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Opinion/Editorial

I would like to start off by wishing everyone a very Happy New Year! I hope everyone had a joyful and relaxing holiday season.

The main purpose of the WABIP Newsletter is to deliver new and relevant material about interventional practice that will be valuable to the reader, as well as provide information about the organization to WABIP members. We want to make sure we continue to achieve this mission in 2016! Our organization is increasing considerably (almost 6000 members worldwide representing 40 national and regional organizations) and I want to make sure that we are able to maintain our goal of embodying the interests and concerns of all of our members as we continue to grow.

As you would have noticed, the WABIP management team created a survey that was sent to all WABIP members as a means to determine how you value the newsletter as a benefit of membership, as well as tell us ways in which we can improve and build an even better newsletter for readers. Thank you to all members who took the time to complete the survey.

The results were very positive and useful for us to determine the direction for future issues. Some of the highlighted results are the following:

1) The WABIP newsletter is a valuable tool, a very important benefit of membership and succeeds in achieving the goals I discussed above

2) New topic ideas for Tips from the experts section
3) We will have guest editorials from invited experts
4) We will be introducing an additional section on practical teaching strategies

I am very pleased and honoured to continue serving as your Editor-in-Chief and hope that we can continue to provide a relevant and evolving product to all of you. I encourage you to contact me with any additional ideas or questions at newsletter@wabip.com.

Editor in Chief
Kazuhiro Yasufuku

Technology Corner

Technology corner: Elastography for Endobronchial Ultrasound

Introduction: EBUS-TBNA is recommended for the diagnosis and staging of mediastinal adenopathy in patients with confirmed or suspected lung cancer or extrathoracic malignancy. While the sensitivity of EBUS-TBNA for detecting mediastinal lymph node involvement is >90%, a further increase in sensitivity is desirable. In addition, EBUS image analysis may guide biopsy during EBUS –TBNA, clarify whether a lymph node is malignant or benign without actual lymph node sampling or impact the decision-making process during the TBNA procedure. Pertinent to mediastinal and hilar lymph node involvement in patients with primary lung cancer or extrathoracic tumors, EBUS elastography is a technique for measuring the stiffness of tissues surrounding the central airways. This technique characterizes the biomechanics of a region of interest on the basis of its response to the application of mechanical stress. This stress can be quasistatic (local compression by the EBUS probe on the airway wall) or vibratory (propagation of waves from vascular pulsations or respiratory movements). Elastography has been applied during EBUS-TBNA performed for diagnosis or staging of inthrathoracic lymphadenopathy. This section summarizes the physics principles and the existing literature of EBUS elastography.

Background: In the various medical applications of elastography, the response to the mechanical stress is described by mapping the tensile modulus (i. e. Young's modulus). This corresponds to the slope of the stress–strain relationship measured during a series of tensile tests and defines the relationship between stress (force/unit area) and strain (proportional deformation) in a solid material. The elasticity of tissues depends on their nature (fat infiltration or fibrosis) and homogeneity. Neoplastic tissues are usually stiffer than normal structures, mainly due to their higher cellularity, vascularity or fibrosis. Compression of structures produces a deformity or strain effect that is inversely related to the hardness of the tissue; thus, intuitively, harder tissues are less deformable than softer tissues. With elastography, structure deformations caused by compression or vibration, are mapped to produce color images representing the relative elasticity or stiffness of tissue. Color-coding of the tensile response provides mapping of the elasticity of the region of interest examined: very hard tissues are generally coded as blue, while soft tissues are coded as red/yellow and intermediate tissues are coded as green. Elastography mode is performed after recording of the EBUS image characteristics in the B-mode (1-6). The scanning range should include the entire lymph node and surrounding tissues. Elastographic and B-mode images are simultaneously displayed side-by-side on the monitor (Figure). Because interpretation can be subjective, elastographic patterns have been proposed according to the dominant colors and their distribution within the lymph node. Some authors propose the following grading standard to more objectively document the elastography patterns: 1 point when over 80% of the section is green and yellow/red; 2 points when over 50% but <80% of the section is green and yellow/red; 3 points when over 50% but <80% of the section was blue; and 4 points when over 80% of the section was blue (1). Semi-quantitative categories have been used in the original reports; these include predominantly non-blue; partly blue, partly non-blue and predominantly blue (5). Stiff area ratios [(stiff areas as blue pixels) / (lymph node areas as region of interest pixels)] have also been used for assessing lymph node elasticity (5).

Clinical applications: Elastography has already been implemented in the study of breast, prostate and thyroid tumors and in its endoscopic mode in the esophageal ultrasound (2). Several studies have been conducted to investigate the diagnostic value of EBUS elastography for mediastinal and hilar lymph node metastasis in lung cancers and other cancers (Table) (1, 4-6). As mentioned above, some authors use elastography color patterns, while others use the strain ratio. One study found this latter parameter as more sensitive and specific for determining malignant lymph nodes than the elastography grading score or standard EBUS criteria (1, 3). Indeed, a prior EBUS study showed that round, heterogeneous echoes, edge clarity, and coagulation necrosis are independent predictors for assessing malignant lymph nodes in patients suffering from lung cancer. The accuracy of these B mode ultrasound image characteristics in the diagnosis of malignant lymph nodes, however, is not particularly high. There is a certain degree of subjective judgment in the B mode image interpretation, which may be operator dependent (3). The strain ratio is measured after appropriate contact and compression of the transducer are achieved (no revereberation artifacts) and as indicated by the elastography image on the ultrasound processor. The largest possible area of the node is outlined from the superimposed elastography image; the same procedure is performed on a similar-sized area that is surrounded by apparently normal tissue. The ultrasound processor measures the strain of each area as a quantitative figure, and the strain ratio between the two areas is then calculated (1). False negatives and positives occur and, thus, by itself, EBUS elastography is unlikely to replace biopsy (even when no tissue diagnosis is required). In these regards, central necrosis that may occur in a lymph node and the strain ratio within the node may decrease as the "softer", yet benign components of the node are assessed. On the other hand, calcification of the lymph nodes or fibrosis post radiation may increase their hardness, factors that may result in a false positive elastography image (1). In one of the initial reports, a semi-quantitative assessment was found useful predicting malignant lymph node involvement; this system consists of three elastography patterns: Type 1, predominantly non-blue (green, yellow and red); Type 2, part blue, part non-blue (green, yellow and red); Type 3, predominantly blue. These elastographic patterns were compared with the final pathologic results from endobronchial ultrasound-guided transbronchial needle aspiration (Table). For Type 1 pattern, the high negative predictive value could potentially minimize unnecessary lymph node punctures or prevent repeated biopsies when ROSE shows adequate TBNA specimen and benign lymphocytes (5). For Type 3, the high positive predictive value could guide the TBNA sampling towards the malignant region of the lymph node.

