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Guest Opinion/Editorial

World Congress of the WABIP

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Buenos Aires, Argentina
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One of the most important objectives of the WABIP is to establish cooperation networks between bronchoscopists from different regions of the world. This strategy helps the aim that the advances achieved by research and technological development of leading institutions become available to other centers in different regions of the world.
Perhaps the greatest educational experience in this regard is the World Congress of the WABIP. For years, the sustained effort of WABIP as a society and the individual effort of several of its members who have accepted the enormous challenge of organizing this conference, have made possible to hold a world congress every two years without pauses.

A world Congress is a particularly challenging event. Challenges of having different presidents and organizers in different countries, with different languages, cultures and expectations. Logistics, travel organization, conciliation of academic interests of doctors working in very different contexts with remarkable differences in technology availability, access to training and epidemiology. In the last years places as diverse as South America, Europe, Asia and the United States have held this conference, each one of them with their particular difficulties but also with their particular strengths.
Travel distance and cultural particularities are especially challenging. But in spite of those specific challenges, with 1.3 billion in population, China cannot be ignored. China has increasingly participated in the world activities and every year many established and influential doctors like and also thousands of up and coming Chinese bronchoscopists are eager to get more involved in our field, with a very valuable contribution to the international community.

A strong group of Chinese colleagues led by Dr. Guanfa Wang have bravely taken the challenge of organizing our next World Conference of Bronchology and Interventional Pulmonology in China. This is a great opportunity for WABIP members from neighboring countries to attend the conference, each region of the world offers the opportunity to different countries to attend a conference and that is carefully analyzed by the Board of Regents at the time of the selection of the candidatures for the next World Conference. Offering a balance that makes accessible the location of the conference to different groups of countries is a priority at the time of the choice of the next conferences. Now, many Asian doctors who did not have opportunities to go to previous congresses (like in Rochester 2018) will be closer now and will have that opportunity.
WABIP is proud of considering itself as a culturally sensitive association, its main richness is precisely cultural diversity and the ability to create bindings between different communities.

As Executive Committee we support by all our means the inspiring huge work Guanfa Wang and his colleagues are doing and we trust in a successful and exciting Conference.

We are looking forward to WABIP members' participation in Shanghai, and to making the 2020 WCBIP another successful congress in our record books. New ideas, the new energy of one of the most vital cultures in the world and the vast experience of our Chinese colleagues promise one of the most exciting Congress experiences we have had.

Technology Corner

Ultrasonic Shears for Pulmonary Artery Sealing in Minimally Invasive Anatomical Lung Resections

Eric Goudie MD and Moishe Liberman MD, PhD
University of Montreal

Introduction

Video-assisted thoracoscopic surgery (VATS) and robot-assisted thoracic surgery (RATS) are the standard of care for anatomical lung resections.[1] Minimally invasive approaches have multiple advantages over the traditional approach by thoracotomy, including less postoperative pain, less postoperative complications and shorter hospital length of stay.[2,3] The incidence of VATS lobectomy has considerably increased in the United States according to the NSQIP database; between 2007 and 2015 the proportion of anatomical lung resections completed by VATS increased from 11.6% to 60.6%.[4]

One of the most critical and stressful parts of a minimally invasive lung resection is pulmonary artery (PA) manipulation and division. PA injury can lead to considerable bleeding, may require conversion to thoracotomy and may even lead to death. In fact, PA injury is one of the leading causes of conversion to thoracotomy.[5] Endostaplers are the most common instruments utilized to seal and divide PA branches during minimally invasive lung resections. Although these instruments are efficient and safe, they can be disproportionally large compared to the PA branches they need to divide. Their large footprint and bulky tip can make these instruments difficult to apply and may lead to PA avulsion. Smaller, more adapted instruments for PA division are of interest for minimally invasive lung resections. (Figure 1)

Energy vessel sealing devices are an attractive alternative to endostaplers for sealing and dividing smaller PA branches. They are much smaller, finer and easier to manipulate in smaller spaces. (picture) Some investigators have suggested they can diminish surgeon stress.[6] However, despite their presence on the market for many years, safety data for their use on pulmonary vasculature is limited. Recent literature supports the use of certain energy devices on PA branches.

Background

There are two types of energy devices for vessel sealing. Advanced bipolar technology uses a bipolar electrical current that goes through apposed and compressed tissue in the jaws of the instrument.[7] Following sealing, the tissues need to be divided either with an integrated blade or a scissor. Ultrasound sealing devices transform electrical energy to mechanical energy through a piezoelectric crystal vibrating at approximately 55,000 Hz.[7] This mechanical movement ruptures cells, forms a coagulum, seals and divides tissues. Finally, some instruments integrate both technologies.

Comprehensive safety data has been published using an ultrasonic vessel sealing device, the Harmonic ACE+7 (ACE+7; Ethicon, Cincinnati, OH) on PA branches of 7 mm in diameter or less.[8-13] Data from ex-vivo studies report that PA branches sealed with the ACE+7 can sustain pressures up to 1415 mm Hg.[10,11] Prospective and retrospective human trials also support the safety of this device on PA branches. In a phase 1 trial, the ACE+7 was used in 20 patients during VATS lobectomy to seal and divide PA branches of 7 mm or less. Thirty-one PA branches with a mean diameter of 4 mm (range: 2-7 mm) were sealed with the device. There was no seal failure and no intraoperative or postoperative bleeding.[9]

Less extensive literature is available on the use of advanced bipolar devices on pulmonary vasculature.[14-16] In a recent series, an advanced bipolar device (LigaSure, Medtronic, Minneapolis, MN) was used on pulmonary arteries and veins in 328 patients.[14] Four hundred and sixty-six pulmonary arteries of 7 mm or less were sealed. Investigators reported postoperative bleed from a PA stump in one case. They also report using the device on 402 pulmonary veins of 7 mm or less without any bleeding complications. We have difficulty explaining this large number of divided veins. In our experience, pulmonary veins usually are larger than 7 mm.

