracic ultrasound let reduce the number of complications in pleural procedures. The use of thoracic ultrasound allows the realization in our unit of techniques such as pleural needle biopsies Tru-cut, BAGs PAAFS and shortening waiting times for these diagnostic techniques

Fibulin-3 as a blood marker for therapy response in pleural mesothelioma

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PURPOSE Fibulin-3 was evaluated as a diagnostic and prognostic marker for pleural mesothelioma (PM) in two studies with opposing results. Our study evaluated fibulin-3 as marker for therapy response in patients with PM. **MATERIALS AND METHODS** We measured levels of fibulin-3 in plasma from 19 patients with histologically (thoracoscopy) confirmed PM at the time of diagnosis and after the first line of treatment. All patients had chest CT scan before and after the treatment and therapy response was evaluated according to RECIST criteria and the tumor size. Levels of fibulin-3 in plasma were measured with an enzyme-linked immunosorbent assay **RESULTS** All 5 patients with complete or partial response (RECIST criteria) showed a significant decrease in plasma fibulin-3 concentration (median 16 to 8 ng/ml, $P=0.03$) and all 7 patients with progressive disease showed a significant increase in fibulin-3 concentration (median 9 to 14 ng/ml, $P=0.01$). There was no difference in 7 patients with stable disease (median 10 to 10 ng/ml). Similarly we also found a significant decrease in all 7 patients with evident shrinking of tumor size on chest CT scan (median 12 to 8 ng/ml, $P=0.01$) and a significant increase in all 8 patients with evident increase of tumor size (median 9 to 13 ng/ml, $P=0.008$). No difference was evident in 4 patients where tumor size did not change (median 12 to 13 ng/ml). **CONCLUSIONS** Fibulin-3 appears to be a highly valuable blood marker for monitoring the therapy response in patients with pleural mesothelioma.

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Prognostic factors in patients with malignant pleural effusion secondary to lung cancer: preliminary results

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INTRODUCTION: Early identification of long-term survivors among patients with malignant pleural effusion (MPE) due to lung cancer is an important issue when choosing between different treatment options. The aim of this study was to identify the clinical, functional and biological factors associated with survival of patients with MPE. **METHODS:** All patients diagnosed with MPE of pulmonary origin between january/12 and november/14 were registered. Survival curves were derived by the Kaplan-Meier method and prognostic factors were analyzed using Cox regression analysis. **RESULTS:** There were 53 patients with MPE, 88.7% with a 2 performance status, being lung adenocarcinoma the most frequent malignancy (73.6%); 58,5% patients underwent oncological treatment (37.7% only first-line therapy), 11 (20.7%) patients underwent pleuroscopic poudrage and indwelling pleural catheters were inserted in 8 (15%) patients. The median survival was 75 (39.5-294.5) days. In univariate analysis, the factors associated with a significantly reduced survival were: metastasis in lymph nodes or distant, risen LDH, fibrinogen, CYFRA and NSE, decreased proteins and albumine low, glucose and low ph in pleural fluid and not receiving oncological treatment or interventional procedures for MPE. In multivariate analysis, low protein levels (HR=15.6;p=0.007) and albumine (HR=10.1;p=0.01), distant metastasis (OR=106;p=0.001) and not receiving oncological treatment (OR 9.91;p=0.003) were factors related to worse prognosis. **CONCLUSIONS:** Assessment of these factors, may identify a population with short-term survival. These factors may help physicians select suitable patients for treatment and/or interventional procedures. Grant SOGAPAR/2012, AEER/2012.

Amount of Tube Drainage in Patients Undergone Lung Resection due to Non Small Cell Lung Cancer

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Objective: In this study, we aimed to define the effect of the administration of prophylactic anticoagulants (enoxaparin 40 mg) on the amount of chest tube drainage in the patients who we operated due to Non Small Cell Lung Cancer (NSCLC). **Material & Methods:** A total of 77 cases having NSCLC who presented to our hospital between May 2009 and September 2013 and operated were included in this study. Of the patients, 35 were postoperatively administered 1 x enoxaparin 40 mg for 3 days. Whereas 42 patients in the control group did not receive postoperative anticoagulants. **Results:** Of the patients, 68 (88.3%) were males and 9 (11.7%) were females. Mean age of 77 cases was found as 61.4. Mean preoperative Hct value was found as 42.3% in the patients who did not receive enoxaparin and 41.7% in the patients who received enoxaparin; while postoperatively this value was found as %37.8 in the patients who did not receive enoxaparin and %38.7 in the patients who received enoxaparin. Total mean amount of chest tube drainage was calculated 652.8cc in he patients who did not receive enoxaparin and 791.4cc in the patients who received enoxaparin. Total duration of hospitalization was found as 11.7 day. In this study, no statistically significant difference was found between the patients who was or not administered enoxaparin in terms of preoperative and postoperative Hg and Hct values, amounts of chest tube drainages and, length of stay in intensive care units and hospital. **Conclusion:** In this study, we concluded that prophylactic administration of anticoagulants had not any effect on the postoperative amount of drainage in the operated patients having NSCLC. DVT prophylaxis should be performed in all the cases having risk who will be operated due to lung cancer and especially would require intensive care.

Ultrasound-guided forceps for pleural biopsy

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Purpose Ultrasound guided forceps for pleural biopsy is a technique that can cover the diagnostic yield gap between the needle biopsy of the pleura and thoracoscopy or thoracotomy. Study objectives were: (1) to describe the ultrasound guided forceps for pleural biopsy as a technique not in common use in our practice to obtain pleural biopsy. (2) To evaluate the diagnostic yield of this technique in undiagnosed exudative pleural effusion. **Methods** This study included 96 patients . All patients had exudative pleural effusion with the first pleural tapping being undiagnostic. Patients with bleeding tendency or blood coagulation defects were excluded from the study. Each one was submitted for the procedure once. The equipment used were ultrasound apparatus (ALOKA-Prosound-SSD-3500SV), biopsy forceps (KARL-STORZ-Germany 10329L-BS), trocar and cannula of Cope's needle and rubber inlet seal. The procedure was performed under local anesthesia (Xylocaine 2%) and aseptic condition. The patients were premedicated by analgesic (Ketorolac tromethamine 20 mg). Three to five biopsy fragments were obtained from each case and sent in 10% formaldehyde to the pathology laboratory. All patients were submitted for thoracoscopy under local anesthesia and thoracoscopic forceps biopsies of pleura were taken. **Results** Compared to thoracoscopy the sensitivity of ultrasound guided forceps pleural biopsy in the diagnosis of malignant and tuberculous lesions was 85% and 88% respectively. The technique was absolutely specific in the diagnosis of malignant and tuberculous lesions. **Conclusions** Ultrasound-guided forceps for pleural biopsy is a simple, efficient, and safe procedure. It can be carried out easily and safely even in sick and obese patients. On the other hand, the procedure appears similar to the thoracoscopy in obtaining adequate pleural tissue specimens. Yet, it is simpler and less traumatic.

Follow up of non-determined exudative pleural effusions

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Purpose. The study aimed to examine the long-term outcome of patients with non-determined exudative pleural effusions and assessed the frequency of false-negative diagnosis after non-diagnostic thoracoscopy. **Methods.** Among 409 patients who underwent thoracoscopy from 1.1.2000 until 31.12.2013 in University Clinic Golnik we retrospectively reviewed the data of 138 patients (33%) with non-diagnostic thoracoscopy - histological diagnosis of nonspecific pleuritis. **Results.** Follow up of 138 patients revealed that the majority (90.5%) of non-diagnostic pleural effusions had a benign course. The most common causes were parapneumonic pleuritis (25% of patients). 23% had pleuritis with known exposure to asbestos, 22% of patients had idiopathic pleuritis - without any known cause. Other known causes were pleuritis due to systemic connective tissue and autoimmune diseases (11% of patients), paramalignant pleuritis (7% of patients), pleuritis as a consequence of chest trauma (7% of patients), pleuritis due to congestive heart failure (3% of patients) and pleuritis in connection with pulmonary embolism (2% of patients). 9.5% of non-determined pleuritis were false-negative. The malignant disease was found after mean interval of 16 months, most often the mesothelioma. All of these patients were previously exposed to asbestos. **Conclusion.** The majority of non-diagnostic pleural effusions had a benign course. Less than 10% of non-determined pleuritis were false-negative. Patients with exposure to asbestos require attentive monitoring and according to the clinical course and dynamics of pleural effusion additional diagnostic procedures.

Argon plasma coagulation (APC) as a therapeutic technique in malignant central airway obstruction

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Introduction: APC is interventional pulmonology technique used for superficial coagulation in haemoptysis or treatment of superficial mucosal lesions such as carcinoma in situ. Its efficiency in removal of bulky central airway obstruction is debatable. Major aim of this trial was evaluation of feasibility and safety of APC in removal of bulky malignant central airway obstruction. **Patients and methods:** this was a prospective non-randomized trial conducted in dedicated respiratory endoscopy unit by experienced bronchoscopists. Patients in whom relief of malignant CAO was indicated were enrolled in the study. APC was performed in general anesthesia via combination of rigid and flexible bronchoscopy with the use of electrosurgical unit Endoplasma PSD-60 (Olympus Co. Japan). **Results:** There were 56 patients, 45(80.4%) men and 11(19.6%) enrolled in the trial. Most of the patients were smokers (83.9%) with ECOG status 1 (91.1%). Majority of patients had tumor localized in right main bronchus (67.9%) while most common type was squamous cell lung cancer (67.9%). In 94.6% patients complete recanalization was accomplished. Treated patients were mostly in stage IV disease (51.8%) with cardiac (46.4%) and respiratory(26.8%) co-morbidity. We found significant correlation between smoking ($p=0.01$), tumor size($p=0.026$) and level of obstruction. Type of tumor ($p=0.009$) and power setting ($p<0.001$) were significantly related to recanalization. Pneumothorax, bleeding, cardiac complications and airway fire occurred each in one (1.8%) patient. Endoscopic localization was significantly related ($p=0.001$) to cardiac complications, T factor ($p=0.037$) to bleeding and power setting ($p<0.001$) to pneumothorax. **Conclusions:** APC is safe and feasible interventional pulmonology technique for relief of bulky malignant CAO.

Fully covered self expandable metal stents performance

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Background: There are only few reports on fully covered self expandable metal stents (SEMS), and none on the new Leufen aerstent (Bess AG, Germany, Europe). Objective: To report and analyze our experience with Leufen aerstent in the management of malignant tracheobronchial disorders. Methods: Retrospective review of medical records of patients who underwent fully covered SEMS, between October 2012 and October 2014. Results: 22 stents were placed in 19 patients, mean age 62 years (SD 4), 84% males, with lung cancer (n=8), endobronchial metastasis (n=6) and esophageal cancer (n=5). The median follow-up were 44 days (range 21-318), with a median survival of 72 days (range 3-374). SEMS were inserted through a rigid bronchoscopy under fluoro and endoscopic control in the main bronchi (n=13), trachea (n=8), tracheobronchial (n=1) and tracheobronchial with a telescoped bronchial (n=1). In 2 cases (9%) reimplant was needed, and the same stents were reloaded during the procedure. Complications: No migration, no metal fracture and no folding were recorded. Mucostasis was observed in 86% cases without mucous plug, mild granulation tissue formation in 31.7%, silicone coating detachment in 2 (9%) and poliurethane coating perforated in 1 (4%). In 3 cases, stents were easily removed through rigid bronchoscope without complications. Conclusions: Fully covered Leufen SEMS are safe, easy to implant, replace and remove. They present an outstanding performance as far as the metal mesh is concerned, but some concerns arise from its coating, after observing high mucostasis (86%) and detachment (9%).

Central airways obstruction by lung cancer in the intensive care unit: aggressive bronchoscopic intervention facilitates extubation and radical cancer treatment

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Introduction Lung cancer can present with airway obstruction, sometimes necessitating airway intubation and ventilatory support. This complicates adequate cancer therapy and often leads to opposing views on whether and how to proceed with treatment. The goal of this study was to assess how early bronchoscopic intervention impacts on the management of these patients. **Methods** We retrospectively evaluated patients who were intubated because of central airway obstruction caused by lung cancer and referred for bronchoscopic intervention. Our hospital is a tertiary referral center for lung cancer and interventional pulmonology. Bronchoscopy reports of the last two years were searched with keywords to identify cases. **Results** Seven intubated patients with de novo lung cancer were referred for interventional bronchoscopy. Four were male (57%) and the mean age was 57,3 years. One patient showed extensive obstruction by submucosal tumor (SCLC) extending all the way into the segmental bronchi. She was found ineligible for bronchoscopic intervention, received chemotherapy in the ICU (cisplatinum/etosposide) and was extubated and discharged from the ICU at day 8. The other patients underwent rigid bronchoscopy, in three patients a stent was inserted and in three patients debulking was performed. Two patients showed no respiratory improvement and died in the ICU (9 and 12 days). The other four patients were extubated shortly after the intervention and were treated with pneumonectomy (n=1, stage IIB) or concurrent chemoradiation (n=3, 2 stage IIIA and 1 stage IIIB). These four patients are currently alive without recurrence (median follow-up time 174 days). **Conclusion** This analysis shows that the majority of these patients, who were intubated because of central airway obstruction by lung cancer, received radical cancer treatment after bronchoscopic intervention and extubation. In our opinion, primary bronchoscopic intervention by an experienced team and rapid evaluation by a multidisciplinary lung cancer group are essential.

Narrow band imaging and auto-fluorescence bronchoscopy: meta-analyses of diagnostic accuracies

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Purpose: Since auto-fluorescence imaging bronchoscopy (AFI) and narrow-band imaging (NBI) have shown promise in the detection of pre-malignant airway lesions, each by utilizing different band-widths of lights for better characterization of the mucosal and sub-mucosal vascular grid, we sought to meta-analyze data from studies to study the diagnostic accuracy of AFI and NBI, separately and in combination. **Methods:** After an extensive search of eligible studies from PubMed and Ovid, extracted data was pooled with weighted averages. Symmetrical summary-receiver operating characteristic (SROC) curves were constructed to summarize the results quantitatively. Study heterogeneity was assessed by the I2 index. **Results:** From a total of 21 studies on AFI, our analysis showed an area under the curve (AUC) of 0.799, standard error (S.E) 0.05 with a pooled sensitivity of 0.86% (95% CIs: 0.84% to 0.87%), and a pooled specificity of 0.57 (95% CIs: 0.55 to 0.59). Data from 6 studies on NBI showed an AUC of 0.932% (S.E 0.03), with a pooled sensitivity of 0.79 (95% CIs: 0.76 to 0.82), and a pooled specificity of 0.85 (95% CIs: 0.84 to 0.89). Finally, in 3 studies which reported a combination of both NBI and AFI, the SROC showed an AUC of 0.957 (S.E 0.05), with a pooled sensitivity and specificity of 0.83 (95% CIs: 0.79 to 0.87) and 0.71 (95% CIs: 0.66 to 0.76), respectively. **Conclusions:** Our findings indicate that in the evaluation of premalignant and subclinical malignant lesions, compared to AFI, NBI has a higher diagnostic accuracy. Combination of both techniques yields an even higher diagnostic accuracy.