Conclusions: Lymph node biomechanical analysis can be performed during endobronchial ultrasound via elasography. The airway cartilage does not seem to interfere with this the feasibility of this technology. At this time, elasotography can be potentially used to guide TBNA when multiple lymph nodes are seen in one station, or potentially for guiding needle sampling towards the stiffer region of a lymph node. As a standalone technique, however, it is not meant to replace biopsy especially in the current era of biomarker-driven therapy

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Trosini-Désert V. Eur Respir J. 2013;41:477-9

Table: Summary of EBUS elastography studies for intrathoracic adenopathy

Reference	Population	Intervention/ Device	Comparator	Outcome	Comments
He HY. Chin Med J (Engl). 2015; 128: 2720-5	N=40 patients with lung cancer; 68 lymph nodes	EBUS elastography prior to EBUS-TBNA Convex probe EBUS (CP□EBUS; EB□1970UK, Pentax, Japan) Ultrasound processor (HI VISION Avius, Hitachi company, Japan)	Cyto-histologic diagnosis from EBUS-TBNA/ surgical specimens	Elastography strain Ratio: sensitivity of 88.1%, specificity of 80.8%, PPV of 88.1%, and NPV of 80.8% for distinguishing malignant from benign nodes Accuracy of elastography strain ratio was 85.3%	Elastography strain ratio (> 32) was found more sensitive and specific for determining malignant lymph nodes than elastography grading score or standard EBUS criteria
Nakajima T. Respiration. 2015; 90: 499-506.	N= 21 patients with lymphadenopathy undergoing EBUS-TBNA; N=49 lymph nodes	CP-EBUS Olympus Lts, Tokyo, Japan (BF-UC260FW) Stiff area ratios [(stiff areas as blue pixels) / (lymph node areas as region of interest pixels)] for each lymph node determined by elastography	Cyto-histologic diagnosis from EBUS-TBNA/ surgical specimens	Using a cutoff value of 0.311 for stiff area ratios, the sensitivity and specificity for predicting metastatic disease were 0.81 and 0.85, respectively	The stiff area was histologically compatible with metastatic distribution in surgically resected lymph nodes

Izumo T. Jpn J Clin Oncol. 2014; 44: 956-962	N= 30 patients N=75 lymph nodes	CP-EBUS; BF-UC260FW, Olympus, Tokyo, Japan Elastographic patterns that were classified Type 1, predominantly non-blue (green, yellow and red); Type 2, part blue, part non-blue (green, yellow and red); Type 3, predominantly blue	Cyto-histologic diagnosis from EBUS-TBNA	Classifying Type 1 as 'benign' and Type 3 as 'malignant,' the sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy rates were 100, 92.3, 94.6, 100 and 96.7%, respectively	The median values of FDG-PET SUV max were 2.49 for elastography Type 1, 4.95 for Type 2 and 8.50 for Type 3
Trosini-Désert V. Eur Respir J. 2013; 41:477-9	N=10 patients N=13 lymph nodes	EB1970 video bronchoscope; Pentax, Tokyo, Japan Hi-vision Avius**1**; Hitachi Medical Systems, Kashiwa, Japan)	Cyto-histologic diagnosis from EBUS-TBNA	N=5 malignant lymph nodes, blue predominant N=8 benign lymph nodes	Mediastinoscopy was not performed in patients whose TBNA did not provide a diagnosis

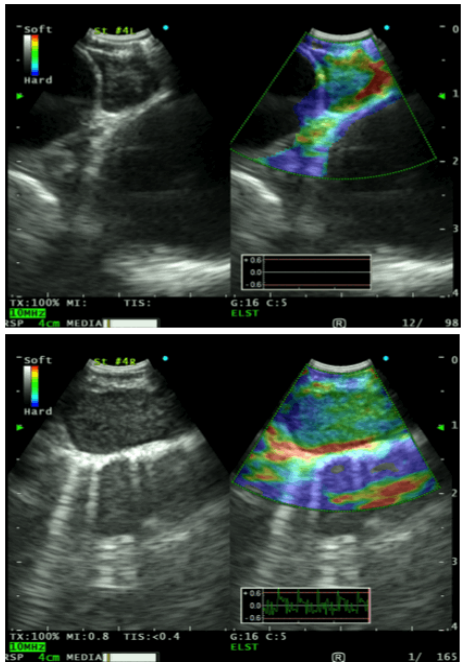

Figure 1: The colors associated with hard (likely malignant), intermediate, and soft (likely benign) tissues were blue, green, and yellow/red, respectively. A negative station 4L and 4R lymph nodes are shown in the top and bottom panels, respectively (Figures courtesy of Dr. Takahiro Nakajima, Department of General Thoracic Surgery, Graduate School of Medicine, Chiba University, Chiba, Japan)