Clinical Application

Current energy sealing technologies can be used on pulmonary arteries up to 7 mm in diameter. Their use is of interest on smaller and fragile PA branches. Larger PA branches still require division with endostaplers in minimally invasive anatomical lung resections. Our group developed an expertise with the ACE+7 in VATS lobectomy and we believe certain technical details need to be followed to ensure safe and effective use of the device. (Figure 2)

Before applying the device, the PA branch needs to be properly dissected to avoid including tissues other than the vessels wall in the seal. In our experience, this creates a seal of better quality. Once the vessel is dissected, the surgeon must ensure the diameter is appropriate (≤7 mm) for sealing with the ACE+7. A sterile ruler can be cut a few centimeters long and inserted in the chest to measure the vessel. A simpler way to measure the diameter is to pass the tip of the device around the vessel; there are two lines are 5 mm apart which allow in vivo vessel size evaluation. Once the PA branch is ready for sealing, the vessel must be placed properly in the jaw of the device. The vessel must lie flat in the middle of the blade; folds in the vessel wall must be avoided and the vessel must not be pushed into the crotch of the instrument. Depending on the vessel size, the proper energy setting must be used. The "minimum" (MIN) function is best for vessels of 5 mm or less and the "advanced hemostasis" function is best for vessels between 5 and 7 mm. We do not recommend using the "maximum" (MAX) function on PA blood vessels. The MAX function is designed to divide tissues with minimal vasculature. Based on our experience, a single application and activation of the device creates the best seal. The device must remain activated until the vessel divides. Similarly, to any other PA manipulation, tension must be avoided at all times on the PA branch to avoid avulsion and premature division of the PA branch. Finally, we recommend leaving a stump long enough to allow clip placement if a seal failure occurs. The absence of a stump would make bleeding control and clip placement difficult.

Depending on surgeon preference, the device may also be used for other steps of the operation. Surgeons have found it useful for hilum dissection, lymph node dissection, inferior pulmonary ligament division and bronchial artery sealing.

Conclusions

Sealing and division of pulmonary arteries of 7 mm or less is safe with an ultrasonic vessel sealing device. This technology is an interesting alternative to endostaplers for PA division in minimally invasive anatomical lung resections. The device must be used following specific technical recommendations to ensure safe sealing.

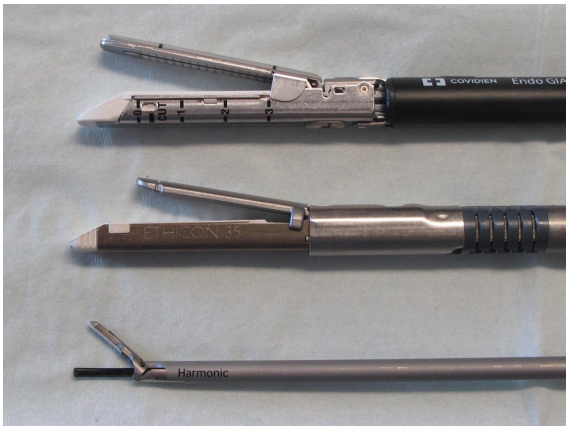

Figure 1: Size comparison of endostaplers and an unltrasonic vessel sealing device

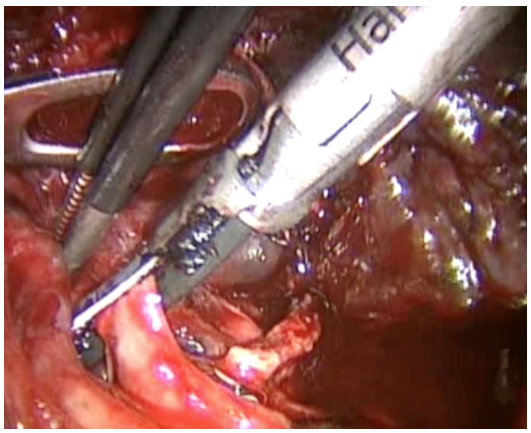

Figure 2: Application of the Harmonic Ace+7 on a 6 mm pulmonary artery branch

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STENTING FOR TRACHEOESOPHAGEAL FISTULA

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Introduction

Acquired esophago-respiratory fistula (also referred to as tracheoesophageal fistula (TEF)) is a pathological communication between the esophagus and the trachea and/or bronchus. Etiologies are either:

1) *Histologically malignant:* esophageal cancer (in 5-15%) or lung cancer (in <1%) (1,2), with a higher incidence in patients receiving radiation or anti-angiogenic therapy; or
2) *Histologically benign:* secondary to curative intent chemoradiotherapy for esophageal cancers (in ~10%) (3), indwelling stents, high tracheostomy or endotracheal tube cuff pressures, trauma, surgery, or mediastinal infections.

Typical symptoms are those secondary to contamination of the respiratory tract with oral or gastric secretions. Patients develop intractable cough, choking after swallowing or recurrent aspiration pneumonia.

