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Inside This Issue

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Opinion/Editorial

The Forthcoming Eighth Edition of TNM Classification of Lung Cancer – Revisions of the T and N Descriptor and Impact on Interventional Bronchoscopists

Lung cancer is still the leading cause of cancer deaths in the western world, despite recent advances in screening, diagnosis and treatment of this disease. In order to provide the best understanding of the disease and methods for treatment, accurate staging is mandatory. Stage classification provides uniformed language to describe the anatomical extent of the disease and therefore is a critical tool for management of patients with lung cancer. An international database of nearly 100,000 patients with lung cancer diagnosed in 1999-2010 was extensively analyzed by the International Association for the study of Lung Cancer (IASLC) for refinement of the lung cancer classification (1). The new 8th edition of the TNM classification for lung cancer staging is to be released very soon.

Briefly for the T descriptors, there was a downward shift in survival for each centimeter increase in size of the tumor (2). Therefore the new proposal will include more subclasses within T1 and T2 disease with the following revisions: T1a (<1cm), T1b (>1 to <2 cm), T1c (>2 to <3 cm), T2a (>3 to <4 cm), T2b (>4 to <5 cm). Tumors larger than 5cm but less than or equal to 7cm will be T3 and tumors larger than 7cm will be T4. Other changes to T stage include tumors involving the main bronchus will be classified as T2 (previously T3 when closer than 2cm from the carina), either partial or complete atelectasis or pneumonitis caused by the tumor will be T2 (previously complete classified as T3), but diaphragm involvement will be T4. For the M descriptors, M1b from the 7th edition (distant metastasis in extrathoracic organs) was recommended to be sub-classified into M1b (single distant metastatic lesion) and M1c (multiple distant metastatic lesions) (3).

In the past decade, interventional bronchoscopists have become more involved in the N staging for lung cancer staging with the emergence of endobronchial ultrasound. As such, I will focus more on the changes expected to occur to the N descriptor (4). Although there was considerable imbalance in the origin of the data provided for this proposal with Japan providing 59% of data regarding cN and 75% regarding pN as opposed to only a small fraction of data from North/South America (3.6% cN and 8.7% pN), the use of the current N descriptors from the 7th edition adequately predicted the prognosis. Therefore, the current N descriptors are recommended to be carried forward without any changes in the 8th edition. In addition, the IASLC nodal map and anatomical definitions should be used to describe regional lymph node involvement of lung cancer (5). This may be a relief to many bronchoscopists. However, additional analyses suggested that combination of the location of metastatic lymph nodes, number of lymph node stations involved and absence versus presence of skip metastasis may give a more accurate prognosis.

Currently, the nodal status of patients is defined as N0, N1, N2 or N3 solely dependent on the location of the metastatic lymph nodes without consideration of the number of metastatic lymph nodes. In fact among tumors at various sites, lung cancer is the only organ in which nodal staging is purely determined on location alone. The new subclasses proposed for the N descriptor includes the following: dividing N1 into N1 at single station (N1a) and N1 at multiple stations (N1b); N2 into N2 at a single station without N1 involvement (skip metastasis N2a1), N2 at a single station with N1 involvement (N2a2) and N2 at multiple stations (N2b). Although statistically not significant, the survival curves for N1b and N2a2 overlapped each other and N2a1 had better survival than N1b. It is recommended that physician's record and document the number of metastatic lymph nodes more accurately and to further classify patients using new descriptors. In reality, accurate documentation of lymph node stations and number of lymph nodes involved has only been achieved in pathological specimens and is affected by how the lymph node dissection is performed and how the specimens are processed. If that is the case, are the current imaging modalities such as PET scan and CT scan inappropriate to accurately sub-classify the clinical N stage? The answer is no. With access to the mediastinal as well as N1 lymph nodes using endobronchial ultrasound, we can be more involved in accurately defining the nodal status of patients with lung cancer. This may affect treatment options for lung cancer patients in the future.

Thank you,

Dr. Kazuhiro Yasufuku
Editor-in-Chief

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Technology Corner

Bronchoscopic Photodynamic Therapy with Photofrin for Early Lung Cancer of the Central Airways

Introduction: In patients with inoperable early lung cancer of the central airways (ELCA), bronchoscopic photodynamic therapy (PDT) has been used for several decades as one of the curative-intent treatment options. PDT uses a photosensitizing agent (e.g. photofrin) and laser light. After injection, when the photosensitizer retained in tissues is exposed to a specific wavelength of light, a form of singlet oxygen is produced that kills nearby cells. In the USA, the Food and Drug Administration approved PDT for two indications for endobronchial cancer: treatment of microinvasive endobronchial non--small- cell lung cancer (NSCLC) in patients for whom surgery and radiotherapy are not indicated and for reduction of obstruction and palliation of symptoms in patients with completely or partially obstructing endobronchial NSCLC (1). The latter was addressed in a previous issue of the Newsletter. This section will discuss the physics principles and indications of PDT in ELCA. This subset of lung cancer is usually radiographically occult, typically discovered via bronchoscopy or sputum cytology, centrally located and of squamous histology (2). Early stage airway squamous cell carcinomas are defined as 'lesions that are radiographically occult with no evidence of invasion beyond the bronchial cartilage'.