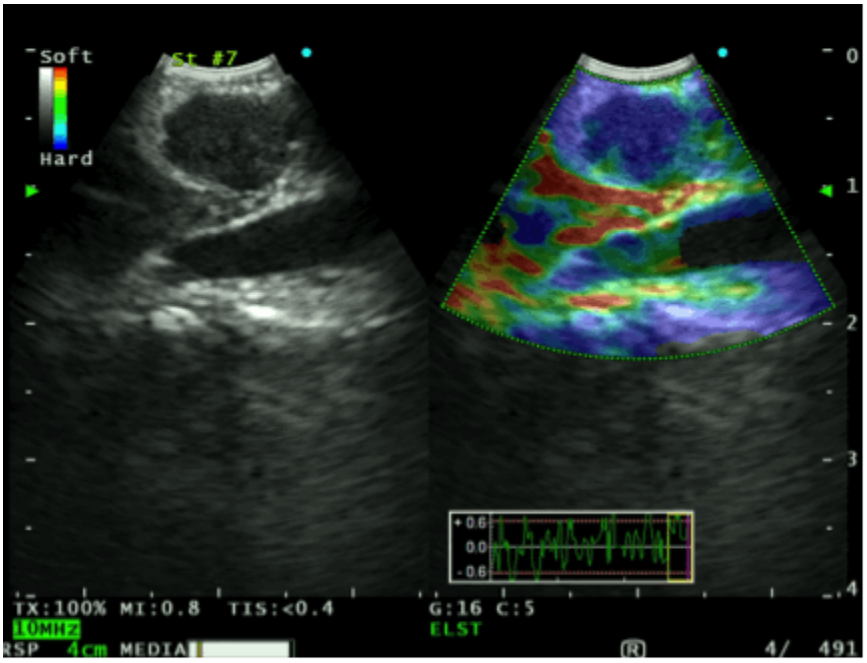

Figure 2: The colors associated with hard (likely malignant), intermediate, and soft (likely benign) tissues were blue, green, and yellow/red, respectively. A positive station 4R and 7 lymph nodes are shown in the top and bottom panels, respectively (Figures courtesy of Dr. Takahiro Nakajima, Department of General Thoracic Surgery, Graduate School of Medicine, Chiba University, Chiba, Japan)

Antoni Rosell, MD, PhD
Assoc. Professor Universitat de Barcelona
Head of Respiratory Endoscopy Unit
Pulmonology Department
Hospital Universitari de Bellvitge, Barcelona

MECHANICAL DILATATION OF BENIGN LARYNGOTRACHEAL AND TRACHEOBRONCHIAL STRICTURES WITHOUT LASER OR ELECTROCAUTERY ASSISTANCE

Introduction

Tracheobronchial strictures are the consequence of abnormal remodeling after an initial injury of the respiratory mucosa by different factors. The most frequent are ischemia, infection, trauma and surgery, while radiotherapy, caustic or thermal inhalation injuries, vasculitis and toxic gases have been less commonly reported. A combination of medical, endoscopic and surgical treatments are available to restore central airway patency. When the bronchoscopic approach is indicated, rigid scopes, balloons, bougies[1] and rigid scissors[2] are an option for reopening the airway strictures without inducing the thermal damage associated with thermal techniques such as lasers and electrocautery. Mechanical dilatation has to be to performed with minimal trauma, as it can also lead to recurrence of fibrotic tissues and granulation tissue formation.

Indications

At our institution, a multidisciplinary team consisting of interventional pulmonolgists, thoracic surgeons and ear, nose and throat (ENT) surgeons, determines by consensus the best therapeutic option for each patient, following an established protocol. A multimodal approach is used based on location, tracheobronchial mucosa appearance, the length and diameter of the stenosis, and airway wall involvement[3,4]. Mechanical dilatation is indicated in the following 5 situations: in simple non inflammatory tracheal and bronchial stenosis, when intubating patients previous to surgery for complex stenosis, whenever surgery is not indicated, and in inoperable patients or for those not willing to be operated. For complex stenosis, the choice to additionally insert a silicone stent, a Montgomery T-tube or a tracheal cannula is case dependent (Figure 1).

Planning

Whenever possible, patients are studied in an outpatient clinic and discussed by the multidisciplinary team. The “Four Box” practical approach, which includes an initial evaluation, procedural strategies, procedural techniques and a long-term management plan, is followed[5]. The initial evaluation includes:

- A structured interview in which all potential causes of tracheobronchial benign strictures are reviewed before considering it to be an idiopathic case. Patients’ quality of life, preferences and expectations are assessed and documented.
- A flexible bronchoscopy is mandatory to check laryngeal function, to determine the stricture’s morphology (i.e., triangular, circumferential, or elliptical), length, visual degree of free lumen, location and distance to vocal cords and main carina. It is also valuable to observe the aspect of the mucosa and to check for the presence of malacia, and to obtain a bronchial washing for microbiological sampling (bacteria, fungi, MRSA, Klebsiella rhinoscleromatis) (Figure 2). Images and video recordings are obtained for documentation. In cases of severe stenosis presenting with a diameter of 5 mm or less, an ultrathin scope (≤ 3 mm) is recommended to avoid respiratory impairment and barotrauma.
- A chest CT provides information on the morphology of the stricture and, potentially, on the degree of wall involvement. When malacia is suspected or requires confirmation, inspiratory and expiratory images are taken. A chest CT also reveals any parenchymal/interstitial changes that may suggest the etiologic diagnosis. 3D reconstructions are performed using a virtual bronchoscopy program.
- Pulmonary function tests are directed to confirm the presence and degree of central airway obstruction through flow-volume loop examination and maximum ventilatory ventilation (MVV). The FEV1 is a robust variable that has to be balanced against the degree of stenosis. In some patients, cardiopulmonary exercise testing is desirable to quantify stenosis-related effort intolerance.
- Planning also includes prescribing medications with corticosteroids, antibiotics or proton pump inhibitors, as required. In all patients, we use a single dose of 1mg/kg of predinsolone 24h before the rigid bronchoscopic procedure.
- Preoperative assessment by an anesthesiologist to assess the operability of the patient is also required.

Once this information is gathered, the following two dimensions are considered:

1. The disease: stenoses are classified in two categories: simple (≤1 cm in vertical length, not affecting the wall, not located in larynx and non inflammatory) and complex if any of the simple features are not present. Airway wall involvement covers a broad spectrum that includes the fracture of cartilage (secondary to percutaneous tracheostomy or traumatic rupture), mural chronic inflammation with or without condritis, hourglass-like contracting scarring, malacia or fistula.
2. The patient: operability and preferences are taken into account.