Indication for stenting

Without interventions to close the fistula, survival measures in weeks (~4 weeks) as patients will expire from pneumonia and sepsis (1,2). Closure of the TEF to prevent aspiration and to potentially allow enteral nutrition is the primary goal of treatment. The approach to achieve this palliative goal is slightly different depending on the etiology of the TEF. Patient with benign etiologies should be considered for surgical (curative) options. Surgical options include esophageal exclusion by collar esophagectomy to allow the TEF to heal, or anatomical reconstruction by fistula bypass or closure. Only a minority of patients with advanced malignancies can tolerate such major surgeries that are associated with high morbidity (up to 40%) and mortality (up to 14%) (4). Therefore, endoscopic stenting is the most commonly utilized modality to palliate symptoms in these patients. There are case reports of using endoscopic clips, occlusion devices (such as Amplatzer® devices, biologic or chemical glue, septal buttons or valves), mesenchymal stem cells injection, or application of argon plasma coagulation for small (<5mm) TEFs; but none of these are currently standard of practice or have any strong evidence to support their use. Most patients requiring endoscopic interventions require either an esophageal and/or an airway stent *(Figure 1)*. Patients with cancer who undergo stenting have improved survival (4-8 months) when compared with patients for whom stenting is not feasible (5,6).

Planning for the procedure

Fully or partially-covered esophageal stents are, in general, the preferred first step to treat non-surgical patients suffering from TEF *(Figure 2)*. This is because esophageal stents configure better to the esophageal wall than airway stents do to the airway wall, and because of lower rate of severe complications associated with esophageal stents (7,8). Airway stenting should be employed when esophageal stenting is unsuccessful or not technically feasible (e.g. when there is a proximal obstruction that cannot be passed, or for a TEF located high in the esophagus), or in those with pre-existing airway compromise from a tumor *(Figure 1A)*. Patients who develop respiratory compromise post-esophageal stenting, may require an airway stent (i.e. double stenting) (6,7). This complication can be prevented by synchronous bronchoscopic evaluation prior to or during esophageal stent deployment. Alternatively, an esophageal balloon can be inflated to the diameter of the stent to assess whether there will be subsequent airway narrowing. We recommend a bronchoscopy-first approach to evaluate for airway narrowing in any patient in whom worsening airway compression post-esophageal stenting is possible based on pre-procedure chest CT scan *(Figure 1C)*.

Double stenting may occasionally be required for a very large TEF (>2cm) *(Figure 1)*. Caution is advised with double stenting given the risk of worsening the TEF due to mucosal necrosis caused by two expansile stents pushing against each other (6,9).

In patients with an aero-gastric fistula after a gastric pull up post-esophagectomy, who are not re-do surgical candidates, airway-first stenting is preferred as gastric stenting is usually not feasible.

Technique

Self-expandable metallic stents (SEMS) are most commonly used for esophageal stenting. They should ideally extend 2 cm proximal and distal to the TEF (7). In the airway, there are no studies comparing covered/partially covered SEMS with silicone stents for this indication. There is more evidence, however, for using SEMS for both benign and malignant TEF. These stents are easier to insert (do not necessarily require rigid bronchoscopy) and have a larger inner diameter to wall thickness ratio, with better wall apposition. They are, however, more difficult to remove 2-3 months after insertion if tissue ingrowth develops and stents become embedded. Therefore, in patients with benign TEF, who may have the stent in situ for longer periods and in whom the stent may be used as a bridge to surgery, silicone stenting may be preferred. The concern with silicone stenting for TEF is the higher radial expansile force compared with any SEMS available on the market. The high radial force could theoretically enlarge the fistula. In addition, complete apposition of the silicone stents to the airway wall may be hampered by the high stiffness of these devices (compared with SEMS, which better configure to the airway morphology). SEMS may be the preferred stents in the curved and tapered left main bronchus, due to their greater resistance to buckling (angulation), an issue that becomes relevant when the fistula is associated with concurrent airway obstruction *(Figure)*.

Straight airway stents can be employed in almost all situations except when the TEF is next to the main carina (involving lower trachea and proximal main right or more commonly, left bronchus), wherein a bifurcated stent (Y) is usually employed. Stents should extend 1-2 cm proximal and distal to the TEF. This is obviously not always feasible for a fistula in the main bronchi or bronchus intermedius *(Figure 1C)*. In patients with TEF in the absence of extrinsic compression from tumor, stents can be slightly over-sized (diameters should exceed the native airway diameter by 10-20%), as there is no counter-pressure exerted by a mass (as would be the case in esophageal cancers) (7). In patients with airway compromise due to tumor, caution is advised with over-sizing, as these stents may not unfold after deployment or may exert excessive pressure on the mucosa, promoting granulation tissue formation or even enlargement of the fistula. The goal here should be to cover the fistula and maintain airway patency such that the post stenting airway narrowing is <50% of normal.

We do not recommend dual stenting as a standard approach unless single stenting alone is unsuccessful in covering the fistula. Some providers prefer dual stenting approach. In these patients, the airway stent should be deployed first to avoid airway compromise post-esophageal stenting. The proximal end of the esophageal stent should be slightly cephalad to the airway stent to mitigate migration risk.

Quality Control

While TEFs can be detected with thin section CT or contrast (barium) esophagrams *(Figure 1B)*, endoscopic visualization is required for firm diagnosis, to better define extent and degree of airway narrowing during dynamic respiration, and to properly plan a therapeutic intervention. Occasionally, edematous and hyperemic mucosa may make endoscopic visualization of a small TEF difficult; intra-procedural administration of oral methylene blue may facilitate bronchoscopic TEF detection in such cases. All TEFs should be managed using a multidisciplinary approach involving at least a bronchoscopist, a gastroenterologist and a thoracic surgeon.