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Improvement in endoscopic diagnosis of lung cancer by the use of narrow-band imaging (NBI) patterns

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Aim: To define narrow band Imaging (NBI) patterns recognizing mucosal areas infiltrated by malignant tissue, in spite of an inespecific white ligh (WL) appearance, in patients at suspicion for lung cancer (LC). **Methods:** Bronnchial mucosa of the lobe with the primary lesion was examined with WL and NBI (Olympus Exera III) and biopsy at any abnormal WL and NBI area. Bronchial abnormalities at WL were categorized as low (atrophy or flat thickening) or high suspicion (irregular thickening or tumor) for LC. Three vascular abnormalities were recognized by NBI and categorized as complex vascular structure (C), dotted vessels (D), and spiral or winding vessels (S). Vascular abnormalities were considered extensive when affecting a length $\geq 50\%$ of the sampled or its nearest spur. **Results:** Bronchial biopsy showed malignancy in 17 areas from 43 patients (39%). Extensive pattern for D and/or S (DS) was observed in 17 malignant (100%), and 5 non-malignant areas (19%) ($p < 0.001$). Extensive vascular patterns were more prevalent in areas with LC than in non-malignant areas (C 13 [76%] vs 12 [46%]; D 14 [82%] vs 3 [11%]; S 10 [59%] vs 2 [8 %]), with statistically significant differences for patterns D and S ($p < 0.001$). Extensive pattern for D and/or S (DS) was observed in 17 malignant (100%), and in 5 non-malignant areas (19%) ($p < 0.001$) and attained a 100% sensitivity and 80% specificity for malignancy identification. A DS pattern was identified in 9 of 30 patients with low suspicion WL with malignancy in 4 of them. **Conclusion:** A NBI appearance with extensive vascular DS pattern in lobes harbouring a primary lesion improves the sensitivity of the endoscopy procedure over 20% for the identification of LC.

3D endobronchial ultrasound visualization (3D-EBUS) - A novel navigation system for multimodal image-guided intervention

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Purpose: To demonstrate the basic functionality of a new 3D endobronchial ultrasound (EBUS) navigation system, preparing for approved clinical studies. **Methods:** We modified an EBUS bronchoscope by integrating a sensor for electromagnetic (EM) position tracking close to the ultrasound (US) probe in the tip. A probe calibration process was performed to find the spatial relation between the US image and the position sensor. The EBUS-probe was then traceable in our in-house platform for EM navigated bronchoscopy and EBUS. We designed and produced a lung phantom with silicone targets. Preoperative computer tomography (CT) image processing included airway and target segmentation and airway centerline extraction. Fiducial-based image-to-phantom registration was performed prior to EBUS. Video-bronchoscopy, EM navigation and 2D US view were used for target localization and visualization. 3D US target reconstruction was based on a series of acquired 2D images: The EBUS probe was swiped over each target while acquiring 100-200 2D US images in 4-8 seconds for the images to cover the entire lesion. Target coordinates in CT and US volumes were determined in the navigation system, and the position deviation was calculated. **Results:** High-quality 2D and reconstructed 3D US images of all targets were displayed in a fused CT/3D US visualization, providing intraoperative position control and orientation. Mean error observed between 3D US and CT positions for 11 target lesions (in total 37 measurements) was 2.8 ± 1.0 mm, maximum 5.9 mm. No additional personnel, procedural time-consume or image preprocessing were necessary to add 3D functionality to the navigated EBUS system. **Conclusions:** The preclinical feasibility of a novel navigation system with 3D-EBUS visualization was successfully demonstrated. Correct spatial recording of EBUS images makes multimodal image fusion possible, and provides improved anatomical overview during sampling and intervention. The multimodal image guiding system presented is currently subject to a human pilot study.

Prognosis value of epigenetic alterations of tumor suppressor genes in cytology samples obtained by EBUS-FNA

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PURPOSE Epigenetic alterations contribute to the progression of non-small cell lung cancer (NSCLC). The aim of this study was to estimate the prognostic value of DNA methylation of tumor suppressor genes SHOX2, p16/INK4a, MGMT, E-cadherine and DLEC-1 in cytological samples from lymph nodes obtained by EBUS-FNA. **METHODS** Prospective study of patients with NSCLC histology diagnosed during a 34 months period (2010-2012). Quantitative MS-PCR was used to analyze DNA methylation in cytological samples obtained by EBUS-FNA. **RESULTS** We included 111 patients (65.4% adenocarcinoma, 27% squamous-cell carcinoma, 7.4% large-cell carcinoma, 0.2% others), 94 males (84.7%), median age 64.7 years (IQR 58-73) and 90% ever-smoker. The TNM stage IV 30.6%, IIIA-B 33.3% and I-II 36%. 73% had at least one adenopathy PET-SUV >2.5. After one year of follow-up, the 74 patients who were alive showed a median SHOX2 methylation significantly lower than patients who died [0.75% IQR (0.2-9) vs 3.8% IQR (0.6-33.9), $p=0.01$]. Methylation levels of the other genes did not vary significantly between groups. Kaplan-Meier analysis indicated no differences in survival for methylation of MGMT and E-cadherine. However, methylation of SHOX2 and p16/INK4a were associated with shorter survival (SHOX2 median survival 18 vs 43 months, $p=0.07$; p16 median survival 9 vs 31 months $p=0.003$). Other variables correlated with shorter survival were age >65, PET-SUV >2.5, no oncological treatment and stage IV. COX multivariate analysis including significant factors demonstrate that methylation of SHOX2 and PET-SUV lymph node where the only independent prognostic factors (SHOX2 $p=0.04$; HR 2.11 95% CI 1.03-4.3; PET-SUV $p=0.04$ HR 2.58 95%CI 1-6.62). **CONCLUSIONS** Analysis of aberrant promoter hypermethylation of SHOX2 in lymph nodes obtained by EBUS-FNA may be useful for the prognosis of NSCLC patients. Further studies are needed to validate our findings.

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Effect of low dose propofol and ketamin on emergence in children undergoing flexible bronchoscopy with sevoflurane-remifentanil anaesthesia

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Background and objective: The aim of this study was to determine effects of low dose intravenous ketamine and propofol at emergence on cough, agitation and sedation during emergence and recovery periods in children undergoing FBO with sevoflurane- remifentanil anaesthesia. **Materials and Methods:** Prospective randomised, double blind study. We assigned 68 children (n=23 in control group (C), n=22 in propofol group (P), n=23 in ketamin group (K)) randomly to three postoperative groups. We administered subhypnotic doses of propofol or ketamine just before termination of sevoflurane and remifentanil. We assessed agitation by the pediatric anesthesia emergence delirium (PAED) scale and severity of cough based on the number of cough episodes. **Results:** Recovery time in group K was significantly longer than groups C and P (P = 0.001, P = 0.03, respectively). There was no significant difference of cough frequency between the groups. Mean agitation scores at emergence (T = 0 min) were significantly lower in groups K and P than group C. At 10, 15 and 20 minutes, mean agitation scores were not significantly different between the groups. Six children in group C scored above 15 in PAED scale at emergence and recovery 5 minutes and four received IV midazolam while none in groups P or K needed midazolam. Number of children with modified Aldrete postanaesthesia score ≥ 9 at 10 minutes was significantly lower in group K compared to groups C and P (p=0.01). **Conclusions:** Intravenous administration of 0.5 mg. kg⁻¹ of ketamine and 0.5 mg. kg⁻¹ of propofol at the end of sevoflurane and remifentanil general anesthesia was effective in decreasing the incidence of EA but not cough in children undergoing FOB. Ketamin seems to delay the recovery time.

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Prospective randomized trial evaluating ketamine for adult bronchoscopy

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Purpose: Ketamine has been used in pediatric flexible fiberoptic bronchoscopy (FFB). Its efficacy and safety for sedation of adults undergoing FFB has not been thoroughly investigated and consequently it is not used by most interventional bronchoscopists. The aim of this study was to evaluate the safety and efficacy of sedation for FFB under ketamine- propofol- midazolam (KPM) compared to fentanyl- propofol -midazolam- (FPM) regimen. **Methods:** Prospective randomized trial of adult patients (n = 80) undergoing FFB, randomized to receive sedation with either KPM (n=39) or FPM (n=41). Vital signs including transcutaneous carbon dioxide tension (TcPCO₂) were continuously monitored. Sedation-related complications and interventions to maintain respiratory and hemodynamic stability were compared. Both operator and patient were blinded to sedation regimen used. Operator's and patient's satisfaction from sedation were assessed following recovery. **Results:** Maximal intra-procedural TcPCO₂ values and minimal oxygen saturation did not differ significantly between KPM and FPM groups (63.2 ± 11.4 mmHg vs. 61.1 ± 7.2 mmHg) and (77.1 ± 12.5 % vs. 81.8 ± 12.0 %), respectively. No significant differences were noted between KPM and FPM groups with respect to sedation-related respiratory or hemodynamic complications. Operator's and patient's satisfaction from sedation was similar between groups. **Conclusion:** Ketamine is as safe and effective as fentanyl for adult analgesia and sedation during FFB. In light of the fact that ketamine does not cause hemodynamic suppression like most sedative agents and is a potent bronchodilator, should encourage its more widespread use for adult sedation during FFB.

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Effectiveness of simulation with virtual reality in Bronchoscopy training: preliminary results of the use of BronchMentor(TM) system

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Simulation-based training is an emerging technique that provides an effective, zero-risk environment to teach procedures. The aim of the study was to investigate whether a high fidelity bronchoscopy simulator, the Symbionix Bronch Mentor Simulator™, could be an effective tool in improving the degree of competence among a cohort of bronchoscopists of different level of experience. Participants of the study were 17 pulmonary fellows divided into three groups (Novice n=5; Experienced n=6; Advanced or Expert n=6). All participants were evaluated at Symbionix BronchMentor Simulator during a short term simulation training (2 consecutive days) in which 5 curricular tasks were performed (3 baseline- 2 advanced procedures of increased difficulty). Every group was tested at Time 0 (T0) in which none of the participants had never approached the simulator before this time, and Time 1 (T1), where all participants were re-tested individually to the simulator and asked to repeat the same five tasks made at T0. Results showed a significative improvement between T0 and T1 for all groups of bronchoscopists in basic tasks 1-2 (scope manipulation-guided anatomic navigation), with Novice achieving the best upgrade from T0-T1 compared to Intermediate and Expert, raising from the lower level up to just equalize the initial means of Expert group. Task 3 (nomenclature task) showed a statistically significative improvement only for Novice, while Task 4 (LNs identification) revealed a remarkable improvement in recognition of major number of lymph nodes at second attempt (T1) for whole bronchoscopists, but a significative reduction in time at T1 only for Intermediate and Expert. Task 5 (EBUS-TBNA) documented a significative reduction in time and samples obtained comparable for all three groups (none of the participants had previous experience of EBUS technique). Our results suggest the validity of a computer based Simulator in a standardised programme of Bronchoscopy training suitable for each level of competence.

Effect of paclitaxel delivered nanoparticles to treat tracheal stenosis

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Introduction: Post intubation tracheal stenosis requires restoration of the lumen by complex surgery of the trachea or endoscopic dilatation with or without insertion of silicone trachea prosthesis (stent). For endoscopic treatment, recurrence is high, therefore, delivering an anti-proliferative drug from the outer surface of a silicone stent, such as paclitaxel, at the affected region, could reduce or avoid this problem. **Objective:** In this experimental study, we aim to analyze the efficacy of gradually delivered paclitaxel loaded nanoparticles to inhibit the proliferation of human respiratory cells as a first step to use this drug as a coating for the stents. **Methods:** Primary respiratory cells from patients with tracheal stenosis were cultured with biodegradable nanoparticles loaded with paclitaxel (1% and 3%) at different amount of drug (10, 14 and 20 nM). Additionally, non-loaded nanoparticles were used as a biocompatibility control. In parallel, cells were incubated in a silicone substrate with or without immobilized paclitaxel nanoparticles. To test the viability of the cultures; MTT assay was performed at 1, 6, 10 and 14 days and pictures were taken to follow the changes in cell morphology. **Results:** We observed a clear inhibitory effect of paclitaxel when delivered by nanoparticles compared to pure paclitaxel in all cell cultures. Paclitaxel loaded nanoparticles shown a controlled drug release during the time-course of the experiments. Furthermore, non-loaded nanoparticles did not affect the viability of cells. Interestingly, epithelial cells were more sensitive to paclitaxel than fibroblasts from tracheal or lung tissue. **Conclusions:** Drug loaded nanoparticles shown a controlled release of paclitaxel causing a significant cell death in a similar behavior of pure paclitaxel. Additionally, non-loaded nanoparticles confirm the biocompatibility of the polymeric material. This is a first approach to use nanoparticles loaded paclitaxel as a coating surface in tracheobronchial silicone stents due to its efficacy of avoiding cells growth.

Concordance of histological diagnosis in interstitial lung disease: cryobiopsy versus open lung biopsy

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Objective: To evaluate our preliminary experience in cryobiopsy for the diagnosis of ILD compared to open lung biopsy. **Methods:** Eight consecutive patients underwent cryobiopsy (CB) and open lung biopsy (OLB) during the same procedure. Biopsies were taken under general anaesthesia without single lung ventilation. CB was performed first and then, open lung biopsy through anterior 3 cm mini-thoracotomy without video-assistance. Target biopsy sites were agreed in advance. We defined pathological diagnosis as 1. Diagnostic: histological findings included in a histological classification from 2013 ERS/ATS guidelines¹, 2. Non diagnostic: nonspecific findings (Unclassifiable), 3. Non adequate: lack of at least one fragment of alveolated lung parenchyma. Definitive diagnosis was agreed after multidisciplinary discussion: 1. Diagnostic pattern: histological findings included in a histological classification or nonspecific findings but concordance with clinical and radiologic findings, 2. Non diagnostic pattern (Unclassifiable). **Results:** No perioperative complications were recorded. Adequate samples were obtained in all cases with both techniques. The mean size of CB sample was 31 mm² with an average of 51.5% alveolated tissue. In 4 patients (50%) we obtained a pathological diagnosis with both biopsies (by CB: 1UIP, 2NSIP, 1HP and by OLB: 2UIP, 1NSIP, 1HP); 4 patients were considered unclassifiable. All patients but 2 had similar diagnosis with both techniques: one unclassifiable by CB was UIP by OLB, and one NSIP by CB was unclassifiable by OLB. Clinical diagnosis was obtained in 6 patients (75%) (2UIP, 1HP, 3NSIP) and 2 were unclassifiable after multidisciplinary committee discussion. **Conclusions:** In our initial experience, CB seems to be a reliable technique comparable to OLB in the diagnosis of ILD. 1. Travis WD et al. ATS guidelines. Update of the international multidisciplinary classification of the idiopathic interstitial pneumonias. Am J Respir Crit Care Med 2013; 188:733-748.