Techniques and instrumentation

1. When treating very severe subglottic stenosis, especially for highly located lesions, a preventive tracheotomy is recommended to preserve ventilation in cases of post procedural excessive inflammatory narrowing of the larynx lumen.
2. For subglottic and tracheal strictures, serial dilatation with rigid bronchoscopes is our first choice. EFER-Dumon (EFER Endoscopy, La Ciotat, France) scopes with external diameters of 7, 8, 10, 12 and 13.2 mm are selected according to the stenosis free lumen. As a general rule, we take the scope that slightly exceeds (1-3 mm) the free lumen, so that no excessive injury to the normal mucosa is produced. The rigid telescope (available from 3.5 mm to 5.5 mm in diameter) and the suction catheter have to adapt to the inner lumen of the bronchoscopes. Occasionally, a flexible bronchoscope inside the rigid bronchoscopes can be used instead, but in that case two proceduralists are required. Careful insertion of the tip of the bronchoscope into the stenosis, using a rotating motion and gentle forward pressure, typically results in successful advancement of the scope through the lesion (Figure 3).
To avoid perforating the tracheal wall, it is crucial to maintain the central axis while advancing the scope. When hard fibrotic tissue is encountered and it is difficult to open, one to three radial incisions with rigid scissors avoiding the posterior wall and normal cartilage are performed to release the tension in the stricture before dilation (see video in http://www.bronchotraining.org/spip.php?article54). Once the stenosis has been bypassed, assessment of the distal airway and aspiration of secretions are performed using a flexible bronchoscope. During this time, the rigid scope stays in place and tamponades the bleeding surface and consolidates the disrupted fibrotic tissue. Next, a wider rigid bronchoscope is introduced until the desired lumen patency is achieved. The maneuver of dilatation with the rigid scope can partially resect the scar tissue. Before finishing the procedure, cold saline is sometimes instilled on the treated area to reduce and control bleeding and inflammation.
3. In our institution, bronchial stenosis is usually treated with high pressure balloons (for example, CRE™ Pulmonary Balloon Dilatation Catheter, Boston Scientific, Massachusetts, USA),under fluoroscopy. The proximal and distal ends of the stenosis are marked on the skin with radiopaque markers. Fluorosocopic guidance is facilitated by the 2 radiopaque markers at both ends of the dilating balloons. Balloon markers have to cover both skin markers. Balloon length is 3 and 5 cm. Although this technique lacks the tactile feedback of the rigid bronchoscope against the tracheal wall, it provides a successive, gradual dilation system based on a well defined correlation between the pressure administered and the diameter obtained (for instance, 8 mm at 3 Atm to 15 mm at 8 Atm, for the 3 cm length balloon models). We perform progressive dilatations of 1' per diameter. One has to consider the fact that ventilation is not possible since the balloon totally occludes the bronchial lumen.
4. Only when implanting a stent or cannula do we occasionally use the Yttrium aluminum pevroskyte (YAP) laser, which has a high coagulation effect but only moderate cutting precision, either to make a radial incision or to coagulate the bleeding mucosa. Some centers use potassium-titanyl-phosphate [KTP] laser, CO2 laser or Holmium:YAG laser, which have higher cutting precision with less scatter and shallower penetration and therefore, the risk for collateral mucosal damage and airway perforation, respectively, is lower.
5. After each dilatation, in our practice, oral corticosteroids are administered for 10 day together with nebulized budesonide (0.5mg/ml 2 ml twice a day) for at least 1 month.

Quality control

Elective outpatient flexible bronchoscopy is scheduled at 30 days after the procedure to assess free lumen and to consider a second dilatation. If the lumen has decreased slightly or is similar, a second dilatation is performed. After the second dilatation, another flexible bronchoscopy is scheduled between 30 and 90 days accordingly to the response to the second dilatation.
Again, the same criteria are used to consider a third dilatation. After the serial dilatations have been finalized, flexible bronchoscopy, chest CT and PFT are performed to objectively check the results. If the patient significatively worsens clinically and endoscopically between the scheduled procedures/tests, then a failure of dilatation is considered and a stent indicated. If the stenosis relapses after 2 years from the last session, new dilatations or stenting are considered.

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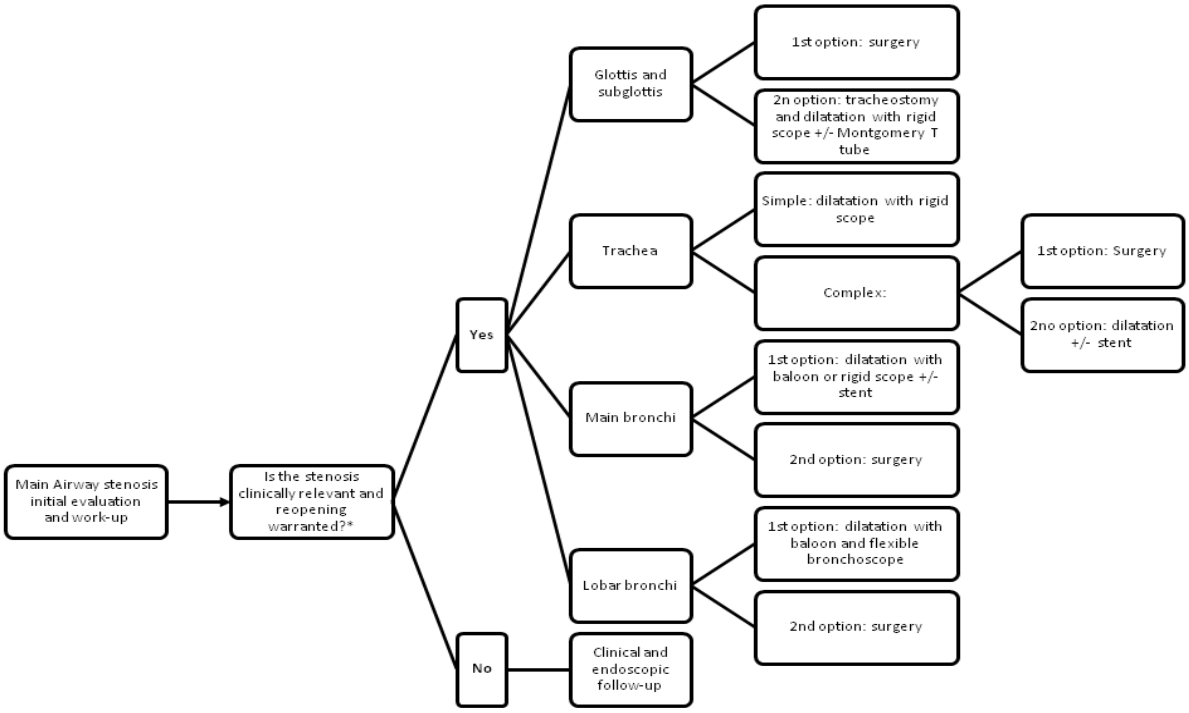


* Consider diameter, length and characteristics of stenosis together with age, quality of life, comorbilities, physicial condition, degree of dyspnea and stridor.