Esophageal stents are the preferred first-line endoscopic option because: these stents serve as downward conduits for oral secretions, the length of the esophagus allows for longer stents, the more pliable esophagus permits better apposition, and complications are not as serious as with airway stenting (8). The non-circular shape of airways and dynamic respiratory movement makes it more difficult to achieve complete apposition of airway stents with the airway wall to prevent spillage into the respiratory tract. We therefore strongly discourage the practice of stenting the airways first when there is no concurrent airway obstruction *(Figure 2)*. In cases of tumor between the esophagus and the airways, we believe airway inspection prior to and possibly after esophageal stenting should be performed to prevent respiratory distress due to airway compression post-esophageal stenting. We also suggest that esophageal stent sizing should be limited to simply cover the fistula and not over-distend the esophagus, which could lead not only to airway compression but also posterior wall perforation.

Stenting success is assessed by symptomatic improvement and contrast esophagram (Figure 1E). Endoscopic stent surveillance to detect early complications, or assessment for TEF healing is warranted, especially for those cases in which TEF is expected to heal (histologically benign). We routinely perform surveillance bronchoscopy at 4-6 weeks after any airway stent insertion, although the evidence for this practice derives mainly from patients with airway obstruction, not TEF (10).

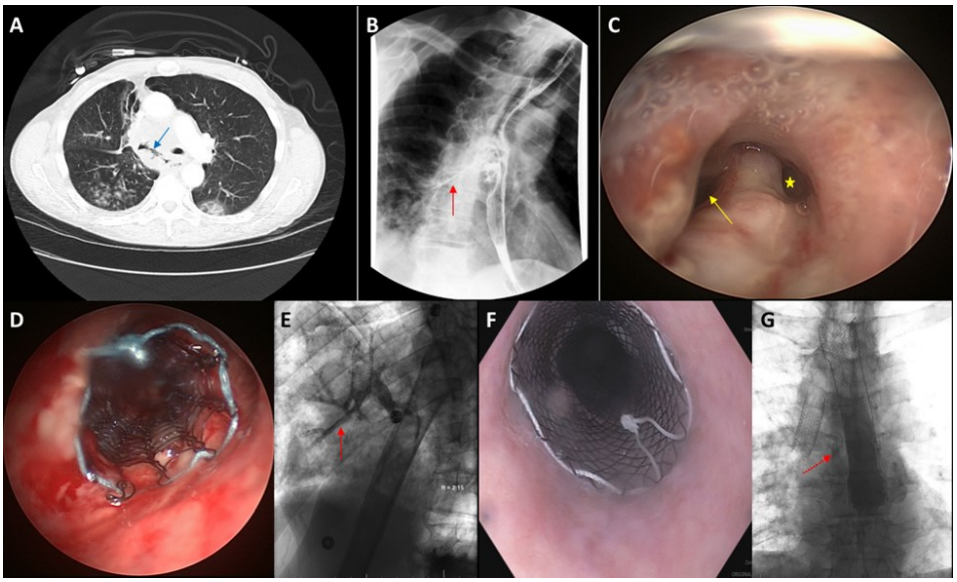

Figure 1: Post-radiation broncho-esophageal fistula seen on a CT scan (Panel A, blue arrow), with adjacent right lower lobe opacities consistent with aspiration. Esophagram demonstrated aspiration of contrast into the airways forming a contrast bronchogram (Panel B, red arrow). A large fistula in the proximal bronchus intermedius was visualized during bronchoscopy (Panel C, yellow arrow). Airway leading to the right middle and lower lobe is also seen (Panel C, yellow star). The fistula was covered with a 14 mm X 40 mm partially covered Ultraflex SEMS (Panel D). However, there was residual leak of contrast into the airway on a follow-up esophagram (Panel E, red arrow), which warranted placement of an esophageal SEMS (Panel F). Minimal leak of contrast was noted after double stenting (Panel G, red arrow).

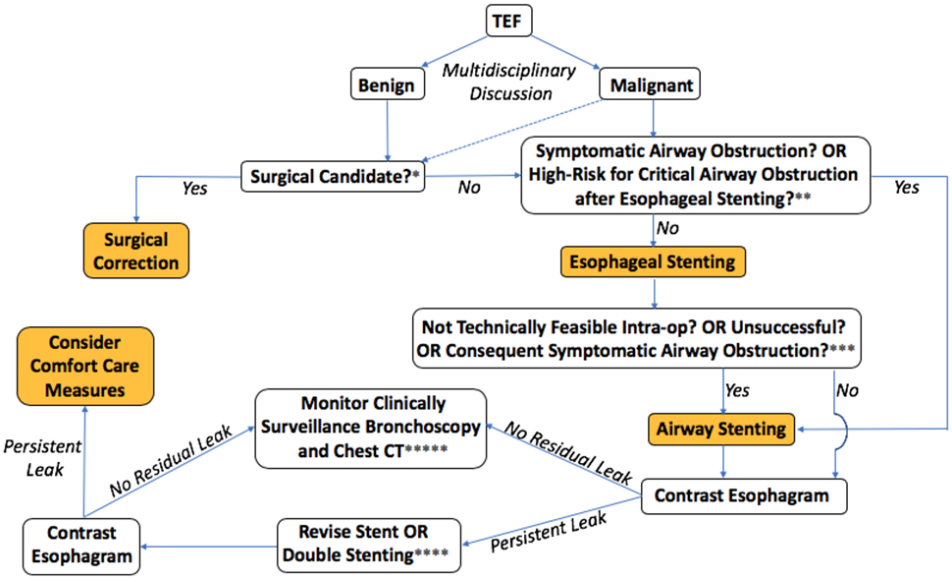

Figure 2:

* Patients with malignant TEF are rarely surgical candidates due to their poor overall health.