Background: PDT with photofrin is a two-stage process; stage 1: *intravenous injection of photofrin* at 2 mg/kg, administered as a single slow intravenous injection over 3 to 5 minutes on day 1; and stage 2: *laser light application* on day 3. This time interval of 40 to 50 hours should elapse between administration of photofrin and laser light application to allow relatively selective retention of photofrin within the tumor and clearance from other tissues. The red light activates photofrin to an excited state; this energy transfer causes reactive singlet oxygen and cell death. Excited photofrin also causes vasoconstriction and vascular occlusion, which enhances tumor cell death. The end result is lysis and ischemic necrosis of cancer cells. While PDT can be applied via flexible or rigid bronchoscopy, depending on the indications and operator's experience or preference, for ELCA, flexible bronchoscopy is preferred as lesions may be located in lobar or segmental airways. Debridment of necrotic tissues after treating early airway cancers rarely require rigid interventions. The PDT diffuser fiber produces a 360-degree dissemination of light with a tissue penetration depth of 4-6 mm. This is likely shallower than with Nd: YAG 1064 nm or brachytherapy (up to 1 cm), but deeper than what is achieved with electrocautery (1-3 mm) or cryotherapy (1-4 mm), which are the other alternative treatments offered with a curative intent for early airway lung cancer (1-4). The photosensitizer is preferentially retained in the malignant cells, which allows treatment of diffuse visible and nonvisible disease once light application occurs; however, the selective retention is relative and inflammation and subsequent benign bronchial strictures post PDT can occur (Figure). The 630 nm Diomed is a non- thermal laser compatible with any of FiO_2 level, which is not the case for thermal ablative techniques. Regarding PDT endobronchial dosimetry, for early airway lung cancer, the total power output is predetermined by length of fiber diffuser but the standard power or time may be altered to result in a different treatment effect (i.e. increased or decreased depth of tumor necrosis). In general, a laser light dose of 200 J/cm of fiber optic diffuser length is applied 40–50 hours following injection with photofrin. The Diomed 630nm PDT laser software requires the user to input fiber length and dosimetry is automatically calculated.

Clinical applications: The use of PDT in these patients with ELCA has been described mainly in case series or cohort studies with sample sizes between 12-204 patients (4). The reproducible evidence led bronchoscopic PDT to be approved for the treatment of microinvasive endobronchial non- small- cell lung cancer (NSCLC) in patients for whom surgery and radiotherapy are not indicated NSCLC (1). The goal of bronchoscopic PDT in this circumstance is cure. Systematic reviews of the literature document complete clinical response rates to range from 32-100% (4). There are several factors that can affect treatment success and survival. These include but are not limited to the depth of invasion in the airway wall (detected by endobronchial ultrasound) (5) and the length of the lesion (measured on bronchoscopy) (Figure) (6). In general, tumors that are approximately 1 cm in diameter and up to 3 mm deep are also N0 tumors. Thus the fiber type (flexible or rigid) and length depend on the lesion's vertical extent, location, pattern (usual mucosal for ELCA), as well as desired depth of tissue effects. The longitudinal length of the cancer is measured on bronchoscopy (with or without autofluorescence or narrow band imaging) and is an important predictor of response (6). In one study of 204 patients (264 lesions) (ELCA), the authors describe an overall complete response of 85% and recurrence rate of 12% (6). Complete response was obtained for 95% of cancers with a longitudinal length of < 5 mm; 94% of those 5 to 9 mm; 80% of those 10 to 20 mm, and 44% of tumors > 20 mm. Of the 264 lesions, 224 were treated with Photofrin and 40 were treated with Laserphyrin but