Figure 1: Algorithm from the multidisciplinary board in Bellvitge Hospital (Barcelona)

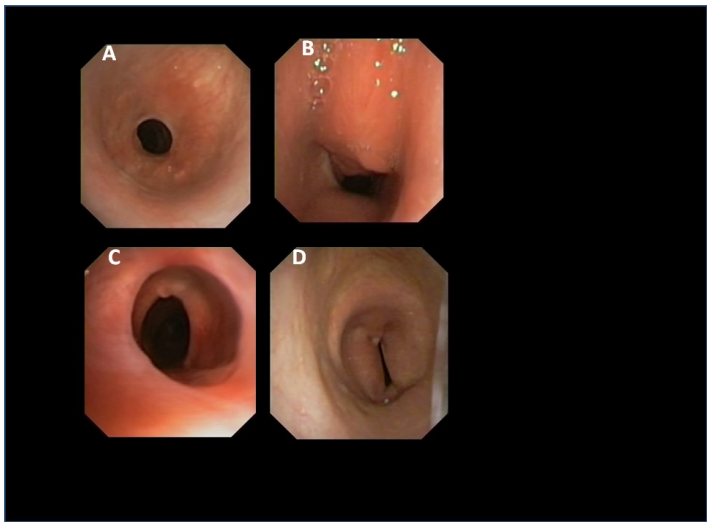


Figure 2: A: simple stenosis/ B: complex stenosis affecting the structures of the airway Wall.

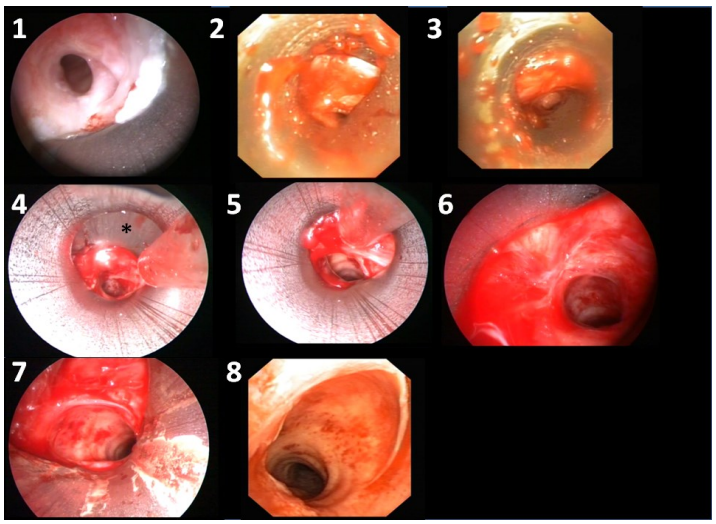
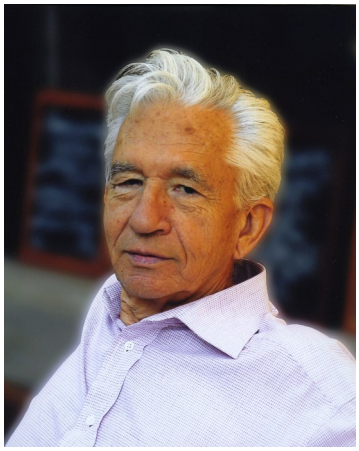


Figure 3: Sequence of dilatation of a 4 mm tracheal stenosis (1). Firstly, a dilatation with a 7 mm rigid scope is used with a flexible bronchoscope inside (2, 3). Then 10 mm rigid bronchoscope scope is introduced through a 12 mm tracheal scope (*); see how the stricture is elongated until breaks (4, 5). Finally the 12 mm tracheal scope is advanced through the stenosis (6, 7). Patency is restored (8).

Humanitarian News

In Fond Memory, Professor Christian Boutin (1933-2015)



Dr. Christian Boutin passed away peacefully on June 30, 2015. This was a sad day for anyone who knew or has known of this illustrious academic, who devoted his long career to all things pleural in nature. A man whose elegance was matched only by his medical knowledge, technical skills, and burning desire to share his passion of pleural diseases, "Monsieur Boutin" was one of those giants of the French Medical Academie. As a scientist he shed light on numerous facets of malignant mesothelioma and asbestos-related diseases. As a clinician and practitioner he was without equal; his clinical skills being of the old school, he could, for example, by chest percussion alone, detect and subsequently sample by simple thoracentesis, a 2 centimeter collection of fluid accumulated in the minor fissure (calling it before the chest radiograph was taken, and well before the common use of pleural ultrasonography).

For many, Christian Boutin was the father of modern two entry-site thoracoscopy, and his "week of thoracoscopy" in Marseille, France, was attended by hundreds of physicians from around the world from the early 1980s onward to his retirement. His book, Practical Thoracoscopy, was not only their first textbook of thoracoscopy but a guidebook that made the performance of thoracoscopy by chest physicians possible. Indeed, Christian Boutin was a true "Maitre" (Master-teacher) in the most classic and honorable sense, who's teaching methodologies were effective, inspirational and motivating. Despite his extremely busy clinical and administrative schedules, he always found time to answer a question, pull out a pencil and paper to draw a procedural strategy for a difficult case, or answer with ease and simplicity even the most probing and difficult queries about pleural physiology, anatomy, or disease. But Professor Boutin was more than just that, he was also an extremely cultivated and humble soft-spoken humanist, a skilled photographer with gallery expositions to his name, a dedicated family man, a connoisseur of medical history, and a passionate hiker/trekker (he was, after all, an instructor of the French Alpine Club). He was, as described by his student, friend and colleague Professor Philippe Astoul, "a medical scientist and clinical practitioner whose open-mindedness reflected not only his humanity, but a superior intellect uniquely served with elegance and unsurpassed culture."