** A careful review of the chest CT AND pre-stenting inspection bronchoscopy allows operators to predict airway compression post-esophageal stenting. This allows the bronchoscopist to measure the extent and location of the fistula, determine length and size of the airway stent, if needed, and communicate with the endoscopy team about the potential risk of airway compression post-esophageal stenting (which may guide decision making regarding the size of the esophageal stent to be used).

*** When the fistula is located in the upper esophagus, an esophageal stent may not be feasible; if there is co-existing esophageal stricture, the stent may not fully cover the fistula; sometimes, despite a careful review of the CT and pre-stenting bronchoscopy, respiratory distress can occur post-esophageal stent deployment. In any of these circumstances, an airway stent would be indicated.

**** If airway stent was used first and there is a persistent leak, the stent should be inspected during conscious sedation as the stent might have migrated or have been undersized, or in the case of partially covered SEMS, there may be residual leak through the uncovered part of the stent; in any of these cases, the airway stent should be revised, if possible; if not feasible (not safe to remove it or a different stent is not technically feasible), then an esophageal stent (double stenting) should be considered. If the esophageal stent was used first, then its revision should be considered based on possibility of migration, under-sizing or residual leak through the uncovered part of the stent. If the esophageal stent cannot be revised, then an airway stent could be considered (double stenting).

***** We recommend clinical and bronchoscopic follow up at 4-6 weeks after airway stent insertion to monitor for possible stent related complications; in addition, for patients with histologically benign fistulas, if closure of the fistula is possible, the stent may need to be removed (a decision that can be taken after surveillance bronchoscopy and chest CT imaging)

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Humanitarian News

World Bronchology Foundation: Proyecto Horizonte 2018

In November and December of 2018, Dr. Olga Rajas Naranjo, nurse Liliana Llanos Rodríguez and Dr. Enrique Cases Viedma, travelled to Panamá, Honduras and El Salvador to continue *Proyecto Horizonte*, a humanitarian effort by the World Bronchology Foundation and SeparSolidaria. The 2018 project was made possible by the invitation of Dr. Tarsicio Perea, President of the Asociación Panameña of Neumología and Cirugía del Tórax, and Dr. Amanda Alonso, President of the Asociación Salvadoreña of Neumología, and the Dr. Victor Castro Goméz from the Hospital Salvadoreño del Seguro Social.

Proyecto Horizonte has a number of objectives:

1) Train the professionals in EBUS, a technic that is being developed in Centroamerica. In spite of the challenges in having only one EBUS in Panama, and one in to El Salvador. Additionally, there have only been less than ten explorations in each country.
2) Support the formation of the future pulmonologists in Honduras and El Salvador. Thirdly,
3) Update the pleural technics and bronchoscopies, collaborate with the patients assistance and manage the materials that were donated to Honduras from the last year.
4) Finally, the last objective was to stimulate the cooperation between nurses and doctors and enforce their identity.



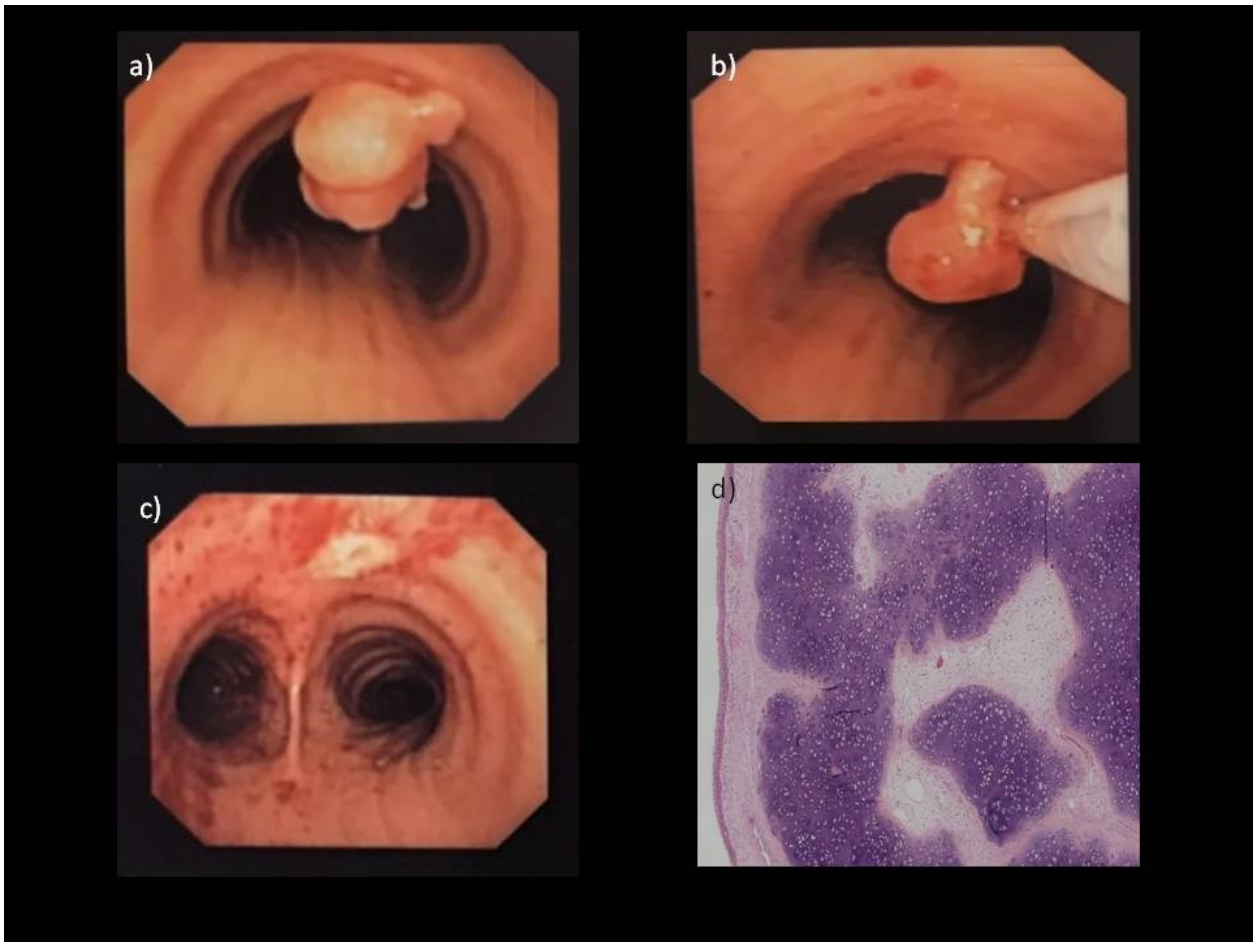
Even with a tight schedule full of institutional and informal meetings, visits to different hospitals, formative courses and clinic assistance, the goals were accomplished and the there was full participation in all the activities. Furthermore, in Panamá and El Salvador can be highlighted the fulfilment of the theoretical and practical course of Interventionist Pulmonology. Meanwhile, nurse Liliana Llanos brought together the nursing personnel to assess issues like endoscopy techniques in pulmonology and preparation and sedation of the patients. The development of this projected rested on the successful collaboration of Dr. Victor Coto, responsible for the Respiratory Endoscopy Unit from the Hospital Nacional, Dr. José Antonio Saldaña and Dr. Luis González, Head of the Pulmonology Department Hospital Salvadoreño del Seguro Social where we could do the EBUS practice.