the combined results are presented (6).For treating ELCA, fiber positioning is usually adjacent to the lesion (Figure). If the treatment fails, radiation therapy can still be offered but sufficient time (approximately 4 weeks) should be allowed between radiation therapy and PDT to ensure that the acute inflammation has subsided to avoid excessive necrosis and its undesirable consequences (fistulas or strictures). In fact, several studies reported the use of multi-modal therapy, including laser and radiation in addition to PDT; these were performed either as part of a planned multi-modal approach or as a salvage strategy in patients who did not achieve complete response to PDT (2). Treatment-induced inflammation can cause airway obstruction (even for early airway lung cancer), especially if the lesion is in a lobar or segmental airway. In addition, because of the adjacent intraluminal fiber placement (Figure), the normal tissues get exposed as well and circumferential mucosal inflammation can occur which may result in bronchial stricture (Figure). Other PDT-related complications after treating early central airway lung cancer include mild skin burn due to photosensitivity (5-28%), which may last up to 60-90 days in patients with kidney or renal impairment (7). Inflammation, mucositis, and debris may cause obstruction of a segmental or lobar airway resulting in cough and dyspnea in 0-18% and mild hemoptysis in 0-8% (7). If respiratory distress occurs, the healthcare team should be prepared to perform immediate bronchoscopy to remove secretions and open the airway. In terms of follow up, the ACCP guidelines recommend that for patients with early central airway squamous cell carcinoma treated by curative-intent PDT, surveillance bronchoscopy should be done at 1, 2, and 3 months and thereafter at 3-month intervals during the first year, then every 6 months until 5 years (Grade 1C) (8).

Conclusions: PDT for early lung cancer of the central airways requires understanding of definitions of "early " airway cancer, basic PDT physics and safety principles. Tumor characteristics (vascularization, oxygenation, extent, depth), PDT settings (e.g. power, fiber length) and operator-related factors (e.g. probe positioning) may all affect response rates. The vertical extent (i.e. length) of the tumor predicts depth of invasion and response rates. The goal of bronchoscopic PDT in the management of early airway lung cancer is to achieve complete response while minimizing damage to normal structures.

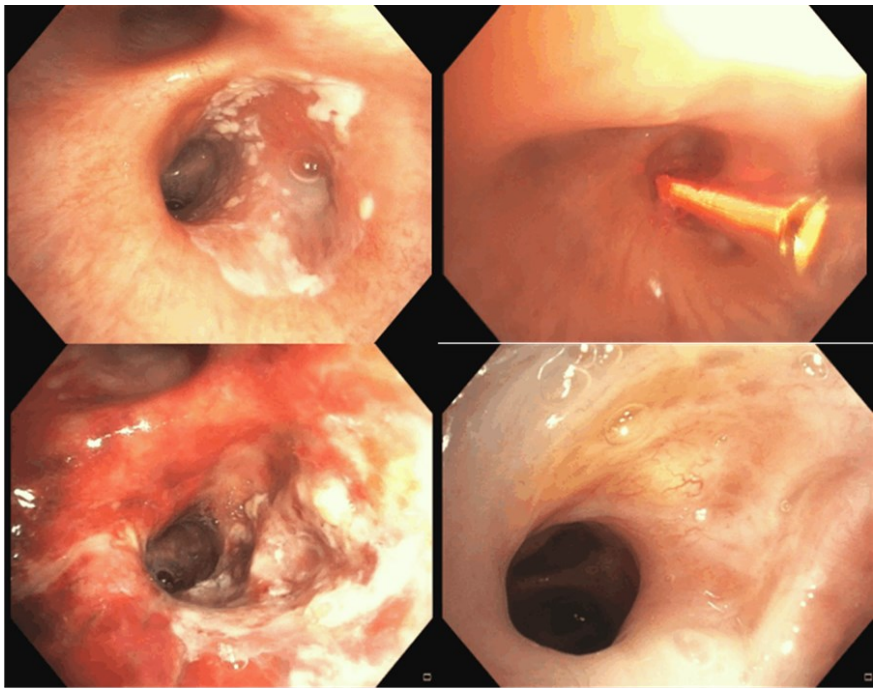

Figure 1: PDT applications for early lung cancer of the central airway: Top panel, left: distal bronchus intermedius lesion extending in the proximal right lower lobe bronchus (length of 1.5 cm) noted on a bronchoscopy performed for unrelated reason. Biopsy showed carcinoma in situ. Subsequent endobronchial ultrasound and EBUS-TBNA did not reveal cartilage invasion or mediastinal, hilar, or interlobar nodal involvement. Top panel, right: lesion is being illuminated with a 2.5 cm diffuser placed adjacent to the lesion. Bottom panel, left: tumor necrosis post PDT (day 5 post injection/day 2 post light application) (white mucosal patches) and mucosal inflammation (edema and erythema) of the normal adjacent airway wall. Bottom panel, right: follow up at 3 months showed no evidence of recurrence but a mild, right lower lobe stricture, not requiring intervention.