We shall miss him greatly.

Henri Colt and Philippe Astoul

*The views expressed in this article are those of the author and do not necessarily reflect the official positions of the Executive Board or International Board of Regents of the WABIP. Dr. Colt has consistently authored the Humanitarian, Education, and BOR News Section of the WABIP Newsletter and is Chair of the WABIP.

Education and Training

Item 1: The WABIP Academy

Work continues developing the new ***WABIP Academy***, which includes the WABIP Literature Library, the WABIP Image Library, and an upcoming publication pertaining to the clinical practice of flexible bronchoscopy. The Academy Library website will "launch" prior to the World Congress in Florence. **The WABIP Academy** is designed to assist practitioners and physicians in-training to achieve greater competency in all aspects of Bronchoscopy and Interventional Pulmonology, and to support the mission and vision of the World Association for Bronchology. Beginning in Florence, Academy sessions will be a regular part of World Congress scientific programs, with interactive and timely literature, image, and practical guidelines sessions chaired by Academy section editors and coeditors.

Figure 1: WABIP Literature Library editor Roberto Casals (USA), Image library editor Herve Dutau (France), and Flexible bronchoscopy clinical practice manual Zsolt Papai (Hungary)

Vision of the WABIP Academy: The Academy includes a variety of educational activities and assessment instruments designed to enhance knowledge and document commitment to advancing the art and science of Bronchology and Interventional Pulmonology. Contents will be organized into a standardized evidence and experience-based curriculum that provides a foundation of knowledge designed to grow as new topics and materials become available**.** Each WABIP Academy activity is led by a Section editor and team of Associate Section Editors who review materials, invite contributions of scientific content, and compose multiple-choice questions as part of an on-line assessment instrument that may be used for CME and EACME accreditation. ***The WABIP Literature Library*** contains 3-5 pertinent articles from peer reviewed literature (original research papers and review articles) beginning in 2012. Each article is followed with a short multiple-choice test for Continued Medical Education credit purposes. **The WABIP Image Library** contains dozens of bronchoscopic and pleural images categorized by disease type and airway or pleural abnormality. The **WABIP Clinical practice manual** will include chapters written by an international group of experts covering aspects of flexible bronchoscopy particularly relevant to global practice.

Figure 2: Screen shot of webcast page on the new WABIP Academy webpage at www.wabip.com

ITEM 2: Bronchoscopy Education Project and Lung Cancer educational activity in Lima, Peru

With the official endorsement of The Ricardo Palma Peruvian University and the Peruvian Medical Board a two day Lung Cancer education program was recently held in Lima, Peru under the directorship of Dr. Pedro Garcia Mantilla (WABIP Regent, Peru and Bronchoscopy Educational Project certified instructor). The program included didactic and interactive lectures as well as patient-based practical exercises and lengthy hands-on training in conventional Transbronchial Needle Aspiration (cTBNA) and an introduction to the concepts and techniques of Endobronchial ultrasound. Bronchoscopic mediastinal nodal sampling has, until recently, been a very infrequently performed procedure because of lack of training and competency, as well as because of a paucity of needles (unduly expensive through local distributors) and fear of damaging flexi-

Education and Training

ble bronchoscopes. Using inanimate models, step-by-step instruction, checklists to assure patient and equipment safety, and cTBNA assessment tools, course participants were able to gain confidence and technical skill. Furthermore, the new Essential cTBNA Bronchoscopist (English and Spanish translations) was used in small group sessions and as part of an interactive series of lectures to enhance cognitive knowledge and a better understanding of techniques, indications, lung cancer staging, and safety concerns. Instructors from Argentina assisted their Peruvian colleagues in conducting the course, attended by a host of enthusiastic members of the Peruvian Bronchology Association. This multidimensional program was the first of its kind in Peru, using concrete learning objectives, workshop objectives, and targeted skill and task-based training modalities. As a result of this seminar, the organizers expect to see an increase in the use of cTBNA, which will benefit patients and be of great assistance to the oncologists, thoracic surgeons, and all physicians caring for patients burdened with a diagnosis of lung cancer. A secondary, and much hoped for benefit of the program, is increased involvement by equipment and instrument manufacturers as well as lung cancer related pharmaceutical industry to not only help with logistic and fiduciary support of future lung education and bronchoscopy programs, but also to facilitate the acquisition and distribution of affordable transbronchial needles and EBUS devices in regional medical centers and major teaching hospitals.

Figure 3 A: Dr. Pedro Garcia Mantilla (seated left) with associate faculty (seated) and participants in the first multidimensional educational program for lung cancer and cTBNA held in Lima, Peru. **Figure 3 B**. Dr. Mantilla assisting a program participant acquire communication, technical, and dexterity skills needed to perform effective and efficient cTBNA using an inanimate airway model.

Item 3: WABIP Regents meeting in South America

Figure 4: Dr. Silvia Quadrelli (Argentina), Coordinator WABIP Regents international activities programs.

Following the very successful and productive regents meeting (held to gather all WABIP European regents) conducted at the 2015 EABIP congress held in Barcelona, Spain, and building on the momentum achieved there (for example, see the new WABIP International Newsletter columns reporting bronchoscopic practice in WABIP member countries….Romania in this copy of the newsletter), Dr. Silvia Quadrelli, coordinator of WABIP Board of Regents international activities and former chair of the WABIP Education committee, is conducting a meeting of all WABIP Regents from South America during the upcoming (March 8&9, 2016) Argentine Bronchology Congress in Buenos Aires, Argentina. With a cadre of master and certified bronchoscopy education project instructors already working regionally, and a new and exciting agreement with the Latin American Thoracic Association ALAT, regents will discuss future growth in Latin America, and ways in which South American regents can participate more effectively in WABIP goals and visions. The executive board of the WABIP looks forward to hearing and implementing new ideas and proposals, and to sharing thoughts with regents from Europe, North America, and the Asia/Pacific regions!