In Honduras, our goal was to review the materials donated as a result of the previous year's *Proyecto Horizonte*, continuing the formation of the professionals and maintain the support in the creation of a specialized training in Pulmonology.

**The views expressed in this article are those of the author (Dr. Enrique Cases Viedma) and do not necessarily reflect the official positions of the Executive Board or International Board of Regents of the WABIP.*

Best Image Contest

We are proud to present to you the second best image (out of 3) from this past Best Image Contest, as carefully selected by our WABIP Academy Image Library editorial team. The last best image will be released in the final Newsletter issue of this year.



Description: Endotracheal chondroma. a) A large polypoid mass at the anterior wall of the lower third of the trachea, b-c) successfully excised by snare electrocautery during flexible bronchoscopy. d) Lesion composed of hyaline cartilage and loose myxoid stroma under the normal bronchial mucosa; low cellularity and no atypia (Hematoxylin and eosin, X40)

Contributor: Ilias Porfyridis, M.D. (Greece)

WABIP Member Society: Hellenic Thoracic Society

Stay tuned for our next Best Image Contest announcement, coming this fall!

WABIP NEWS

Annual Board of Regents & Executive Meeting 2019

On March 29, 2019, the WABIP conducted its annual Board of Regents ("BOR") meeting in Gold Coast, Australia, to deliberate and vote on our past year's activities, financial report, upcoming plans and budgets. The BOR deliberate and votes on these items, which are required by our local governing body in order to retain our non-profit organization status. Your member society representative were present documents and reports of this meeting.

Following the BOR meeting, the Executive Board approved Dr. Naofumi Shinagawa as the next WABIP Secretary General. A very important leadership position in the WABIP, the Secretary General serves as the liaison between our administrative matters (such as dealing with government registration documents and procedures) and the Executive Board. Dr. Naofumi Shinagawa is currently a pulmonologist at Hokkaido Medical University.

New WABIP member society

We are pleased to announce that the Society for Advanced Bronchoscopy (SAB) has joined the WABIP. Many thanks to the SAB board, its members and Prof. Henri Colt for facilitating SAB membership in our truly international organization with now over 8,900 members.

Dr. Michael Pritchett and Dr. Jaspal Singh are the SAB representatives on the WABIP Board of Regents.

About the SAB

The purpose of SAB is to promote and develop the highest standards of clinical excellence in the field of advanced bronchoscopy Societal initiatives will focus on education, clinical practice, clinical excellence, clinical research, and equipment use and development. SAB strives to educate its members utilizing those formats deemed most appropriate. SAB supports and assists in the development of experience-based program certification in bronchoscopy to foster excellence in clinical practice and patient care.

WCBIP Shanghai 2020

Planning for our next world congress is well underway, and we are very pleased to inform you that this meeting will boast a five-star list of faculty members, a plethora of lectures on the hottest and most relevant IP topics, and hands-on workshops by seasoned instructors from around the world. Start your WCBIP involvement today by taking advantage of early registration discounts submitting an abstract!

WABIP members: register for only **$350 USD** by November 31 at:
https://www.wcbip.org/register

Send us your abstracts by December 31 at:
https://www.wcbip.org/abstracts

An exciting era for pulmonary nodule access: a letter from Dubrovnik

Philip Emmanouil MD, Athens, Greece

This year, the renowned medieval city of Dubrovnik, Croatia hosted the European congress of Interventional Pulmonology (ECBIP 2019). Many leading experts joined forces to present the latest data on several IP topics, such as lung cancer diagnosis, bronchoscopic emphysema treatment, and pleural diseases among others. Peripheral pulmonary nodule diagnosis and management was a central theme.