Assessment of radial EBUS-GS for disposition of fiducial gold marker in small peripheral lung nodule before stereotaxic radiation therapy

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INTRODUCTION: Radial EBUS using guide sheath (GS) is a minimally invasive technique that allows the sampling of peripheral lung nodule. **AIM:** To assess the use of EBUS-GS for gold fiducial marker disposition. **METHODS:** 35 patients underwent radial-EBUS with fiducial placement in a peripheral lung nodule at the Rouen University Hospital between May 2010 and December 2014. EBUS procedure was performed using a 4.0mm bronchoscope and a 17S Olympus« probe. After sampling (biopsy and brush) a 5 mm / 0.8 mm fiducial gold marker (Best Medical International, USA) was inserted into the distal tip of the bronchial brush and glued with lidocaine gel, for fiducial placement through the GS . **RESULTS:** 32 patients had a chronic respiratory insufficiency that forcluded lung surgical resection and conventional radiation therapy. Mean nodule diameter was 16mm [min-max= 6-32mm], with 31 nodules ≤ 20mm. There were 31 pulmonary cancers (14 adenocarcinoma, 11 squamous cancer cell, 6 other) and 4 metastases. The histology was known before the procedure in only 8 / 31 cases. 30 procedures were performed under local anesthesia. No adverse event was noted. Nodules were visualized using EBUS in 32/35. The marker was expulsed during cough immediately after the procedure in 5 cases, and remained stable in the nodules in the other cases. The markers were visible on x-ray 3 months after the procedure in 30 cases (85%) **CONCLUSION:** Fiducial placement into small peripheral nodule before stereotaxic radiation therapy is a safe and efficient technique using radial EBUS under local anesthesia.

Virtual presentations

The virtual presentations are included in this programme and website and also will be displayed all day long in the exhibition area, but will not be presented during the congress.

Group 1

Basic research and innovation	VP-01
Bronchoscopy training, education and evaluation	VP-02
Endobronchial management of obstructive lung disease (COPD)	VP-03 to VP-04
Interventional bronchoscopy in benign diseases	VP-05 to VP-13
Interventional bronchoscopy in malignant diseases	VP-15 to VP-19
Peripheral pulmonary lesions	VP-20 to VP-21
Pleural diseases and thoracoscopy	VP-22 to VP-24
TBNA conventional and EBUS-TBNA	VP-25
Miscellanea	VP-27 to VP-29

Group 2

Basic research and innovation	VP-31 to VP-33
Bronchoscopy training, education and evaluation	VP-34 to VP-36
Interventional bronchoscopy in benign diseases	VP-39 to VP-44
Interventional bronchoscopy in malignant diseases	VP-46
Peripheral pulmonary lesions	VP-47 to VP-48
Pleural diseases and thoracoscopy	VP-49 to VP-50
Safety, quality and cost-effectiveness of bronchoscopy	VP-51
TBNA conventional and EBUS-TBNA	VP-52 to VP-54
Miscellanea	VP-55 to VP-59

VP-1

Analysis of the air-leak sound generated by pleural and bronchial fistula

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Background: In the field of air-leaks and fistulas, it is important how to treat the pleural lesion of the patient with spontaneous pneumothorax and postoperative bronchial stump fistula. However it is difficult to assess whether surgical intervention to the leaking lesion is required at this time and what kind of intervention to choose. **Purpose:** We analyzed the air-leak sound generated by pleural and bronchial fistula in order to judge the characters of air-leaks and to deduce the procedure to treat the fistulas. **Materials:** Analyses were performed to 20 patients with spontaneous pneumothorax and to 3 with postoperative bronchial stump fistula. **Methods:** Lung sound was recorded by voice recorder on the bilateral chest wall using a pair of hand-made stethoscopes consisting of microphone and gum stopper. Recorded sound was analyzed using the software easy LSA (lung sound analysis). It can show sound spectrogram, time-base waveform pattern, and power spectrum of the two-channel sounds. **Results:** In the patients of spontaneous pneumothorax, respiratory sound of the collapsing side was reduced. However the sound was preserved even if the collapsing level was severe. The leaking sound from the pleural lesion was not recorded before drainage. After a thoracic drain was inserted, additional sound emerged. However the sound was difficult to analyze due to the noise produced by water-sealing system. In postoperative bronchial stump fistulas, sound spectrogram showed waves similar to rhonchi of asthma. **Conclusion:** These findings showed that in spontaneous pneumothorax air-leak sound was difficult to separate from the noise produced by drainage system. In bronchial stump fistula air flow from the large airway to the hemithorax through the bronchial stump produced a sound similar to rhonchus. This examination might provide us useful information of early detection of postoperative bronchial fistula.

VP-2

Complications and related factors in patients undergoing bronchoscopy

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Purpose: To determine the complications during and in 24 hours after the fiberoptic bronchoscopy (FOB) and endobronchial ultrasound (EBUS) procedure and in early period after the procedure and associated factors. **Materials and methods:** Oxygen saturation and hemodynamic parameters of the patients before, after and during the procedure, total duration of procedure were recorded in all patients who were underwent FOB or EBUS in our bronchoscopy unit at last 2 months. Also demographic findings, concomitant diseases, pulmonary function tests, bronchoscopic procedure performed, complications observed during the procedure or in 24 hours of bronchoscopy were also recorded. The relation between the complications and all these parameters were statistically evaluated. **Results:** A total of 230 patients with a mean age of 55.1 ± 13.2 years; 90 (39.1%) female; 140 (60.9%) male were included. 154 (67%) of them were underwent FOB and 76 (33%) were underwent EBUS. Complications were observed in 60 (26.1%) of the patients. The most common complications were minimal hemorrhage (12.1) and hypoxemia (11.3%), respectively. Statistically significant relation was found between the complications and FVC, FEV1 values, initial oxygen saturation, initial systolic arterial pressure ($p < 0.05$). **Conclusion:** Although bronchoscopic procedures are safe with low complication rate, especially in patients with low functional capacity, with hypoxemia or hypertension we should be careful in terms of the development of complications.

VP-3

Prolonged pneumothorax following endoscopic lung volume reduction with endobronchial valves-valves removal may not be mandatory

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Background: Endoscopic lung volume reduction (ELVR) using endobronchial valves is an efficient therapeutic option for patients with severe emphysema. The volume reduction effect is expected to be most pronounced if an atelectasis of the target lobe is achieved. The development of atelectasis, however, is associated with an increased risk of pneumothorax in up to 29% of the cases. **Case report:** A 60-year-old female with heterogeneous emphysema and no collateral ventilation according to Chartis® measurement underwent endoscopic lung volume reduction with four Zephyr® valves placed in the left upper lobe. Twenty-one hours later she developed a complete atelectasis of the left upper lobe and a symptomatic pneumothorax. Small-bore chest tube was inserted. Airflow through the chest tube was observed briefly after tube placement, which ceased almost immediately. Despite correctly placed chest tube, permanent suction and lack of air leak, pneumothorax persisted on radiography. Flexible bronchoscopy verified the correct position of the endobronchial valves. A chest CT scan 13d later confirmed a persisting residual pleural cavity. The chest tube was removed after 15d despite the residual pneumothorax. Follow-up after 6 weeks showed excellent clinical outcome. Chest CT scan demonstrated persistent atelectasis of the upper left lobe; nevertheless, the residual pleural cavity has completely resolved. The FEV1 increased by 140 ml (+21.2%), residual volume decreased by 1.9 L (-32.2%) and 6-min walk test improved by 50 m (+14%). **Discussion:** We interpret the pneumothorax as a result of lobar collapse, with the remaining ipsilateral lobe requiring time to shift and fill the residual pleural cavity. The fact that airflow through the chest drain was observed merely briefly after tube placement indicates that the visceral pleura remained intact. **Conclusion:** In case of pneumothorax without air leak, valves removal may not be mandatory in clinically stable patient, allowing for maintaining the benefits from ELVR.

VP-4

Detection of pneumothorax by electrical impedance tomography during endoscopic lung volume reduction with one-way valves - case report

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Purpose: To present a case in which electrical impedance tomography (EIT) detected a pneumothorax following endoscopic lung volume reduction (ELVR) with one-way valves. **Materials-Methods-Approach:** 71 year-old male underwent left lung transplantation for COPD seven years before and developed dyspnea with a decline in FEV1 within the last 2 years. A diagnosis of chronic graft dysfunction was also made and it was aggravated by native lung hyperinflation compressing the graft. ELVR was considered since the patient was clinically unfit for surgical lung volume reduction. Planning for the ELVR included analysis of the CT scan for distribution of emphysema in the native lung. Bronchoscopy was carried out under general anesthesia, and valves (EBV-Zephyr™, Pulmonx, USA) were placed in the lobe with negative collateral ventilation (Chartis™, Pulmonx, USA). EIT data was acquired using a DX-1800 EIT functional monitor (Timpel, Sao Paulo, Brazil). A 32-electrode belt was placed circumferentially around the chest at the level of the fifth and sixth intercostal space with a sample rate of 50 images/second. EIT monitoring and data recording was obtained continuously in supine position. EIT measurements included impedance waveform and percentage of ventilation distribution for each side. **Results:** The right lower lobe was treated with 3 valves with improvement in ventilation distribution (pre-treatment: right 13%, left 87% ; post-treatment: right 48%, left 52%). Upon completion of the procedure, suddenly the EIT waveform and ventilation distribution (right 7%, left 93%) were both suggestive of right-sided pneumothorax which was confirmed on clinical examination. A right-sided chest tube was placed with immediate relief of dyspnea and return to homogeneous ventilation distribution (right 57%, left 43%). **Conclusions:** EIT can be used as a sensitive tool for online monitoring of ELVR particularly in patients with a high risk of pneumothorax.

VP-5

Simultaneous use of tracheal stent and tracheostomy tube in the management of acquired tracheal dilatation after prolonged ventilation

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Purpose To describe an unusual management technique for acquired tracheal dilatation secondary to prolonged mechanical ventilation in ventilator-dependent patient. **Materials-methods-approach** A 62-year-old man, with 5-year tracheostomy and prolonged mechanical ventilation for chronic respiratory failure in cervical myelopathy and phrenic nerve paralysis for Klippel-Feil syndrome, was admitted to our Intensive Care Unit for respiratory distress due to severe air-leakage around the tracheostomy tube requiring high-levels of positive end-expiratory pressure to ensure an adequate ventilation. The neck-chest CT scan detected an abnormal cervical tracheal dilatation (maximum diameter 40 mm) due to long-term cuff insufflation that did not provide an adequate airway seal with air escaping around tracheostomy tube. In order to achieve an effective cuff seal, we bridged the tracheal dilatation placing a covered self-expandable metallic tracheal stent (18x50 mm) through the tracheal stoma across tracheal damage. Therefore we inserted and cuffed the tracheostomy tube (Shiley®, 6 mm) inside the stent. The procedure was performed under flexible bronchoscopy and fluoroscopy in operating theatre under general anaesthesia. No perioperative complication occurred and the immediate postoperative fiberoptic tracheoscopy confirmed the correct setting of the system. **Results** No air leakage around the tracheostomy tube or respiratory distress was relieved during the postoperative period. The patient was discharged home on the 14th postoperative day with instruction to perform saline solution aerosol therapy to keep the devices cleaned. The patient is still in mechanical ventilation without ventilatory complications and devices misalignment at 3-months follow-up. **Conclusions** Tracheal dilatation is a rare complication of prolonged cuffed endotracheal intubation and its management is still debated. The simultaneous usage of both airway stent and tracheostomy tube can be considered an efficacy management for tracheal dilatation in ventilator-dependent patients.

VP-6

Tracheal hemangioma: a rare cause of hemoptysis

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Hemangiomas are bening tumours and occur frequently in childhood. Capillary hemangiomas of trachea is very rare. The most common presenting symptoms are hemoptysis and chronic cough. Hemoptysis presents min÷r to massive. If tumour is subglottic locatization, stridor can be seen. Tumour was commonly diagnosed during researching causes of these symptoms by bronchoscopy. Because of small lesions, chest radiographic and thorax computed tomographic findings are negative. At early detection, lesions may be treated by bronchoscopic methods. Twelve year old boy admitted to our clinic by occasional hemoptysis. The patient had no medical and family history. His rontgenogram was normal. His thorax CT showed a lesion on wall of trachea. Bronchoscopy was performed to patient and tracheal tumour was seen. The pathology revealed the diagnosis of tracheal capillary hemangioma. The patient was treated successfully by bronchoscopy.

VP-9

Endobronchial therapy of tracheobronchial amyloidosis mimicking endobronchial tumour

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Tracheobronchial amyloidosis is a rare presentation and counts about 1% of benign tumors in this area. The diagnosis of disease is delayed due to nonspecific pulmonary symptoms. Therapeutic approaches are required to control progressive pulmonary symptoms for the most of patients. Herein, we report a case of a 68-year-old man who admitted with progressive dyspnea to our institution for further evaluation and management. He was initially diagnosed with and underwent management for bronchial asthma for two years but had persistent symptoms despite optimal medical therapy. CT scan revealed severe endotracheal stenosis. Bronchoscopy was performed and showed endotracheal mass obstructing 70% of the distal trachea and mimicking a neoplastic lesion. The mass was successfully resected by mechanical resection, argon plasma coagulation (APC) and Nd-YAG laser coagulation during rigid bronchoscopy. Biopsy materials showed deposits of amorphous material by hematoxylin and eosin staining and these deposits was selectively stained with congo-red. Although this is a rare clinical condition, this case indicated that carrying out a bronchoscopy in any patient complaining of atypical bronchial symptoms or with uncontrolled asthma is very important.