BOARD OF REGENTS NEWS

ITEM 1: The WABIP is honored to welcome certified bronchoscopists from the renowned and historic Japanese Society of Respiratory Endoscopy (JSRE) into our ranks, bringing WABIP membership to almost 6000 members worldwide representing more than 40 countries. The Bronchology group from The Japan Society for Respiratory Endoscopy (JSRE) was founded in 1978. The number of members in JSRE is 6,528, including chest physicians, surgeons, radiologists, pathologists, and 2,441 board-certified bronchoscopists. The main purpose of the society is to improve research and clinical practice of respiratory endoscopy, including bronchoscopy and thoracoscopy. JSRE plays an important role in providing education on respiratory endoscopy. The society also offers an official journal, and holds annual meetings and seminars on bronchoscopy to become a certified bronchoscopist in Japan. Members of the JSRE have been instrumental in creating and distributing the Japanese translation of *The Essential Flexible Bronchoscopist*, and at least one Train the Trainers seminar has already been held in Tokyo. The society also provides training in various airway and pleural interventions periodically. Fifty years has passed since Dr. Shigeto Ikeda invented the first flexible bronchoscope, and JSRE members have inherited his strong spirit. Members of the JSRE continue to push innovation and creativity, as well as science and technology, working with industry to improve access, optics, and diagnostic capabilities of the bronchoscope. A new generation of bronchoscopists in Japan (surgeons and chest physicians) works to expand the boundaries of flexible bronchoscopy and all airway and pleural procedures. The WABIP is honored to have them among our ranks!

Figure 1: Dr. Norihiko Ikeda (WABIP Regent and JSRE representative to WABIP)

ITEM 2: Bronchoscopy around the world: Romania and the WABIP

This new item of the WABIP Newsletter is devoted to national bronchology associations and provides a forum for association leaders to describe their bronchology group and the state of bronchoscopy and interventional pulmonology in their regions or countries. This second article for the section is provided by Dr. Marioara Simon (Regent for Romania and President of the Romanian Section of Bronchology).

Figure 2A and Figure 2B: Dr. Marioara Simon (WABIP regent, Romania) and numerous enthusiastic young bronchoscopist trainees at the Cluj-Napoca Simulation Center

Romania has an estimated population of almost 20 million people. Bronchoscopy is performed mostly by pulmonologists. In 2015, a survey was conducted via telephone interviews in order to better define bronchoscopic practices in the country. Overall, in Romania, there are 715 pulmonologists, 229 pulmonologists with a declared competency in bronchology and 141 pulmonologists stating they regularly performed bronchoscopies. Regarding bronchoscopic equipment in Romania, our survey found that there are 39 rigid bronchoscopes, 75 flexible fiberoptic bronchoscopes and 50 videoendoscopes. In 2015 a total of 28,000 bronchoscopies

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were performed. Romania has three major centers where interventional bronchology is offered. The majority of these procedures were for diagnosis or suspicions of lung cancer. On a different note, it is important to note that Romania accounts for a quarter of all tuberculosis cases in Europe, and has the most drug resistant tuberculosis cases in the region. Furthermore, according to the TB Europe coalition, our country currently has the world's lowest treatment success rate for MDR-TB. This poses a significant challenge to our lung specialists, and also requires us to assure safety features for physicians and bronchoscopy assistants anywhere procedures are performed.

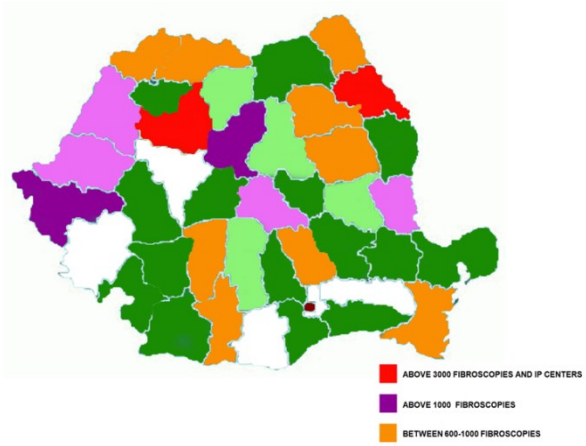

Figure 3: Distribution by county of the number of bronchoscopies per year in Romania

Until recently, bronchoscopy training was done using the apprenticeship model achieved mostly under the supervision of an experienced bronchoscopist. In the Pulmonology specialty curriculum, bronchoscopy training is allotted a time slot of three months. Residents learn to perform procedures directly on patients under the supervision of a bronchologist. Competence is evaluated in the clinical setting. Training, however, has been more theoretical than practical because most trainees do not have the possibility to use specific equipment that it is scarce in hospitals.

For many years, the Section of Bronchoscopy of the Romanian Pulmonology Society organized bronchology workshops. Although we did not have any technical support (equipment) for hands-on training, bronchologist colleagues from all the major medical centers were very enthusiastic and supportive. Often, people brought pieces of their own medical equipment to the workshops, and frozen pig lungs were used. Most importantly we worked together as a team. Today, not only do we have technical support at our workshops, we also have a high fidelity model for bronchoscopy in Cluj-Napoca and we are planning to organize structured, multidimensional annual workshops for trainees and practitioners of all levels. We are happy to say that since joining the WABIP, The Bronchology Section of the Romanian Society of Pneumology has been able to host a Faculty Development Program as well as two *Introduction to Flexible Bronchoscopy* courses with WABIP moral and financial support. We are incorporating Bronchoscopy Education Project Learning Materials into a well- structured curriculum, using this new way to learn bronchoscopy step by step where faculty are very well-prepared to deliver different types of presentations including interactive sections, true / false sessions, didactic lectures and very useful and validated assessment tools. We are also proud to have translated *The Essential Flexible Bronchoscopist* as well as checklists and bronchoscopy assessment tools into Romanian. These elements, in addition to further collaboration in bronchoscopy training and the development of Centers of Excellence will help assure a promising future for bronchoscopy in Romania.

ITEM 3: 19th WCBIP/WCBE in Florence, Italy from May 8-May 11, 2016.