The latest data on the lung cancer screening NELSON trial showed a particular focus on nodule volumetry and doubling time as a main decision endpoint. Risk score calculation was presented alongside with the latest nodule management guidelines. All major techniques for pulmonary nodule diagnosis were analyzed, including electromagnetic navigation, radial EBUS and virtual bronchoscopy. In particular, a study by Van Der Hejden and colleagues described their preliminary experience with cone-beam CT navigation.

The study included 25 patients (31 nodules smaller than 2 cm, median volume 0.82 cm^3). The nodules were tracked by cone-beam CT, an imaging modality recently introduced in IP practice. After nodule tracking, transbronchial biopsy was performed with augmented fluoroscopy under radial EBUS guidance. Navigation was successful in 82% of nodules and diagnosis set at 68%. In the field of electromagnetic navigation, the latest European data of NAVIGATE study were presented, concerning nodule diagnosis with the SUPERDIMENSION EMN system ©. It is a multicenter, prospective study that enrolled 175 patients in 8 European centers. 187 nodules were accessed (73% in the periphery and 27% in the middle lung zone). Mean lesion diameter was 18 mm. The modality was safe, as pneumothorax was present in 9 patients after biopsy (5%), specifically when fluoroscopy was not available. Diagnostic accuracy was 73%, and mean procedure time 40 min.

In addition, latest data on bronchoscopic transparenchymal nodule access (BTPNA- Archimedes ©) were presented. This modality involves bronchoscopic creation of a tunnel with needle-balloon catheter in order to access nodules with no evident bronchial access, offering high diagnostic yield without significant complications. In summary, combination of modalities and instrumentation for accessing peripheral nodules seems to offer increased level of diagnostic confidence in all relevant modalities.

Additionally, diagnostic modalities were supplemented by the presentation of the research activity on bronchoscopic nodule management. Microwave, radiofrequency, vapor and cryo-ablation through navigational bronchoscopy offer satisfactory alternatives in patients that cannot undergo surgery. Where applied, these methods are, at the moment usually supplemented with stereotactic radiotherapy. Robotic bronchoscopy era starts with the first human data presented, in a study that enrolled 15 patients with mean lesion size 2.6 cm. Results showed a 79.3% diagnostic accuracy without significant relevant complications, with mean procedure time of 21 min.

Between congress sessions, the participants had the chance to admire the intricacies of the Ragusian medieval fortifications and wander through the narrow streets of the old town. A truly unique experience!

Research

Indwelling Pleural Catheters for Non Malignant Effusions: Tread with Caution

The indwelling pleural catheter (IPC) has brought about a paradigm shift in the management of Malignant Pleural Effusion (MPE). Most notably the achievement of outpatient management of malignant pleural effusion. The success of these catheters in symptom control, as well as a significant percentage of pleurodesis without any further intervention has been remarkable. The ease of placement, maintenance, and removal of IPC has been a primary reason for its success. It's only natural that after so many years of successful use in MPE, IPC has found its way in the management of benign pleural effusion as well. Although the data is still evolving, IPC has received approval by the United States Food and Drug Administration (FDA) for non-malignant pleural effusions. This approval has opened up flood gates of potential uses of IPC for short-term in-patient and out-patient indications as well as long-term applications for both palliative and bridge to definitive therapy.

One such benign yet challenging pleural effusion that we encounter quite frequently is hepatic hydrothorax, a consequence of end-stage liver disease. The management of these effusions remain frustrating and often futile. These effusions are usually recurrent, large volume, and symptomatically debilitating. The management of these effusions has been challenging, and its impact could be detrimental to the candidacy for potential liver transplantation. However, liver transplantation is not as readily available in the majority of the developing countries around the world. In such scenarios where the liver transplantation is not an expected management strategy, hepatic-hydrothorax is often managed on the palliative basis. There has been growing literature on the use of IPC for refractory hepatic-hydrothorax in patients with end-stage liver disease who may or may not go for liver transplantation.

Recently two studies have surfaced. Both of them are retrospective in nature. The first study (1) is a single center, retrospective study from a large academic institution with a robust liver transplantation program. The second study (2) is a multi-center, retrospective experience of IPC in centers were liver transplant was a preferred option as well. These studies provide a rather extensive account of their experiences with IPC which in turn shed timely and much-needed light on the use of IPC in hepatic-hydrothorax.

In a single-center study by Kniese et al. 62 patients were reported to have had hepatic-hydrothorax treated with IPC. These patients included patients who eventually received liver transplantation as well as patients who were treated with palliative intent. The biggest concern with the management with IPC has been the rate of infection and electrolyte and nutritional depletion. The overall complication rate in this study was approximately 36% of which 18% were infections with the majority (16%) with empyema. Three patients had sepsis and sepsis-related death.

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The second, multicentered, retrospective study looked at 79 patients with hepatic hydrothorax treated with IPC. Twenty-one (27%) of these patients were on the liver transplantation list, and 58 patients (73%) were being treated with palliative intent. Only 10% of the patients were reported to have a pleural infection, and the majority of them had catheter site infection as well. Two patients developed sepsis related to catheter. Twenty-eight percent of the patients had spontaneous pleurodesis with a mean time to pleurodesis 55 days.

The high infection rates in these studies are a cause for concern for anyone who wants to use IPC in hepatic-hydrothorax. That said, we should be realistic as to how we define pleural infections in this particular scenario since it is not uncommon in hepatic-hydrothorax to have concurrent spontaneous bacterial peritonitis. Which often contaminates the pleural space/pleural fluid, intrathoracic translocation of infected ascites to the pleural space commonly referred to as a "spontaneous bacterial empyema." These pleural infections are very distinct from a conventional infectious seeding of pleural space and empyema. It is fair to interpret that the high infection rate seen in patients with hepatic-hydrothorax with IPC may be erroneous. This is substantiated by a significant difference in the clinical outcomes of true empyema vs. empyema seen in hepatic-hydrothorax (2).