VP-10

The efficacy and cost of endobronchial therapy in the treatment of pulmonary carcinoid tumors

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OBJECTIVE: Pulmonary carcinoid tumors are rally rare neuroendocrine tumors of lung. In the last period and published successful results of endobronchial therapy in typical carcinoid tumors, in selected cases, it can be an alternative treatment method. We aimed to assess efficacy and cost of endobronchial therapy in typical carcinoid tumors. **METHODS:** Cases included in the study had typical carcinoid tumor in polypoid type and intraluminal component, treated with endobronchial therapy . The electrocautery, argon plasma coagulation, laser and cryotherapy were used. The average cost of a patient treated with endobronchial therapy was calculated and compared with surgery **RESULTS:** Endobronchial therapy was performed to 11 cases, 7 male and 4 were female. The mean age was 46.1 (23-68). The most comman location was right bronchial system. Endobronchial therapy was performed at single session in 64 % . Cryotherapy (36 %), cryotherapy +argon plasma coagulation(36%), argon plasma coagulation (28%) were performed to the tumor adhesion area after extraction of the tumoral tissue. Complication was seen in 3 cases (27%) (hemorrhage, hypoxia and dysrhythmias) and during following in 2 cases (18 %) (bronchial stricture). The mean following time was 24.2 month and no recurrence was observed. Cost of one patient who underwent endobronchial treatment was 480 tl (216 dollars), lobectomy - segmentectomy (including bronchotomy) were 1207.5 tl (543 dollars) and pneumonectomy was 1307.99 tl (589 dollars). **CONCLUSION:** In this retrospective and non-randomized study has been shown that endobronchial therapy is safe, cheap and in selected cases with typical carcinoid tumors, it is effective as surgery alternatively. Also endobronchial therapy provides optimal quality of life. Especially female patients recover from the thoracotomy scar. In addition, long-term hospitalization is not necessary in patients so they can easily return to the business or everyday life as soon as possible.

VP-12

Tracheobronchial Injuries: Conservative treatment in a respiratory endoscopy unit

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Purpose: Describe our experience in the management of tracheobronchial injuries. **Materials and Results:** Tracheobronchial injuries may be iatrogenic, low impact, longitudinal tears (laceration) or high impact, horizontal sections (rupture) caused by penetrating or blunt chest trauma. Between 2001 and 2012, we have treated 19 tracheobronchial injuries. Six patients presented with tracheobronchial ruptures: two penetrating/stab wounds, two gunshot wounds and two complete sections of the main bronchus; and 13 iatrogenic lacerations: ten post-intubation and three lacerations related to bronchoscopic procedures. The extension of the lesions was 2-12 cm. The iatrogenic bronchial lacerations were all secondary to bronchoscope procedures. All tracheal iatrogenic lacerations and the four cases related to stab or gunshot wounds ruptures underwent conservative treatment. Only two patients underwent surgery (the two traumatic complete sections of the main bronchus). In the conservative treatment group, a silicon stent was inserted in four patients, in order to allow efficient mechanical ventilation and early weaning. **Conclusion:** In our series, conservative treatment was a safe and effective approach regardless of type of injury, location and size with no mortality related.

VP-13

Prognostic factors for therapeutic response after stenting in patients with benign tracheal stenosis

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Most studies of stenting in patients with benign tracheobronchial stenosis are retrospective or perform prospective percentage analysis of complications. In the present study analysis of preclinical evaluation variables and complications associated with stenting was performed in order to establish the prognostic factors for good therapeutic response. Design: Prospective study of 23 patients (17 men), age 46.7 (SD±14.7) with benign clinically significant tracheal stenosis. Methods: Silicon stent (DUMON® Stent, Novatech, France) was applied in all patients. Assessment of the stenosis included: clinical variables (dyspnoea, stridor, cough, recurrent infections and comorbidity), functional variables (FEV1, 6-MWD, fatigue assessed by the Borg scale, dyspnoea assessed by the MRC scale) and level of stenosis, assessed by FBS, spirometry and CT-scan. Assessment of therapeutic response included: functional variables and complications (migration, granulation, sputum obstruction, bacterial infections and colonization). The complications are divided into early (in the first month after stenting) and late (after the first month). Fisher's Exact test, Mann-Whitney's test and logistic regression analysis (SPSS for Windows 13.0) were used for statistical analysis. Results: Statistically significant difference was reached between the level of fatigue and the granulations as a late complication ($p=0.043$). It was the only functional variable statistically significantly associated with late complications ($p=0.030$; OR 3.738, 95% CI 1.135 - 12.316). Increase in the level of fatigue with 1 point leads to 3.7-fold increase in the risk of late complication. For the bacterial infections the correlation was analogous and for the other early complications it was statistically significantly associated ($p=0.040$; OR 5.382, 95% CI 1.079-26.849). Conclusions: The study results suggest the need of bronchoscopic control in patients with level of fatigue between 5 and 9 points assessed by the Borg scale for detection of early and late complications associated with stenting.

VP-15

Curative Results of High Dose Brachytherapy for Endobronchial Carcinoma

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PURPOSE. Assessing the curative potential of high dose brachytherapy for endobronchial carcinoma (HDR-ILBT) which has not been thoroughly established yet. **METHODS.** All subjects with small tumors (local recurrences, incomplete resections or tumors strictly limited to the bronchial lumen) who had undergone HDR-ILBT (exclusive or combined with other therapeutic procedures) in our center were included. We evaluated clinical, radiologic and endoscopic responses during a median follow-up time of 31 months, as well as the overall survival (OS), relapse-free survival (RFS) complication rates and the main prognostic factors associated both with local control and survival. **RESULTS** 26 subjects were included (88,5% males) with a mean age of 67,8 years and having the 88,5% pulmonary origin (squamous: 69,2%). Mostly located in the trachea (61,2%) and the main bronchus (61,2%), 61,5% were strictly limited to the bronchial lumen, 26,9% were affected stumps and 11,5% consisted in local recurrences. The complication rate was 15,4%, being the most prevalent (50%) radiation bronchitis, whereas 76,9% subjects had a total endoscopic response after one month; being the median OS 42 months, RFS 44 months and the one-year, two-year and three-year survival rates: 84,2%, 74,7% and 61,3%. **CONCLUSION** 1.HDR-ILBT has shown its efficacy at achieving local control in endobronchial tumors. 2.We found a higher median of survival than in most series, being 64,3% of the subjects alive and relapse-free after three years. 3.The complication rate in our series is low.

VP-16

Interventional bronchoscopy in patients with advanced lung and esophageal carcinoma

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Purpose: Bronchoscopic intervention can provide immediate relief from suffocation and an opportunity for additional treatment in patients with malignant airway obstruction. Methods: In 2013. we performed 53 bronchoscopic interventional procedures (41 in patients with lung cancer and 12 with esophageal cancer) such as: mechanical desopstruction (n = 43), stenting (n = 8), argon plasma coagulation (n = 21). Cryoextraction was done in 3 pts only for extraction of necrotic debris. In 3 patients esophageal stent was placed. Endoscopic finding was intraluminal tumor and infiltration (n = 28) extrinsic compression (n = 8) and combined lesions (n = 17). Tracheal invasion was found in 31 patients (58%). Successful palliation was achieved in 94% of patients. After the intervention, additional anti-cancer treatment was given in 27 patients (50,94%). Conclusions: The median survival time was 4,8 months. Survival was better in selected patients with an intact proximal airway and post-procedural additional treatment. In 3 patients with both tracheal and esophageal stents death occurred mainly due to formation of fistulas on the edges of the stents.

VP-18

Mediastinal and Hilar Adenopathy in Patients with Positive Lung Cancer Screening CT Scans

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Lung cancer causes more deaths among men and women in the United States than breast, colorectal, and prostate cancers combined, with approximately 450 people dying from lung cancer every day. Despite continuing medical advancements, lung cancer remains a highly lethal disease, with 16% overall 5-year survival only marginally improved from 12% in the 1970s. In 2011, the National Lung Screening Trial (NLST) reported a 20% lung cancer - specific mortality benefit in high-risk current and former heavy smokers who underwent 3 rounds of annual low-dose CT (LDCT) lung screening compared with annual chest radiography. Based on these results, Lahey Hospital & Medical Center implemented an NCCN Guidelines«-based CT lung cancer screening program. A standardized CT lung screening reporting system (LungRADS) modeled on BI-RADS« was created and implemented. In the three years since inception, 2794 patients were screened since commencement on January 9th, 2012 until January 8th, 2015. We examined the database and identified patients who had a positive CT scan as well as mediastinal or hilar adenopathy, on initial screening. Chart review was performed to identify what procedures, if any, were performed and the final pathology results. Of the 2794 patients, 201 (7.19%) patients met the criteria. Of those patients, 139 (69.15%) were referred by Lahey physicians and therefore had complete follow up data. Of the 139 patients, 18 (12.94%) underwent a diagnostic procedure. These included conventional or endobronchial ultrasound (EBUS) bronchoscopy with biopsy, mediastenscopy, VATS resection or CT guided biopsy. Of the 18 patients who underwent a diagnostic procedure, malignancy was diagnosed in 14 (77.78%) patients. Primary lung cancer accounted for 12 (66.67%) of the 14 patients while Lymphoma or metastatic disease accounted for the remaining 2 patients.

Mediastinal adenopathies biopsy by CT-guided endoscopic transbronchial Schieppati needle: 153 cases developing country experience

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Background: Mediastinal adenopathies are manifestations of multiple diseases including primary and secondary processes at these lymphoid organs. These can be related to benign or malignant pathologies. In the last decade, endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA), particularly in developed countries, is used for those purposes. However EBUS-TBNA is not available in most developing countries due to costs and lack of training. Methods: We present herein results and experience with 153 patients with mediastinal adenopathies evaluated between 2009-2014, at two-institutions of Pereira, Colombia. In these cases, an endoscopy study with rigid bronchoscopy placed under general anesthesia and a Schieppati needle were employed. Previous computed tomography scan looking for adenopathies allowed to locate them at stations 2R, 2L, 4R, 4L and 7. Checking for CT-scan anatomical location of lymph nodes, points for transbronchial approach to them were identified at endoscopy. Using a Schieppati needle (used with a negative pressure of 20 cm H₂O), the trachea or bronchi were punctured and a first tissue sample was taken. It was then extended at glass slides and immediately assessed by the pathologist for an initial diagnosis. If lymph node tissue was found at the sample, a further lymph node tissue biopsy was taken with forceps, using the orifice previously created with Schieppati needle. Results: In more than 95% of patients, first sample contained lymph node tissue, allowing taking forceps biopsy and further performance of immunohistochemistry for a precise pathological diagnosis which included squamous cell carcinoma, small cells carcinoma, adenocarcinoma, lymphoma, tuberculosis, sarcoidosis and anthracosilicosis, among others. Conclusions: In our experience, CT-guided endoscopic transbronchial Schieppati needle biopsy represents a low cost, highly accurate and minimally invasive diagnostic procedure for mediastinal adenopathies, with no complications, safe, suitable and affordable for resource-constrained settings, such as Colombia and other countries in Latin America and developing regions of the World.

VP-20

Transthoracic ultrasound-guided biopsies by the pulmonologist

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Trans-thoracic ultrasound-guided biopsies need to be an integral part of training in Interventional Pulmonology, because pulmonologists with basic training in ultrasonography can perform the procedure efficiently with minimal complications. This procedure complements the diagnostic arsenal of Interventional Pulmonology. The diagnostic yield and complications of 14 cases that underwent ultrasound-guided core biopsy by pulmonologists at our institute during the past 4 months were recorded. Tru cut biopsy needles were used with a caliber of 16G or 18G according to size of lesions and proximity to vital structures. A curvi-linear 2-5 MHz ultrasound probe was used for guidance. All cases were suspected to have malignant disease. Eleven biopsies were taken from the lung lesions, 2 from pleural deposits and 1 from a chest wall lesion. The mean size of the lesions was 5 cm (min. 2, max. 8 cm). Accurate histological diagnosis was achieved in 13 (93%) of the cases. The failure case could not be diagnosed after another biopsy was taken by an interventional radiologist (patient referred for surgery). Major complications (pneumothorax and hemoptysis) were not encountered in any of the patients. Only minor bleeding and procedural pain were reported in 57% and 21% of the patients respectively. The success rate is similar to what is reported from studies undertaken by radiologists (~91%). It is to be concluded that pulmonologists can efficiently perform ultrasound-guided biopsies with limited complications. Pulmonologists even have an edge because they are more qualified to detect the occurrence of complications with less reliance on CT for their diagnosis and can manage such complication should they occur.

VP-21

Percutaneous ultrasound-guided punctures and biopsies in the diagnosis of peripheral thoracic lesions for pulmonologists

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Purpose: To determine the diagnostic efficacy of the percutaneous ultrasound-guided punctures and biopsies of peripheral thoracic lesions performed by pulmonologists. **Material and methods:** A retrospective analysis of 58 patients (13 females and 45 males, ages between 28 and 85 years old) who had underwent sonographically guided (in real time) transthoracic punctures and biopsy of peripheral thoracic lesions by pulmonologists, demonstrated with computed tomography (CT), collected from March 2011 and September 2014 in pneumology department of our hospital. **Results:** The sites of the lesions were pulmonary in 51 cases (88%), mediastinal in 3 cases (5%), pleuro-parietal in 2 cases (3.5%) and supraclavicular in 2 cases (3.5%). In 47 procedures was obtained a concluding diagnostic (81%), 13 with specific benign lesions and 34 with cancers. In the remaining 11 patients (19%) we obtained a non-diagnostic result without evidence of malignancy. A false-negative result was determined in 6 of these 11 non-diagnostic procedures by an alternative diagnostic technique. The sensitivity was 88.68%, the negative predictive value was 45.45% and the overall diagnostic accuracy was 89.66%. **Conclusions:** The percutaneous ultrasound-guided punctures and biopsies in the diagnosis of peripheral thoracic lesions performed by pulmonologists is a procedure with high diagnostic accuracy. We achieved similar results to those previously obtained by radiologists.