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PILLS AND THE AIR PASSAGES

Introduction:
Foreign body [FB] aspiration has been thought to be common among young children. However, the aging population has picked up the pace due to the rising life expectancy. Human aero-digestive tract has contributed to this phenomenon being a common conduit. Thus, food particles have been the most common foreign body aspirated. Meanwhile, mandatory use of medicinal pills among the patients has led to increased frequency of their aspiration, especially among elderly with swallowing disorders or mental status changes. Aspiration of a medicinal pill represents a unique clinical entity that is often overlooked. Regardless of history, it requires a high degree of suspicion for its precise diagnosis in a timely fashion. Medicinal pills can cause unique reactions within the airways including inflammation, obstruction or systemic effects. [Table 1] Devastating complications involving the airways including death can occur if there is as a delay in its recognition.

Epidemiology and Presentation:
Approximately, 10 % of adults in the USA have used five or more prescription drugs in the past month. [1] It is estimated that roughly 7 % of all FB aspirated in the airways are medicinal pills. The pill aspiration in the airways is under-recognized and the literature may not reflect the true incidence of this important entity. The diagnosis of pill aspiration is challenging. Although the patient may have a clear history of the nature and the timing of the pill aspiration, most pills are radiolucent on chest radiographs and the latter could be normal in 25% of patients. [2] Besides, the pill can dissolve in the airways and get absorbed into the bronchial mucosa. Thus, it may no longer be present at the time of bronchoscopic examination. It needs to be highlighted that in such circumstances the diagnosis of FB aspiration has to be established in the absence of the actual FB!

Pathophysiology:
Küpeli *et al.* recently reviewed the clinical presentation, mechanism of injury, diagnosis and management of accidental pill aspiration. [3,4] The articles proposed two major mechanisms of airway injury: inflammation and obstruction. $FeSO_4$ and KCl are the most common pills that dissolve and cause inflammatory reaction in the airways. Interestingly, aspiration pomegranate supplement as well as metformin has also been reported to cause mucosal necrosis. [5], [Figure: 1] Chemical property including the pH of these pills can cause intense mucosal injury and eventually lead to stenosis. [6] If the pill dissolved in the airways, in selected cases diagnosis can be established by either the bronchoalveolar lavage [BAL] or endobronchial [EBBx] or transbronchial biopsy[TBBx]. Therapeutic bronchoscopy with mechanical debridement and balloon dilation may be necessary to manage this complication.

On the other hand, some of the pills may not dissolve in the airway and merely lead to airway obstruction, atelectasis, granulation tissue formation, post-obstructive pneumonia, and bronchiectasis. Most of these pills need to be removed emergently performing a therapeutic bronchoscopy. Early removal of the pill can result in total restoration the lung function. Thus, all aspirated pills require immediate attention. There are several endoscopic tools that can be used for foreign body/pills extraction including alligator forceps, snare loop, basket grasping forceps, 4-prong grasping forceps, Roth net retriever and rat tooth forceps.[Figure:2] Occasionally, a rigid bronchoscopy may be necessary to extract a large size pill if use of above tools remains futile.

The use of certain medications can also involve airways through their systemic side effects without actual aspiration. For example, amiodarone can cause amiodarone pulmonary toxicity via direct toxicity and immune-mediated sensitivity reaction. Black airway pigmentation was reported as a complication of amiodarone use as well. [7] Clopidogrel has been known to cause airway mucosal petechiea which could be confused with hereditary hemorrhagic telangiectasia. [8] Iatrogenic use of inhaled corticosteroids (ICS) is also harmful to the central airway. Use of ICS has been linked to higher incidence of community acquired pneumonia and *Mycobecterial Tuberculosis* and Non-tuberculous Mycobacterial infections. We also believe that increased reporting of excessive dynamic collapse, tracheobronchomalacia and tracheobronchial smooth muscle atrophy and separation (TB-SMAS) are also related to excessive use of ICS. [9,10]

Management and Prevention:

An early bronchoscopic examination in a patient with clear history of pill aspiration may mitigate the detrimental effects of a partially dissolved pill. Most case reports of pill aspiration highlight the importance of early bronchoscopic surveillance and intervention to promptly identify the severity of airway injury. Once the airway injury has taken place, frequent bronchoscopic interventions with balloon dilatation, cryotherapy, argon plasma coagulation, Mitomycin C application and stent placement may be required to maintain airway patency.