As mentioned earlier, other significant concerns with chronically draining hepatic-hydrothorax are nutritional and electrolyte derangements, which may be detrimental in patients who are expecting to undergo liver transplantation. However, in patients who are not liver transplantation candidates and where palliation is the only goal, mild aberrations in these parameters may be acceptable.

In order to correctly answer questions pertaining to the infectious complications associated with IPC in hepatic hydrothorax, prospective studies will be of profound importance to ascertain an actual rate of complications associated with IPC versus translocation of infection across the diaphragm. Suffice it to say that with the available data it is reasonable to consider the IPC use in refractory hepatic-hydrothorax cases where palliation is the primary objective while a multidisciplinary approach in concert with liver transplantation team should be undertaken where the liver transplant is the target.

References:

1. Kniese et al. Chest. 2019 Feb;155(2):307-314
2. Shojaee et al. Chest. 2019 Mar;155(3):546-553

WABIP Visiting Scholar Grant Observership Report 2019

This report details observations of rigid bronchoscopy and airway stenting procedures in Marseille France by 2019 WABIP Travel grantee Dr. Mia Elhidsi

Dr. Mia Elhidsi is an Indonesian pulmonologist at the National Referral Hospital for Respiratory Diseases, and one of two recipients of the WABIP Visiting Scholar 2019 grant. This award allowed Dr. Elhidsi to travel to Nord Hospital in Marseille France on March 4-22, 2019, to observe and learn central airway obstruction (CAO) management with regard to the use of rigid bronchoscopy and stenting, under the mentorship of Dr. Herve Dutau.

The young Indonesian pulmonologist observed 62 pulmonary intervention procedures in 15 workdays. There were 16 rigid bronchoscopy; 13 airway stenting introduction; 5 EBUS-TBNA, 8 medical thoracoscopy and pleural procedures and other pulmonary intervention procedures. All rigid procedures were performed in CAO management except one done in a bleeding case. Twelve silicone airway stenting and one metallic stent were introduced in mostly malignant cases.

(Left: Dr. Dutau and grantee Dr. Elhidsi; Right: Hands on rigid bronchoscopy and airway stenting with a head model)

Dr. Dutau was the consummate mentor, eager to share his knowledge and experience with regard to bronchoscopic techniques. As a result of the grant contributions from the WABIP, Dr. Elhidsi is motivated to advance bronchoscopic management of CAO in Indonesia, and share her experience with fellow Indonesian pulmonologists, undergo further research and publish related case reports.

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.
www.jrs.or.jp	The Japanese Respirology Society
sites.google.com/site/asendoscopiarespiratoria/	Asociación Sudamericana de Endoscopía Respiratoria

UPCOMING EVENTS

Introduction to Flexible Bronchoscopy (Spain)
When: May 31 - June 1, 2019
Where: Fundacion Jimenez Diaz University Hospital. Madrid, Spain
Program Director: Javier Flandes Aldeyturriaga, M.D.
Program Type: Educational seminar (for trainees only), Hands-on workshop

Introduction to Bronchoscopy and Pulmonary Procedures Course (MA, USA)
When: June 28, 2019
Where: Shapiro Simulation and Skills Center of Beth Israel Deaconess Medical Center, MA, USA
Program Director: Mihir Parikh, M.D.
Program Type: Educational seminar (for trainees only), Hands-on workshop
More info: https://www.wabip.com/events/437-bethisrael-7-2019

Lung Cancer Diagnosis and Staging (Greece)
When: July 1-2, 2019
Where: Experimental, Educational & Research Center ELPEN, Greece
Program Director: Assoc. Prof. Grigorios Stratakos, MD
Website: https://elpenresearchcenter.com/

Introduction to Flexible Bronchoscopy and Interventional Pulmonology (Paraguay)
When: July 12-13, 2019
Where: Sociedad Paraguaya Neumologia (Asunción- Paraguay)
Program Director: Domingo Perez, MD
Program Type: Hands-on workshop, Conference (didactic lectures)
More info: https://www.wabip.com/events/438-ifb2019paraguay

EBUS and Advanced Bronchoscopy: The Eighth Year (MD, USA)
When: July 25-26, 2019
Where: Hyatt Regency Chesapeake Bay, Cambridge, Maryland
Program Director: Lonny Yarmus, DO, FCCP
Program Type: Educational seminar (postgraduate may include physicians in practice and trainees), Hands-on workshop, Conference (didactic lectures)
Website: https://hopkinscme.cloud-cme.com/default.aspx?P=0

UPCOMING EVENTS

Lung Cancer - The Ins and Outs (Singapore)
When: August 2-4, 2019
Where: Academia, Singapore General Hospital
Program Director: Dr. Melvin Tay CK, Dr. Esther Tan QL
Program Type: Educational seminar (postgraduate may include physicians in practice and trainees), Hands-on workshop
Website: https://www.facebook.com/lungcentre/

2nd International Conference on Interventional Pulmonology (Bangladesh)
When: September 7-8, 2019
Where: Dhaka, Bangladesh
Program Director: Dr. Md. Sayedul Islam, M.D.
Program Type: Hands-on workshop, Conference (didactic lectures)
Website: http://www.babip.net

5th MABIP Annual Scientific Meeting (Malaysia)
When: October 18-20 , 2019
Where: Kuching, Sarawak, Malaysia
Program Director: Dr. Tie Siew Teck
Program Type: Hands-on workshop, Conference (didactic lectures)
Website: http://www.mabip.com