VP-22

Role of intrapleural streptokinase in multiloculated malignant pleural effusion after medical pleuroscopy

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Purpose: Multiloculated malignant pleural effusions are frequent debilitating complication of advanced malignant diseases. In this situation, medical pleurodesis cannot be performed. It provides a rationale for examining the role of intrapleural streptokinase, focusing on successful pleurodesis and its complications. **Methods:** This retrospective cross-sectional study was reviewed in 18 patients with multiloculated malignant pleural effusion who medical pleuroscopy was performed during 2012-2013. Data from medical records and pleuroscopic reports were completely reviewed. **Results:** Among 121 patients who underwent medical pleuroscopy, 18 patients were multiloculated, and no enough pleural space was identified by thoracic ultrasonography before the procedures. In every cases, blunt dissection with removal of fibrin was done via pleuroscopy for creating an adequate pleural spaces to insert standard chest tubes in appropriate position. Chest radiographs were done to confirm the position of standard chest tube. 10 patients (55.6%) received intrapleural a total dose of 1,500,000 IU of streptokinase via standard chest tube, in twice daily dose basis, for 3 consecutive days. We observed an increase of pleural fluid drainage and radiographic improvement in all 10 patients. Later, slurry talc (dosage of 4 grams) was used for pleurodesis in these patients. Successful pleurodesis was identified in 8 patients at two months after the procedures. There were no any allergic or hemorrhagic complications after intrapleural streptokinase administration. **Conclusions:** Our study suggested that intrapleural streptokinase can be used as an effective and safe adjunctive therapy for medical pleurodesis in multiloculated malignant pleural effusion. Medical pleuroscopy is helpful in proper placement of standard chest tube; which may affect dispersion of intrapleural streptokinase throughout pleural spaces resulting in adequate drainage of pleural fluid in this complicated setting.

VP-23

Size does not matter

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Introduction: The British Thoracic Society (BTS) guidelines for pneumothorax are well established but are subject to much debate. They stipulate that large secondary pneumothoraces should all be treated with intercostal drainage. CT guided biopsies are common procedures for investigations for lung masses, and chest X rays are often done out of hours to check for a iatrogenic pneumothorax, the interpretation of which by non-respiratory doctors and subsequent management might not be correct. BTS guidelines suggest that size of pneumothorax, co-existent lung pathology and symptoms should be considered in the decision, with aspiration as initial treatment. Iatrogenic and secondary are commonly misunderstood terms. We reviewed our practice. Methods 312 CT guided biopsies were done between Aug 2012 and Nov 2014. There were 54 pneumothoraces. (34 males and 20 females with average age 74.5 years)- 17% rate with quoted rates anything from 0-61%(1) Their radiology and notes were reviewed. Results and interpretation 20 had large pneumothoraces- 4 patients out of the 20 had symptoms at the outset, and 4 developed them. No aspiration was performed. All 8 had chest drains (14% of all pneumothoraces, in line with 3-15% quoted (1) 12 (60%) patients with large iatrogenic pneumothoraces (BTS criteria) did not need observation. There was no relation to lung function. Conclusions We propose a symptom based approach to management of iatrogenic pneumothorax. The size does not matter. All of our patients survived to discharge and had subsequent complete re-expansion. Aspirations or drains, potentially out of hours, increase the inherent risks of the procedures and length of stay. All patients were assessed and all drains done by respiratory physicians. A fact sheet will hence be published on the trust intranet. Reference 1.BTS Guidelines for radiologically guided lung biopsy, Thorax 2003;58:920-936

VP-24

Reason for bilateral chylothorax: A case of mesothelioma without pleural involvement

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Chylothorax refers to a rare condition characterizing with a fluid with chylomicron in pleural space. Non-traumatic causes in adults are about 50-70%. Lymphoma is the most common detected disease among the non-traumatic causes. Dyspnea is the most common symptom of chylothorax. Bilateral pleural effusion and common mediastinal lymph nodes were observed in chest computed tomography of a 60 year old patient applied to our clinic with shortness of breath. No thickening or nodule formation was detected on pleural surface. No pathological FDG involvement was detected in PET-CT of the patient. Chylous was observed in thoracentesis of the patient. In the biochemical analysis of pleural mayi sample, triglyceride was determined to be 1228mg/dl and cholesterol to be 149 mg/dl. Oral nutrition was stopped and the patient was given total parenteral nutrition support. On seeing in the follow up that the drainage decreased but it didn't stop, operation was decided. Right thoracotomy and mass ligation just on the diaphragm were performed. No pathological appearance was detected in parietal and visceral pleura during the operation. Since there existed no pathological finding excluding mediastinal lymph nodes and now that lymphoma has been the most common cause of nontraumatic chylothorax, lymphoma was primarily considered in the patient. Perioperative mediastinal lymph nodes were sampled. The pathological examination of the lymph nodes was reported as malignant mesothelioma. New nodule formations in the pleural surface were observed through chest computed tomography of the patient. However, we are of the opinion that our case with no pleural involvement, which led to bilateral chylothorax and which we diagnosed to be malignant mesothelioma through sampling of mediastinal lymph node is not a common case and we strongly believe it will contribute to the literature.

Cell block contributions to the diagnosis of pathology mediastinal puncture guided by endobronchial ultrasound EBUS

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Purpose: To describe the contribution of the study of cell block (CB) to the diagnosis of mediastinal lesions by EBUS. **Materials-methods:** Prospective, descriptive, observational study on the contribution of the CB in the EBUS made in our Respiratory Endoscopy Unit (January 2012-December 2014). In all cases cytological evaluation in situ (ROSE) was performed and samples for conventional cytology (CC) and those obtained for CB is processed. Pathology results, immunohistochemical, molecular, microbiological and flow citometry made in cytology in all cases analyzed and on CB available. Additional information from CB to CC guided fine needle puncture was then analyzed. **Results:** During the study period 185 Cook 22G needle EBUS were performed. The average age of patients were 62.5 ± 11.6 years (28,84), 77,8% were men. Valid sample was obtained in 176 (95.1 %), in 54.1% were malignant (8,1% extrapulmonary). BC could be processed in 42 patients. Malignant pathological findings were observed in 25 samples (59.5%): 20 (47.6%) lung cancer lymph node metastasis (3 adenocarcinomas, 5 squamous, 11 oat-cell, 1 mixed) ; 5 cases extrapulmonary neoplasia (2 colon, 1 breast, 1 seminoma, 1 lymphoma). Three cases were benign: tuberculosis (1 case granulomas in CB and isolation mycobacteria in cultures) and thyroid disease (2 cases). In 19 CB immunohistochemical studies were performed and 3 molecular. In the CC 14 immunocytochemical. In 48%(12/25) BC provided the relevant information: additional information immunohistochemica in 8 cases (32% of cases with BC) and allowed a specific diagnosis in 4 patients not previously diagnosed with CC (16%: seminoma, metastatic breast carcinoma, lymphoma, caseating granuloma). **Conclusions:** Processing of the cell block in the samples obtained by endobronchial ultrasound provides relevant information in about half the cases. Its implementation allows in some cases to establish the definitive diagnosis of both benign and malignant and guide individualized therapies

Hemoptysis study at a high resolution pneumology consultation system

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PURPOSE: To describe the overall hemoptysis consultations at a High Resolution Pneumology Consultation System, as well as to describe the diagnosis and final evolution of them. **MATERIALS-METHODS-APPROACH:** Retrospective, descriptive study of patients admitted to the High Resolution Pneumology Service (Hospital General Universitario Saint Lucia), from January 1 to December 31, 2013. The study was carried out according to protocol with basic clinical analysis and coagulation laboratory tests, chest CT and fibrobronchoscopy in case of smoking patients, radiological alterations or greater than 35 years old. In those cases with normal study we describe the evolution when reaching the year. **RESULTS:** Sample: 72 patients (61.1% male, 38.9% female). Average age: 54.83 ± 16.6 years. Smoking: 38% active smokers, 39% former smokers. A 30.6% showed previous respiratory history, being the most frequent the asthma in a 9.6%. Anticoagulated: 2.8%. Antiaggregated: 11.1%. A 100% of the hemoptysis were mild and non-threatening. The average duration was 35 ± 84 days. HRCT: 64.7% abnormal (23.5% solid lesions). Bronchoscopy: 17% abnormal (1.9% remains hematological, mucosa infiltration 1.9%, 5.7% endobronchial masses). A 31.1% had positive microbiological isolation in the BAS (33% Haemophilus influenza). BAS positive cytology 2%. Final diagnosis: 52.7% with anodyne additional examinations, 25% respiratory infections, 8.3% cancer diagnoses. When ending the year, no radiographic changes were visualized in patients with anodyne explorations. **CONCLUSIONS:** - Almost half of the patients (47.22%) had respiratory disease being the most common infectious (25%) followed by lung cancer (10%). - Patients with anodyne additional examinations, did not show significant radiological changes when reaching the year.

Bronchial and nonbronchial systemic artery embolization in management of hemoptysis: Experience with 348 patients

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Purpose: We aimed to report our experience with bronchial artery embolization (BAE) in the management of moderate recurrent and/or life-threatening hemoptysis. **Methods:** We evaluated the demographics, clinical presentation, radiographic studies, short- and long-term efficacy, and complications in patients Who underwent BAE, at a tertiary university hospital, from 2003 to 2012. **Results:** Three hundred forty-one patients underwent BAE for the management of moderate recurrent or life-threatening hemoptysis. Pulmonary TB and bronchiectasis were the most common etiologies for hemoptysis in our locality. The most common angiographic signs for hemoptysis were hypervascularity and systemic-pulmonary artery shunt. BAE was successful in controlling hemoptysis immediately in 95% of patients and at 1 month in 90% of patients. Recurrence of hemoptysis was observed in 9.6% of patients, and reembolization was indicated in 85% of those cases. Complications of BAE were self-limited acute and subacute complications, while chronic complications were not recorded during this study. **Conclusions:** TB and bronchiectasis are the commonest etiologies for moderate recurrent or life-threatening hemoptysis in our locality. Hypervascular lesions from the bronchial arteries and nonbronchial systemic arteries represented the major vascular abnormalities. Bronchial and nonbronchial systemic artery embolizations were effective to control both acute and chronic hemoptyses, with no serious complications.

VP-31

Hamartoma arising from the rudimentary tracheal bronchus

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Primary tracheal tumors are rare in the adult age group and often malignant (80-90%). Hamartomas are the most frequently seen benign lung tumors. Endobronchial hamartomas make up only 1.4% of all hamartomas. Tracheal hamartoma quite rare with limited number of cases compared with endobronchial hamartomas. The incidence of tracheal bronchus is 0.1-2% for right and 0.3-1% for left. Fifty-six -year-old man was admitted to our clinic with complaints of shortness of breath . In addition, he had cough for three months. He smoked eight years and he is exsmoker. On physical examination, breath sounds were natural , physical examination of other systems was unremarkable. Complete blood count, routine biochemistry, arterial blood gas values was within normal limits. Pulmonary function test showed forced vital capacity (FVC) was 83.4 % (3.19 L), forced expiratory volum in one second (FEV1) was 71.1% (2.18 L), FEV1 / FVC was 58% and reversibility test was 22.95 % response . Thorax computed tomography revealed a low density lesion in the trachea. Rigid bronchoscopy was performed to obtain a tissue sample. Lobulary polypoid lesions, well-circumscribed, coated with normal mucosa was seen on the right posterolateral wall of the distal trachea. Lesion removed by mechanical resection and argon plasma coagulation (APC) was performed for residual tissue. When rudimentary tracheal bronchus was seen after mass excision. Biopsy was consistent with tracheal hamartoma, an exceedingly rare benign tracheal tumor. He had no symptoms after endobronchial treatment and during 12 month followed-up. Based on a literature search, this is the first reported case of hamartoma arising from the rudimentary tracheal bronchus.

VP-32

User Satisfaction in Rama-chest mouthpiece for flexible bronchoscopy in Ramathibodi Hospital

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Background: Some limitations and complications have been found associated with commercial mouthpiece in bronchoscopic procedure. Therefore, we invented the Rama-chest mouthpiece from plastic normal saline bottle. **Objective:** The aim of this study was to compare user satisfaction in Rama-chest mouthpiece with the commercial mouthpiece. **Methods:** A prospective randomized controlled trial between commercial mouthpiece and Rama-chest mouthpiece was conducted on patients who were underwent bronchoscopy and required mouthpiece insertion from May to June 2014. The questionnaire about satisfaction was completed by the bronchoscopists, assistant nurses, and patients. **Results:** Thirty procedures in both groups were investigated. Mean satisfaction scores filled by the bronchoscopists and assistant nurses were not different between both groups. However, higher satisfaction score filled by the patients was found in Rama-chest mouthpiece than the comparator ($p=0.011$). Complications such as abrasion, pain, and itching were observed in commercial mouthpiece but not found in Rama-chest mouthpiece. **Conclusion:** We have introduced Rama-chest mouthpiece and proved its usefulness comparable to the commercial mouthpiece. **keyword:** mouthpiece , bronchoscopy

VP-33

Removal of tracheobronchial f.b. using flexible versus rigid bronchoscopy

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FB inhalation is one of the life threatening emergencies so pulmonologists should trained to use both flexible and rigid bronchoscopy for removal of tracheobronchial FB Methods: prospective study done in Alexandria chest department from march 2008 till november 2011 A total of 60 patients were included Flexible bronchoscopy used in 58% of cases and rigid in 42% 66% was female and 34% male , head pins was the commonest FB it account 58% 75% was above 15 years FB is more common in female mostly above 15y. Chocking is the commonest symptom and nothing on chest auscultation is the typical examination finding.

The role of bronchoscopy in the diagnosis of smear-negative pulmonary tuberculosis

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Objectives: Tuberculosis (TB) still remains a major public health problem with an estimated 8.7 million new cases of TB in 2011. Nearly half or one third of pulmonary TB cases are smear-negative. Clinicians have difficulty in diagnosing smear-negative pulmonary TB when the culture results are negative. The aim of this study was to assess the role of bronchoscopy in smear-negative pulmonary TB patients. **Methods:** We studied 62 patients with suspected smear-negative PTB. All of the diagnoses were confirmed bacteriologically or pathologically. The contribution of bronchoscopy to diagnosis of the patients was considered positive when the patients with a negative sputum and/or gastric lavage smear or culture for acid fast bacillus (AFB) had positive bronchial washing specimens (BWS) smear or culture for AFB or a histopathological diagnosis (caseation granulomatous inflammation). 29 of the patients had underwent bronchoscopy. BWS were microbiologically examined for smear and culture. Bronchoscopic mucosa biopsy was performed on patients with an endobrochial abnormality. The data were retrospectively reviewed. **Results:** Two patients had a positive BWS smear for AFB. Six patients were diagnosed histopathologically with bronchoscopy. Three of pathologically diagnosed patients had a negative culture for AFB. 10 of 29 patients had a positive BWS culture for AFB, and one of them also had a positive sputum or gastric lavage culture for AFB. % 48.2 (14/29) of the patients who underwent bronchoscopy were diagnosed with bronchoscopy. % 22.5 (14/62) of the patients with suspected smear-negative pulmonary TB were diagnosed with bronchoscopy. **Conclusions:** We concluded that bronchoscopy was a useful tool and had a higher diagnostic yield in diagnosis of smear-negative pulmonary TB even though patients had negative sputum or gastric lavage smear or culture results.