WOW, more than 300 abstracts submitted! Florence is approaching quickly, and our team has prepared an incredible scientific and social program that will keep you informed and entertained in this beautiful European city. Whether you are new to our society, or a veteran of our growing organization, The World Congress provides opportunities to renew friendships, meet colleagues from around the world, share your experiences with others, improve your skills and knowledge of bronchoscopy, thoracoscopy and pleuropulmonary disease processes, as well indulge in a variety of great cultural experiences in the setting of Renaissance Italy. Before the con-

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ference, there will be a series of hands-on workshops where you can practice technical applications in new and well established interventional procedures. Skilled and experienced instructors will coach you through airway maneuvers until you gain enough confidence to take these procedures home to your patients. During the conference, there will be didactic lectures, interactive sessions, and expert panel discussions to highlight clinical problems and new scientific findings. There will be keynote lectures, including all new and important literature and image review sessions with faculty from the WABIP Academy! You can meet with WABIP award recipients, committee chairs, members, and international regents, as well as contribute to our two new Pediatric, and Rare lung, pleural and airways disease sections too! We want to hear what you think the WABIP can do to help enhance your clinical, educational, and research practices. So join us in Florence! Catch up with old friends, make new ones, and enjoy a great educational experience as well as the best that Italian hospitality and culture has to offer.

Regents, MARK YOUR CALENDARS- the BOR meeting will be held Sunday, May 8.

Figure 4: Flyer of Florence World Congress

REMEMBER the FIRENZE CARD, valid for 72 hours and costing 72 Euros, provides admission to 67 museums, villas and historical gardens!

CHECK OUT THE CONGRESS TOURISM PAGE at:

http://www.wcbipwcbe2016.org/congress-services/tourism-activities-tours.html for information about guided tours of Florence and surrounding areas!

THE OPENING CEREMONY and festivities are May 8 from 6:30-9:00 PM. Do join us for an exciting opening event!

Editorial Staff

Editor-in-Chief: Dr. Kazuhiro Yasufuku

Primary Business Address:
Kazuhiro Yasufuku, Editor-in-Chief
WABIP Newsletter
c/o Judy McConnell
101 College St., TMDT 2-405
Toronto, Ontario M5G 1L7
Phone: 416-581-7486
E-mail: newsletter@wabip.com

Associate editor: Dr. Ali Musani

Associate editor: Dr. Septimiu Murgu

Research

All This Technology Is Good For Nothing?

We have recently seen a huge amount of data from all over the world suggesting that navigation bronchoscopy yields much better results in the diagnosis of peripheral pulmonary nodules compared to traditional approach. The studies showed that the electromagnetic navigation (EMN) allows for better results in the diagnosis of benign and malignant nodules as small as 2cm and less. Then more studies revealed that radial ultrasound (r-EBUS) can give almost similar yield in the diagnosis of peripheral pulmonary nodules and in perhaps even less time needed for the procedure. Finally, the data showing that the combined use of navigation and r-EBUS yield even better results then either one technology alone. Was that all just a dream?

Now, a robust, multicenter, retrospective study from the AQuIRE (ACCP Quality Improvement Registry, Evaluation, and Education) data recently published in the American Journal of Respiratory and Critical Care Medicine (1) shows that the yield of transbronchial biopsy (TBBX) done with a conventional method without EMN and/or r-EBUS yield better results. Also, when looked at separately, the yield of r-EBUS was better than the EMN. The study also suggests that transbronchial needle aspiration (TBNA) of peripheral pulmonary nodules resulted in better yield compared to forceps biopsies. The data for this study was collected from 15 centers and more than 500 patients. The biases of case selection, sampling methods, anesthesia used, and the medical centers (operators) are clearly present and accepted by the authors of this study. These biases make the study less applicable on a broader scale. The yield among centers varied from 33 to 73%, a wide range. This just goes to emphasize that any judgments based on just one retrospective data collected from a registry should not be used to discard all the past rather robust, prospective, often multicenter trials emanating from academic and non-academic centers from around the world. Arguably, the past data was not perfect either due to many issues including selection and publication biases and due to lack of a control arm in a prospective randomized fashion. That being said, although retrospective and with other shortcomings as mentioned earlier, the current study in question has a data that needs to be reviewed with open mind. Does this data suggest that experience and skill can not be replaced by machines? Is it conceivable that the operators performing large number of these procedures had higher level of acquired skills and more stringent selection criteria while inexperienced user relied on technology and had a poor selection of cases and unrealistic expectations from the tools? To this point, many studies have shown that the yield of TBBX ranges widely between the experienced and inexperienced hands (2,3).

Some other important points that can be gleaned from the data here include the under-utilization of TBNA of peripheral nodules. The data shows a significantly higher yield when TBNA was performed to sample peripheral pulmonary nodules.

Finally, prospective, randomized trials comparing EMN +/- r-EBUS with conventional approach of TBBX without these modalities could answer many of these questions.

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WABIP ACADEMY- WEBCASTS

The WABIP has started a new education project recently: *THE WABIP ACADEMY.* The WABIP Academy will provide free online webcasts with new and hot topics that will interest pulmonologists and interventionalists.

Current webcast topic: **Tissue acquisition for biomarker directed therapy of NSCLC**

You can reach these webcasts by using this link: http://www.wabipacademy.com/webcast/

Links

www.bronchology.com	Home of the Journal of Bronchology
www.bronchoscopy.org	International educational website for bronchoscopy training with u-tube and facebook interfaces, numerous teachiing videos, and step by step testing and assess ment tools
www.aabronchology.org	American Association for Bronchology and I nterventional Pulmonology (AABIP)
www.eabip.org	European Association for Bronchology and Interventional Pulmonology
www.chestnet.org	Interventional Chest/Diagnostic Procedures (IC/DP) NetWork
www.thoracic.org	American Thoracic Society
www.ctsnet.org	The leading online resource of educational and scientific research information for cardiothoracic surgeons.
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1 Wechsler M et al. J Allergy Clin Immunol. 2013 Dec;132(6):1295-302.
2 Castro M, et al, for the AIR2 Trial Study Group. Am J Respir Crit Care Med. 2010;181:116-124

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