VP-35

Foreign body aspiration in adult: analysis of 28 cases

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Purpose: The aim of our study is to discuss our experience with foreign body aspirations in our interventional pulmonology unit. **Material and Methods:** Patients who were referred to our interventional pulmonology unit between January 2008 to November 2014 for foreign body aspiration and whom foreign body was sentential by intervention were included. Data were used from a retrospective analysis. **Results:** From the 28 patients, 64.3% of them were women and mean age of the patients were 43.5 ± 21.54 . Most common presenting symptom was cough (96.3%). Half of the patients were presented in 24 hours after the procedure. From the 5 patients that have undergone diagnostic bronchoscopy by fiberoptic bronchoscope, foreign body was removed in 3 of them. Rigid bronchoscopy was done in 25 (89.3%) of the patients. In 3 of the patients foreign body cannot be detected by bronchoscopy and removed by surgery. 67.9% of the foreign bodies that were removed were inorganic in nature. **Conclusion:** Bronchoscopic approaches are effective to decrease mortality and morbidity for the diagnosis and treatment of foreign body aspirations in adults. Rigid bronchoscopic approach should be the first choice in foreign body aspirations but fiberoptic bronchoscopy can also be used in selective cases by experienced physicians.

Upper airway disorders detected during bronchoscopy

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Bronchoscopy is an endoscopic technique in which a bronchoscope is inserted into the airways, usually through the nose or mouth or occasionally through a tracheostomy. Inserting the bronchoscope through the nose has the advantage that alterations in the upper airway (UA) can be found and other techniques can be avoided. In our hospital nasal insertion is the first option whenever possible. Objective: We performed this study in to determine the frequency of UA findings during bronchoscopy. Patients and Methods We performed a retrospective study of 1977 bronchoscopies performed from June 2010 to November 2014, selecting those in which pathological findings were described in the upper airway Results Of the 1977 bronchoscopies 256 (13%) (249 patients: 56(22%) women and 200(78%) males) presented findings in the UA. Table 1 shows the results by groups according to the findings described:

FINDINGS ORL	NUMBER OF PATIENTS
Vocal cord paralysis	53
Candidiasis	57
Secretions	43
Suspected of malignancy	48
Hematomas	17
Edema	31
Polypoid lesion	12
Other(*)	32

*Other: cordectomy, Czermak tuberculum, synechia of the vocal cord, flattened oropharynx, nasal synechia, fibrin hole in epiglottis, adhesion at base of the tongue, anterior commissure membrane of the vocal cords, clot in the nasal fossa, malacia of the epiglottis, septum perforation, etc. We found alterations in the UA in 13% of the bronchoscopies, 19% being suggestive of malignancy and 81% of benignancy. CONCLUSIONS: Abnormal findings in the upper airway is a relatively frequent finding during bronchoscopy (13% in our series). Nasal insertion provides extensive information of the UA and while most lesions are benign, malignant lesions can also be found and may even be responsible for tumour recurrence. A protocol of UA findings

VP-39

Role of interventional pulmonology in lung/pleura iatrogenic injuries

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Purpose Describe and identify the frequency and type of iatrogenic events related to the lung/pleura requiring admission to an interventional pulmonology unit from a tertiary major hospital. **Methods** We performed a retrospective and descriptive study between July 2009 and June 2014. All patients referred with lung/pleural iatrogenic events were studied. Demographic characteristics, type of injury, etiology and treatment were reviewed. **Results** During this period, 216 patients (3.8% of all referrals) were diagnosed and treated. A total of 232 iatrogenic events were identified. Airway injuries 157 (67.7%) were the most prevalent iatrogenic events represented by: tracheal stenosis in 68 cases (31.5%), (22.7% post tracheal intubation and 8.8% post tracheostomy); aspiration events in 25 (11.6%); foreign bodies in 12 (5.6%); airway erosions in 11 (5.1%); post-intubation tracheal lacerations in 9 (4.2%); post-intubation granulomas in 9 (4.2%) and tracheo-esophageal fistulas in 7 (3.2%). Pleural injuries were present in 70 cases (32.4%). Pneumothorax was the most prevalent in 65 cases (30.1%). It was secondary to: placement of central venous catheter (13.9%); thoracentesis (4.6%); placement of pacemakers (4.6%); computed tomography guided transthoracic fine needle aspiration (4.2%) and barotrauma (2.8%). Concerning treatment 540 procedures were required, corresponding to 5.7% of the total unit procedures: 241 (44.6%) flexible bronchoscopy; 179 (33.2%) rigid bronchoscopy and 120 (22.2%) pleural catheters. Patients with tracheal stenosis required a higher number of bronchoscopic interventions (47.2%). **Conclusion** In our interventional pulmonology unit, the procedures related to lung/pleural iatrogenic injuries had a frequency of 5.7%. The most prevalent was related to airway injuries secondary to tracheal intubation or tracheostomy. Given the frequency and type of iatrogenic events a specialized and prompt referral of the patients is fundamental.

Endobronchial treatment of benign tumors: Which modality is best?

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Background/Purpose: Endobronchial benign tumors are a rarely seen clinical entity but may cause significant symptoms. Endobronchial treatment has the potential for relieving symptoms while saving the patient from invasive surgical procedures. No controlled trials have been published that compare the various endobronchial treatment modalities for endobronchial benign tumors.

Methods: This study is a retrospective cohort study from a review of medical charts . Eligibility criteria included diagnosis of a benign endobronchial tumor. Our institution's bronchoscopy and pathology database was searched for specific benign tumors and the results were further detailed based on the endobronchial location. **Results:** Forty-four patients with pathologically confirmed benign endobronchial tumors were included. Tumor regression was achieved in all patients with diode laser and argon plasma coagulation in combination with or without cryotherapy and without any major complication. There were no significant differences between the use of either diode laser or of argon plasma coagulation as a modality with immediate effect from the occurrence of residual tissue that needed cryotherapy($p>0.05$). **Conclusion:** Diode laser and argon plasma coagulation in combination with or without cryotherapy are safe and effective methods for endobronchial treatment of benign endobronchial tumors.

VP-42

Brochoscopic resection of tumor in a case of Adenoid Cystic Carcinoma of trachea with Aspergillosis

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PURPOSE: To report a case of diabetic female with adenoid cystic carcinoma and superadded infection with aspergillous who came to centre and was treated by bronchoscopic resection. **CASE PRESENTATION:** A 44 year old diabetic female presented to ED with breathlessness and non productive cough since 1month, fever since past 20 days. She noticed minimal blood in her sputum 4-5 times. She had a past history of admission with bronchial asthma (PFT showed very severe obstruction with significant BDR. Respiratory examination revealed increased expirum/ inspirum ratio and decreased breath sounds in bilateral hemithorax Wheezing was present in bilateral lower zone and saturation was 88%.Intermediate flow oxygen and brochodilators were given and saturation increased to 98%. Her tests showed leucocytosis (20,400 90%neurrophils). Sputum culture showed aspergillous. Her galctomanan antigen was positive .Serum IgE levels were normal. A cxr showed increased bronchiovesicular markings. CECT of thorax was done which revealed scattered areas of centrilobular nodules in bilateral lung fields and intraluminal Tracheal nodular lesion.Flexible bronchoscopy showed a lobular growth almost occluding the lumen (90% obstruction) of lower one third of trachea. Patient was started on Amphotericin . Mass was removed by rigid bronchoscopy which turned to be Adenoid cystic carcinoma. Patient improved symptomatically and underwent radiotherapy. **RESULTS AND DISCUSSION:** Patients with ACC usually present with symptoms such as non productive coughing, wheezing and dyspnoea and are often treated for asthma for months to years before being correctly diagnosed. **CONCLUSION:** This case demonstrates the importance of rapid evaluation of individuals with reactive airway disease. Early diagnosis can prevent tumor invasion and tumor can be thereby avoiding radical surgical procedures and reducing chances of metastases. Whenever a physician encounters a bronchial asthma patient not responding to bronchodilators and decreased breath sounds in bilateral hemithorax ACC should be kept as a differential.

Management of obstructive bronchial fibrolipoma bronchoscopically

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Purpose: Lipomas make up to 0.1-0.5% of all benign lung tumors. The main problem with benign tumors are the complications associated with bronchial obstruction. A patient with a mass lesion as a coincidental finding after chest trauma diagnosed as endobronchial fibrolipomatosis was presented with review of literature. **Case:** A 72-year-old male presented with a mass detected coincidentally at the postero-anterior chest x ray taken after a chest trauma. The patient had no outstanding medical history except 10 pocket/year smoking history. A contrast enhanced chest CT showed an atelectasis in the left lower lobe. In the fiberoptic bronchoscopy, revealed a well-defined polypoid smooth-surfaced mass totally obstructing the left lower lobe bronchus entrance. At the PET-CT scan low-medium FDG was detected at the left lower lobe posterobasal segment at a 6x5.4 cm localisation. For obtaining a bigger biopsy rigid bronchoscopy was done and a polypoid pink mass lesion which has a lobulated contour located at the entrance of the left basal segment entrance was taken out by biopsy pens and its base was seen to be originated from lateral wall. Cryotherapy was applied and procedure was ended with bronchial cleaning. Biopsy resulted as fibrolipomatous polypoid mass. In the follow up bronchoscopy of the patient done at the 1st and 3rd months, cryotherapy was applied again to the base of the lesion. The patient remained asymptomatic, with good clinical and radiological evaluations. **Conclusion:** Although recurrence of benign endobronchial tumors is extremely rare after complete surgical resection, the rate of recurrence after endobronchial resection is less well described. The management should be individualized according to the characteristics of each patient, tumor anatomic factors and condition of the affected lung and bronchoscopic approach should be the first line therapy in these patients after thorough evaluation.

VP-44

An endotracheal ectopic parathyroid adenoma mimicking asthma

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Primary benign tumors of the trachea are uncommon. These tumors may cause tracheal occlusion and may lead to a misdiagnosis of asthma. Ectopic parathyroid adenoma (EPA) can be seen anywhere between the mandibular angle and the mediastinum. The distal part of the trachea is a rare location for EPA and it has not been reported a parathyroid adenoma obstructing endotracheal lumen in the literature. We describe a 52-year-old women treated for asthma for several years, who presented with progressive dyspnea. After finding a mass obstructing the tracheal lumen in the case's thorax computed tomography (CT), endobronchial treatment proved to be diagnostic and therapeutic. After, total mass excision was performed via endobronchial treatment, pathologic examination reported as EPA. Key words: Ectopic parathyroid adenoma, endobronchial treatment, trachea benign tumors

VP-46

Bronchoscopic interventional procedures in tumours involving central carina

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Purpose: Malignant tumours involving central carina require different approach regarding interventional bronchoscopic procedures. **Methods:** In our institution, during 2014. 3568 bronchoscopies were performed and in 2790 patients (78.2%) diagnosis of malignant disease was established. **Results:** In 48 patients central carina was involved: in 11 patients obstructive tumour was arising from central carina with infiltration of both main bronchi; in 20 patients tumour originated from right main bronchus with infiltration of central carina and in 17 patients tumour was protruding from left main bronchus with central carina infiltration. In all patients we performed one or more interventional bronchoscopy procedures (argon plasma coagulation, mechanical recanalisation with tumour debulking and cryorecanalisation in selected cases) with favourable symptomatic response in 92% of patients. After the intervention, additional anti-cancer treatment was planned and given to the majority of patients. In 6 of 11 patients where tumour was arising from central carina, sudden lethal outcome occurred within two weeks after intervention under clinical picture of massive acute pulmonary embolism. In 17 patients reintervention was required due to dyspnoea and stridor with significant symptomatic response. **Conclusion:** In most patients we achieved palliation of dyspnea for 4.1 week.

VP-47

Pulmonary hyalinizing granuloma mimicking metastatic lung cancer

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Pulmonary hyalinizing granuloma is a very rare benign condition, which usually manifests as solitary, sometimes as multiple pulmonary nodules. Deposition of immune complexes in the lung parenchyma due to hypersensitivity reactions is implicated in the etiology of pulmonary hyalinizing granuloma. A 59-year old female patient who presented to our clinic with complaints of chest pain and cough had bilateral, multiple and rounded lesions with regular margins suggesting metastatic lung disease. A transthoracic needle biopsy of the nodule was performed in the left pulmonary anterior segment. Biopsy showed no malignancy. Since no diagnosis was made by the biopsy, the patient underwent a video-assisted thoracic surgery. The wedge biopsy reported pulmonary hyalinizing granuloma. We aimed to present the diagnosis and treatment stages of our patient who was diagnosed with pulmonary hyalinizing granuloma in the light of literature review.

VP-48

Diagnostic utility of medical thoracoscopy in peripheral parenchymal pulmonary lesions

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The aim was to evaluate the utility of medical thoracoscopy in the diagnosis of peripheral parenchymal lung lesions. This study included 15 patients with peripheral parenchymal lung lesions admitted to the chest department, Alexandria main university hospital in the period between May and December 2013. In cases without pleural effusion, we used the method described by BOUTIN and coworkers. Inspection of the pleural cavity was then done by the rigid thoracoscope. Multiple forceps biopsies were taken from the visceral pleura and lung by a coagulating forceps connected to electrocautery set at 60 to 100 watt. It is convenient to perform medical thoracoscopy under local anaesthesia and conscious sedation since it improves patients comfort and tolerance as well as avoids general anaesthesia related risks. Our results provide circumstantial evidence for the safety and efficiency of thoracoscopic hot (electrocautery) forceps lung biopsy in the diagnosis of different lung lesions (Diffuse lung disease as well as localized lung lesions extending to peripheral lung regions).

VP-49

Can pH help in differentiating paramalignant from malignant pleural effusions

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Purpose. Our purpose was to compare pH values in paramalignant and malignant pleural effusions. **Methods.** We retrospectively reviewed the pleural effusion pH levels and pleural effusion aetiology in 154 patients with malignant disease who were treated at the Clinic Golnik in 2011. **Results.** The final aetiology of the pleural effusions was considered to be paramalignant in 26 cases, and secondary to malignant involvement in 78 cases (carcinosis in 59, mesothelioma in 11, and lymphoproliferative disorders in 8 cases). We detected significantly higher pH values in the paramalignant effusions (mean/SE values: 7.39/0.01), compared to effusions due to malignant pleural diseases (7.30/0.01), pleural carcinosis (7.31/0.01), or mesothelioma (7.21/0.05). None of the paramalignant effusions had pH values less than 7.32. **Conclusion.** The results suggest that in contrast to malignant the pH values in paramalignant pleural effusions should be normal and in cases with pH below 7.32 additional cause for higher cell lysis should be carefully searched.

VP-50

Beware of Simultaneous Bilateral Spontaneous Pneumothorax

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Simultaneous bilateral spontaneous pneumothorax is rare, accounting few cases yearly in Wong Tai Sin Hospital (WTSH). 84 years-old man presented with sudden dyspnea and admitted to Emergency Department. He denied any recent chest injury, strenuous exercise, and diving. He was a non-smoker and had history of left lung shadow but refused investigation. Examination showed decreased left side air-entry with hyperresonant percussion note. CXR reviewed left side pneumothorax. Left side chest drain was inserted. Post CXR showed right side pneumothorax. So right side chest drain was also inserted. Talc pleurodesis was performed on both side sequentially. Patient was recovered uneventfully. 61 year-old bed-bound aged home resident had hereditary cerebellar degeneration. He presented with fever and CXR showed right mid-zone shadow. He was a non-smoker. Augmentin was started after septic workup. Sputum AFB smear came back as positive and culture reviewed mycobacterium species. Patient was transferred to WTSH for tuberculosis management. Examination showed decreased air-entry over lower zones bilaterally. He developed fever and coffee-ground vomitus after one week of HRMZ treatment (isoniazid, rifampicin, ethambutol, pyrazinamide). CXR reviewed bilateral pneumothorax. Bilateral chest drains were inserted. However, both lungs were not fully expanded despite the application of negative pressure. Pleurodesis was done twice but was unsuccessful. Patient was unfit for surgical pleurodesis and he finally succumbed. Although there are new methods of tackling pneumothorax nowadays, success of treatment patient relies on timely recognition. There may not be any rare diseases like histiocytosis X, lymphangioliomyomatosis, osteogenic sarcomatous metastases, Hodgkin's disease, mesothelioma, cystic fibrosis. Contrary to most doctors' belief, emphysema and bullous lung disease were not associated with bilateral pneumothorax. Congenital or acquired pleuro-pleural communication is only discovered during surgical pleurodesis. With timely chest drains insertion, the short term prognosis is good but the long-term prognosis depends on the underlying pulmonary function.

VP-51

Safety of bronchial thermoplasty in patient with pacemaker

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Purpose: To report safety of bronchial thermoplasty (BT) in a pacemaker patient. **Case:** A 35 years-old male with history of severe persistent asthma since childhood, requiring monthly hospitalizations and multiple intubations presented to the Interventional Pulmonology Clinic for evaluation. Other significant medical history included diabetes mellitus, sick sinus syndrome with dual chamber pacemaker placement, obstructive sleep apnea on CPAP, gastroesophageal reflux disease, Factor V Leiden deficiency, pulmonary emboli and multiple myocardial infarctions. Recent PFT: FEV1 3.99 L (55%), FVC 5.81 L (75%), FEV1/FVC 68%, with no significant bronchodilator response. Labs: negative Aspergillus serology and normal IgE. Chest CT: negative for bronchiectasis. Asthma medications included albuterol, montelukast, budesonide, formoterol, tiotropium, and prednisone 20 mg daily. He was a lifelong non-smoker. His echocardiogram revealed grade I diastolic dysfunction with EF 55%. On examination, he had bilateral wheezing. Dynamic bronchoscopy showed normal vocal cords and tracheobronchial tree. Bronchioalveolar lavage revealed no infection. After careful consideration, he agreed to undergo BT. We performed BT 3-4 weeks apart with pacemaker deactivation during the procedure: 1st - 47 activations in right lower lobe, 2nd - 35 in left lower lobe, 3rd - 56 in right upper and left upper lobes. Patient was admitted for observation post-procedure with no adverse events. **Discussion:** BT has been shown to improve quality of life in patients with asthma, reduce ER visits and severe exacerbation with 5-year safety data. In the US, FDA approved BT for patients with severe, persistent asthma despite maximal medical therapy. BT is not approved for asthma patients with pacemaker, internal defibrillator or implantable electronic device although there is no evidence of interaction between the procedure and the device. **Conclusion:** We report a case of asthma successfully treated with BT in a patient with pacemaker with no adverse outcomes.

VP-52

EBUS-TBNA for lung cancer staging in an academic setting

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Purpose: To evaluate the results with EBUS-TBNA for lung cancer staging in an academic hospital setting. **Materials-Methods-Approach:** Retrospective analysis including patients with diagnosed lung cancer submitted to EBUS-TBNA for mediastinal lymphnode staging. All procedures were performed under general anesthesia using a BF-UC180F echobronchoscope and an Olympus EU-ME1 processor (Olympus Medical Systems, Tokyo-Japan) or by a Prosound alpha-5 (Aloka, Tokyo-Japan) and a disposable 22G dedicated needle compatible with the EBUS scope. Samples were collected orderly as recommended in the literature. **Results:** EBUS-TBNA was performed for lymphnode staging in 149 patients (58% males; mean age 66 years) between January/2011 and January/2014. A total of 407 lymph nodes were sampled by EBUS-TBNA with a prevalence of adenocarcinomas (67%), followed by squamous carcinoma in (24%). The sensitivity was 96%, specificity was 100% and negative predictive value was 85% for lung cancer staging. **Conclusions:** EBUS-TBNA was safe and accurate for lymphnode staging in lung cancer patients.

Utility of endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) in the diagnosis of mediastinal masses and adenopathies of unknown etiology

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Introduction EBUS-TBNA is a minimally invasive procedure that can be used in the diagnostic of mediastinal lymphadenopathies and tumor masses of unknown origin and in the staging of non-small cell lung cancer. **Aim** The aim of the study was to determine the utility of EBUS-TBNA, in the evaluation and the diagnosis of mediastinal lymphadenopathy and mediastinal tumor masses of unknown etiology and to compare the on-site diagnostic results with the histopathological examination. **Material and method** We retrospectively analyzed data from 56 patients with mediastinal adenopathy or tumor masses detected on thoracic computed tomography between June 2014-December 2014, in the Bronchology Department of Pulmonology Clinic Cluj-Napoca, Romania. The patients underwent EBUS-TBNA and for each patient a core biopsy was obtained. **Results** All 56 patients successfully underwent EBUS-TBNA and no complications were observed. Adequate samples were obtained in all the patients. EBUS-TBNA diagnosed 47/56 cases (83.92%). The distribution of the patients according to the final diagnosis were: malignant tumor 39 cases (82.98%), sarcoidosis 5 cases (10.64 %), reactive lymphadenopathy in 3 cases (6.37%). For all cases included in the study we calculated the Sensitivity (Se=66.67%), Specificity (Sp=94.74%), False Negative Ratio (FNR=3.33 %), False Positive Ratio (FPR=5.26%), Negative Predictive Value (NPV=60.00%) and Positive Predictive Value (96.00 %) of the on-site examination compared to the final histological result. When we calculated the up-mentioned indicators by excluding from our series the cases with small-cell and lymphoma we obtained the following values: Se= 82.61%, Sp= 94.74%, FNR=17.39%, FPR 5.26%, NPV=81.82%, PPV=95.00%. **Conclusions** EBUS is a safe, fast and minimally invasive approach for sampling of mediastinal tissues, especially for non-small cell carcinomas. In our opinion this technique should be considered for the evaluation of mediastinal masses and adenopathies of unknown origin early in the diagnosis process.

VP-54

Is there a place remaining for TBNA?

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We report our experience using $\text{æblind}\text{Æ}$ TBNA. We started using TBNA in our center in January 2010, and till now 300 patients had this procedure. Most frequently punctured areas were LN station 7 followed by bulky LN stations 4R and 4L. We started with a cytology (22 or 21 gauge) needle and actually we utilize histology (19 gauge) needle. We try to obtain at least 4 adequate TBNA samples/ station. In accord with our pathologist we smear the specimen from the needle directly in alcoholic solution. We don't use ROSE. No major complications occur. The diagnosis was easy in neuroendocrine lung cancer; the accuracy for sarcoidosis was 65%; for the adenocarcinoma we could proceed EGFR and ALK mutation; one case of mantle lymphoma. I think this method is an underused diagnostic modality with a good efficacy and safety; it is cheaper than EBUS and it would be realized in routine bronchoscopy.

VP-55

Headscarf pin localized in the right main bronchus and two pins in the abdomen: a case report

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Tracheobronchial foreign body aspiration is a serious condition that might result in mortality and it necessitates emergency intervention. Studies in literature report cases of pin aspiration related to headscarf use in Muslim countries. The most frequent symptom in foreign body aspirations is coughing. Radio-opaque foreign bodies can be detected through lung radiology. Following diagnosis, the foreign body needs to be removed as soon as possible. The removal procedure is carried out by flexible fiberoptic bronchoscopy or rigid bronchoscope. We hereby present the case of a patient who presented to the emergency department with headscarf pin aspiration and whose radiography results revealed 2 pins in the abdomen and one pin in the right main bronchus.

VP-56

Clinical features, outcome and factors associated with mortality in patients with Nocardia pneumonia

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Abstract Background: Nocardia pneumonia has emerged as an important cause of mortality and morbidity in both immunocompetent and immunocompromised hosts. In this study, risk factors, clinical features, outcomes and factors associated with mortality in nocardia pneumonia were reported. **Materials and Methods:** Clinical records of all cases diagnosed with nocardia pneumonia during 2001-2010 were reviewed. Identification of Nocardia species was based on positive Gram stain and positive modified acid-fast stain results, colonial morphology, and conventional biochemical reactions. Data was analyzed using SPSS version 17. Factors associated with mortality was assessed by univariate and multivariate analysis. **Results:** Fifty Five cases were identified. Fever, cough and dyspnea were the most common presentations. Most important risk factors were chronic steroid administration (69%) and an underlying malignancy (24%). Most common complications observed were respiratory failure (27%) and septicemia (27%). 19(34.5%) patients died. Factors associated with mortality were Smoking (p 0.01), decreased appetite (p 0.007), leukocytosis (p 0.006), mechanical ventilation (p <0.001) and septicemia (p <0.001). Septicemia (OR 20 [95% CI 3.13 -130] was found to be independent risk factor for mortality on multivariate analysis. **Conclusion:** We report underlying malignancy and chronic corticosteroid therapy as a risk factor for development of nocardiosis in our patients. High mortality rate in this cohort were observed. Septicemia was found to be independent risk factor for mortality. Clinicians should keep a high index of suspicion for early diagnosis and management to decrease mortality.

VP-57

Mediastinal hematoma secondary to catheterization with mass appearance: a case report

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Central venous catheter (CVC) is a procedure mainly used for continuous intravenous administration of drugs, fluid replacement, delivery of nutritional supplements and hemodynamic monitorization, if required. Complications associated with the procedure are rare. Mediastinal hematoma is a severe condition that requires early diagnosis and treatment. We present a case report of a mediastinal hematoma associated with jugular venous catheter which was placed for vascular access in a patient on long-term dialysis, suggesting a mass appearance in radiography.

Retrospective analysis of resuscitative emergency thoracotomy

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Aim A small but significant proportion of patients who sustain a thoracic injury will require an emergency thoracotomy (ET) as part of the initial resuscitation and to facilitate definitive management of their injuries. In this retrospective study, we describe our experience of patients with chest trauma associated necessitating ET management. **Methods** We retrospectively reviewed the medical records of patients with chest trauma associated with penetrating and blunt injuries necessitating ET management within the first hour of arrival to emergency department, between January 2008 and May 2013. The demographic features, mechanism of injury, surgical interventions and rate of mortality were recorded. **Results** There were 7 male and 4 female patients, and their mean age was 29.3 years (range, 9-77 years). The majority of patients had penetrating injuries, mainly due to gunshot wounds. Surgical approach was made by one of three incisions (servical collar incision, anterolateral thoracotomy, posterolateral thoracotomy). Three of eleven patients were died before the hospital discharge. **Conclusion** Thoracic trauma is known as a common cause of significant morbidity and mortality; however, opportunities of emergency thoracotomy may a miraculous life-saving procedure requiring timely surgical intervention for victims of trauma.

VP-59

Retained foreign-body after stab wound chest: a case report

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Foreign bodies may occur after thoracic trauma, but foreign bodies retained after stab wounds are rare. This paper reports the case of a 20-year-old male who was admitted with the diagnosis of hemothorax following a single stab wound chest injury. One month later, he was referred to the authors' clinic with complaints of pain and swelling under the left scapula due to a previously overlooked foreign body on the chest wall.

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Workshop 3	Bronchial thermoplasty	Boston Scientific
Workshop 4	Electromagnetic bronchoscopy navigation	simmedica-Superdimension
Workshop 5	Coils for the treatment of advanced heterogeneous and homogeneous emphysema	PneumRx
Workshop 6	Rigid bronchoscopy and stent placement	Richard Wolf
Workshop 10	EBUS-TBNA and EBUS GuideSheath procedure - Get the basics right	Olympus
Workshop 11	Electromagnetic bronchoscopy navigation	Veran Medical Technologies
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Workshop 7.6	EBUS needles: from cytology to histology	Cook Medical
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Workshop 9.2	EBUS-TBNA and EBUS GuideSheath procedure - Advanced	Olympus
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Exhibitors

The exhibition area is located in rooms Neptuno and Mercurio located in the ground floor of the hotel venue, Hesperia Tower Hotel. Coffees during morning and afternoon breaks and finger-lunch on Thursday and Friday will be served in the exhibition area and foyer.

Opening hours:

Thursday, 23 April 09.00-18.00

Friday, 24 April 09.00-18.00

Saturday, 25 April 10.00-14.00

List of exhibitors

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Pulmonx International

Address: Rue de la Treille 4, 2000 Neuchatel - Switzerland

Tel: +41 32 475 20 70

Email: info@pulmonx.com

Pulmonx strives to be the cornerstone of interventional pulmonology by focusing on developing life-changing, cost-effective technologies that improve the lives of patients suffering from lung disease worldwide. Pulmonx has developed the Endobronchial Valve (EBV) Therapy, a non-surgical approach to treating late stage emphysema that is designed to reduce the volume of the diseased region of the lung by blocking airflow. The therapy incorporates a diagnostic technology called the Chartis Pulmonary Assessment System that is designed to optimize patient selection and targeting, enhancing clinical outcomes.

Stand nr. 3-4-5

Richard Wolf

Address: Pforzheimer Str. 32, 75438 Knittlingen, Germany

Tel: +49 70 43 35-0

Email: info@richard-wolf.com

Richard Wolf is global manufacturer of surgical instruments with headquarters in Germany. We develop, manufacture and market specific system solutions for minimally invasive human medicine in different disciplines. All instruments and accessories are standing for high quality and excellence.

Stand nr. 6

MediSurge

Address: 17,Bd Schloesing, 13010 Marseille, France

Tel: +33 496 140 084

Email: info@medisurge.net

Medisurge was launched in 2000 to answer the need of operators for interventional pulmonology tools to be used in Rigid Bronchoscopy. Since then Medisurge became one of the key actor of this field recognized as top quality services and equipments supplier around the world. Design of the most fitted tools is our commitment to Interventional Pulmonology.

Stand nr. 7-8

Veran Medical Technologies

Address: 1908 Innerbelt Business Center Dr. | St. Louis, MO 63114

Tel: 314, 659, 8500

Email: rob.powers@veranmedical.com

Veran Medial Technologies is a privately held medical device company headquartered in St. Louis, MO, USA. Veran has developed and commercialized a unique thoracic navigation system that includes an accurate navigation bronchoscopy technology and a navigated percutaneous approach for diagnosing early stage lung cancer. Veran's SPiNPerc procedure is the only product on the market that allows lung specialists to start with a bronchoscopic approach and quickly transition to a percutaneous approach in the same procedure to reach small solitary nodules in the periphery of the lung.

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Stand nr. 13-14-15-16

Olympus Europa SE & CO. KG

Address: Olympus Europa SE & CO.KG, Wendenstr. 14 - 18, D - 20097 Hamburg

Tel: + 49 40 23773-0

Email: flexible.endoscopy@olympus-europa.com

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Stand nr. 17-18-19-20

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Address: C/ Tortosa, 199 - 08018 Badalona, Barcelona

Tel: 902 115 935

Email: infosh@ashmed.net

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Novatech SA, France, produces top quality medical devices used worldwide. Our main brands are DUMON® and GSS™ Silicone Stents, STERITALC® - Large Particle Size Talc for use in the pleural cavity, the DUTAU®-NOVATECH rigid bronchoscope, and the TONN™/NOVATECH Stent Applicator. Leufen Medical, Germany, produces the self-expanding Nitinol aerstent®. With aerstent® TBS, TBY and TBJ, fully covered straight, Y- and J-stents are available. Novatech and Leufen Medical both belong to the bess group.

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Address: Mündelheimer Weg 48· 40472 Düsseldorf, Germany

Tel: +49 (0)211 73 27 626-32

Email: mark.tschersich@micro-tech-europe.com

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Tel: +34 91 66 325 00

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Stand nr. 23

Broncus Medical Inc.

Address: Broncus Medical Inc. 1400 N. Shoreline Blvd, Suite A8 - Mountain View, CA 94043

Tel: 650-428-1600

Email: lbi@broncus.com

Broncus Medical, supply and manufacture Lungpoint, a leading edge virtual navigation system and complimentary devices for the diagnosis and treatment of lung cancer.

Stand nr. 24

Karl Storz GmbH & Co. KG

Address: Mittelstrasse 8, 78532 Tuttlingen, Germany

Tel: +49 (0) 7461 - 708 0

Email: info@karlstorz.com

KARL STORZ is one of the world's leading suppliers of endoscopes for all fields of application and is well-known for its innovative and high-quality products.

Stand nr. 25

Fujifilm Europe GmbH

Address: Heesenstraße 31, 40549 Düsseldorf, Germany

Tel: +49 211 5089 0

Fax: +49 211 5089 344

Website: www.fujifilm.eu

Nowadays Fujifilm entities operate in over 50 group companies in Europe and employ 5,000 people engaged in R&D, manufacturing, sales, and service support. Throughout Europe they serve a range of industries including medical, life science, graphic arts, electronic materials, chemical, optics, recording media, motion picture, and photographic technologies.

Stand nr. 26

EFER Endoscopy

Athelia 1, 13600 La Ciotat, France

Tel: +33 442 715 101

Email: efer@efer.com

As an expert endoscopy manufacturer since 35 years, EFER provides a comprehensive line dedicated to interventional bronchoscopy techniques. Flagship product of the line, the BRONCHOSCOPE EFER-DUMON is presented at ECBIP 2015 in its latest SERIES III version. SERIES III includes in particular the JUMBO BRONCHO developed in collaboration with Doctor Antoni Rosell.

More on www.efermedical.com and www.bronchotraining.org

Stand nr. 27

Boston Scientific

Parc d'Affaires Val St Quentin 2, rue René Caudron – Building. H 78960 Voisins le Bretonneux, France

Tel: +33 (0)1 39 30 97 00

Email: ReceptionFrance@bsci.com

Boston Scientific transforms lives through innovative medical solutions that improve the health of patients around the world. As a global medical technology leader for more than 35 years, we advance science for life by providing a broad range of high performance solutions that address unmet patient needs and reduce the cost of healthcare. For more information, visit www.bostonscientific.eu and connect on Twitter (@BTforAsthma) and Facebook.

Stand nr. 28

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Address: 530 Logue Ave, Mountain View, CA 94043, Estados Unidos

Tel: +49 211 542 275 0

Email: info-EU@pneumrx.com

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Tel: +1 216 229 2040

Email: symbionix@3dsystems.com

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Stand nr. 30

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Address: O'Halloran Road, National Technology Park, Limerick, Ireland

Tel: +353 61 334440

Website: www.cookmedical.com

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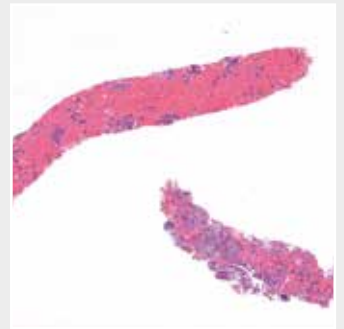
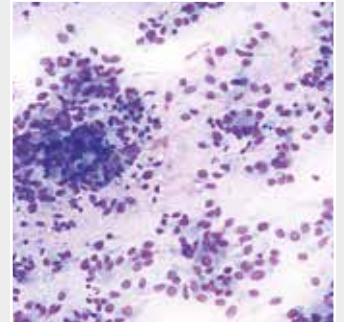
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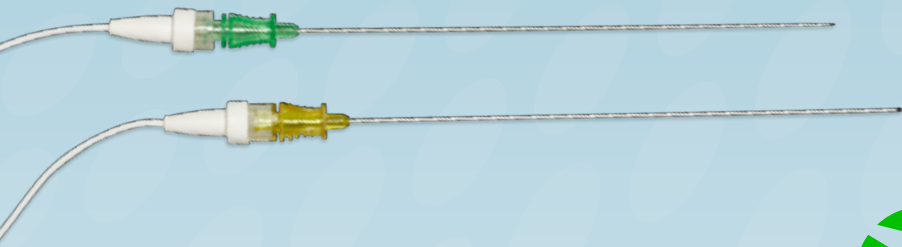
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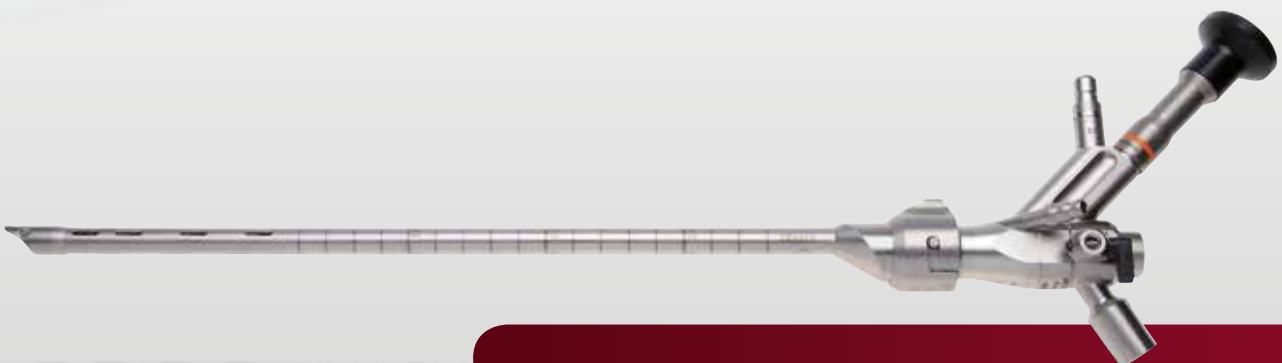
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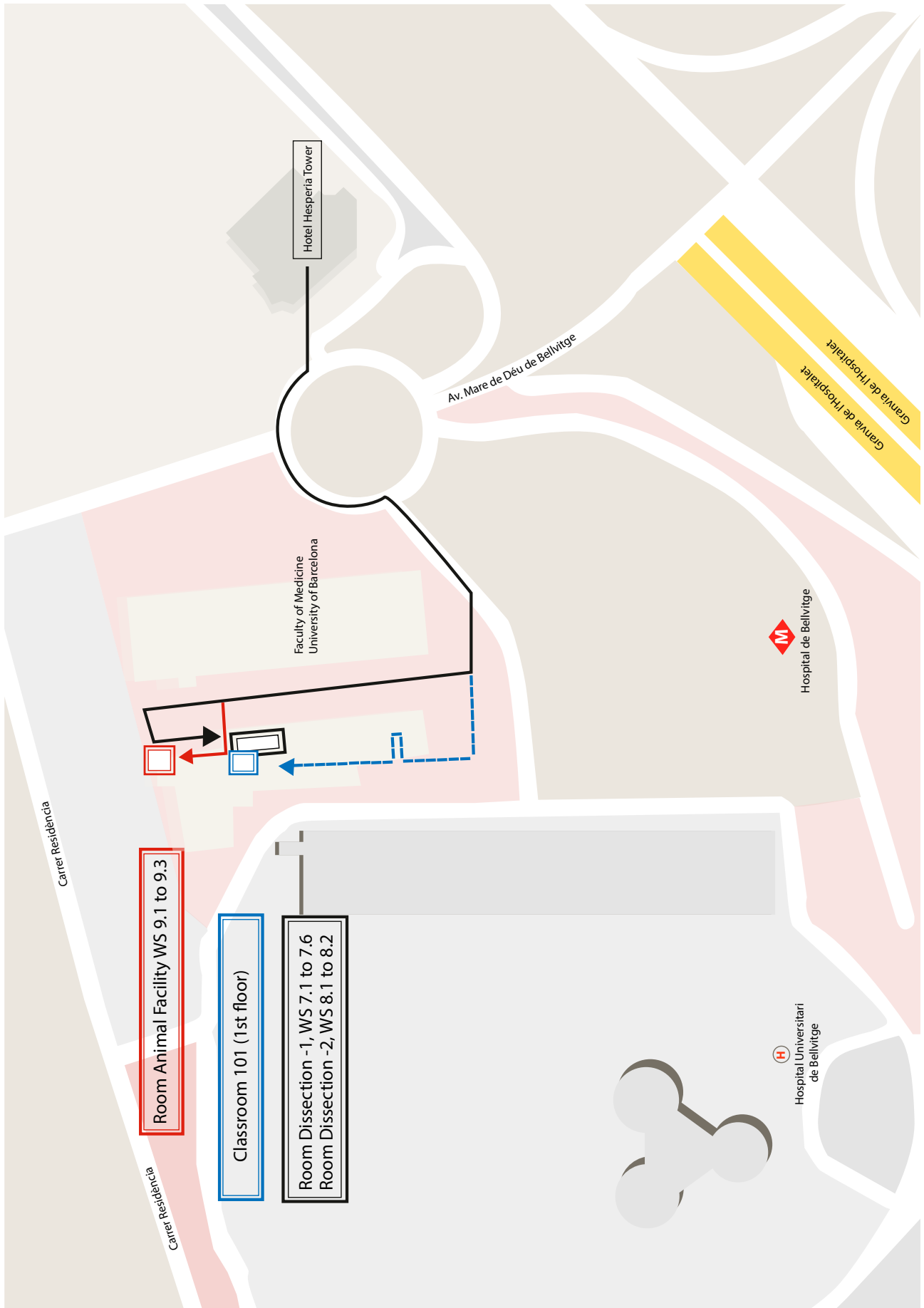
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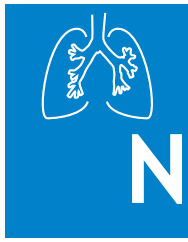
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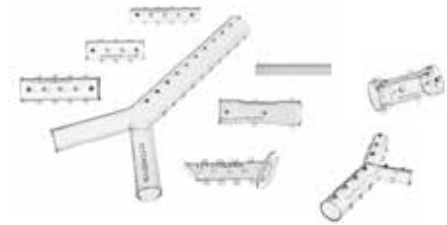


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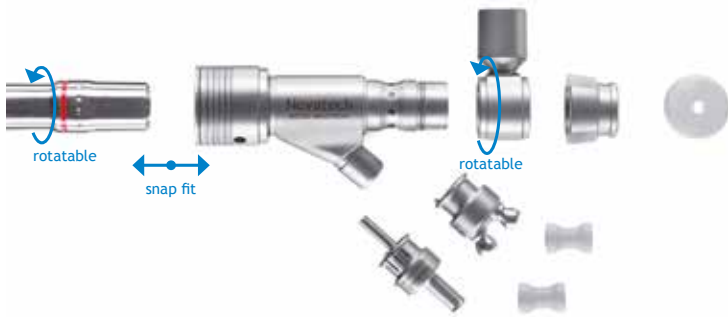
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Respiration

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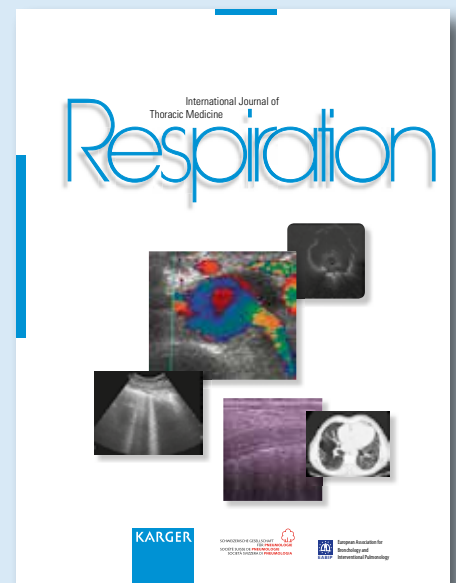
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