The most important issue to avoid the airway complications from pill aspiration is its prevention. Among patients with swallowing disorders or altered mental status, caregivers need to be extremely cautious while administering medications via the oral route. It is our recommendation is that all individuals should swallow one pill at a time making sure that it has been completely swallowed before receiving the next. In certain instances administration of liquid preparation or alternate route for administration such as sublingual, transdermal etc., should be sought. Inhaled corticosteroids shouldn't be used indiscriminately and if used, its dose should be kept to a minimum.

Conclusion:

In summary pulmonologists must be fully cognizant of all medicinal pills being consumed by the patients and their systemic as well as local side effects in the central airways, if aspirated. The syndrome of "pill aspiration" should be included in the differential diagnosis of unexplained endobronchial findings. Diagnosis of the pill aspiration can be made by clear history and timing of pill aspiration and in selected cases by a BAL and either a EBBx or TBBx. Chest X-ray findings are less reliable as most medicinal pills are radiolucent. The flexible bronchoscopy is the best method for its evaluation and management.

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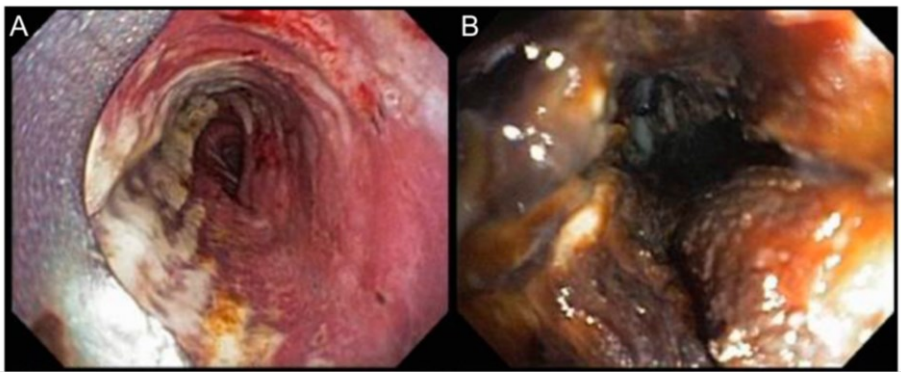

Figure 1: Mucosal necrosis involving lower trachea (A) and left main bronchus produced by the pomegranate pill aspiration. By permission: Chest 2013, 143(6) 1791-1795

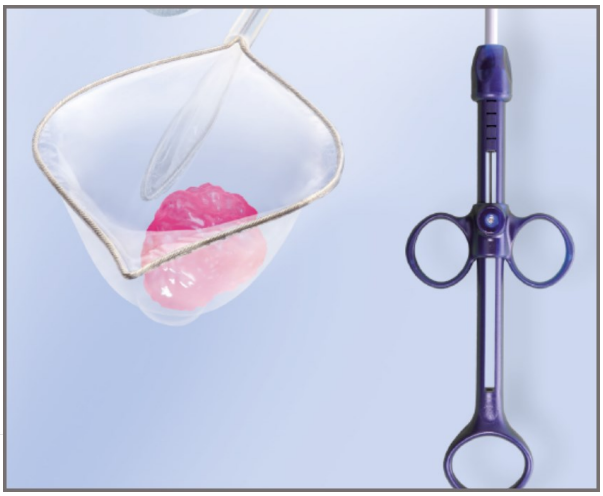

Figure 2: Roth net retriever to secure endobronchial foreign body during its removal

Table 1: Updated list of medications involving the airways and their mechanism of action

Inflammation	Obstruction	Systemic Effects	Iatrogenic Administration
Aspirin	Calcium carbonate	Amiodarone	Epinephrine
Alendronate sodium	Ciprofloxacin	Bevacizumab	Inhaled Corticosteroid
Bismuth Subgallate	Cocaine bag	Clopidogrel	Insulin
Charcoal	Endoscopic capsule	Cocaine	Mineral oil products
Diatrizoic acid	Lanthanum carbonate	Inhaled Corticosteroid	N-acetylcysteine
Ferrous sulfate	Sevelamer hydrochloride	Heroin	Pentamidine
Mercury	Sucralfate	Mercury	
Tetracycline		Sirolimus	
Sodium Polystyrene Sulfonate			
Meprobamate & quinine sulfate preparation			
Metformin			
Mineral oil products			
Nortriptyline			
Pomegranate supplement			
Potassium chloride			
Propyliodone			
3,5-Diiodo-4-pyridine			

Humanitarian News

The picture of Omran Daqneesh, the Syrian child covered in dust and blood in an ambulance chair, staring ahead with deadened eyes, alone and stunned, rocketed around the world.

Omran was rescued with his family by the Syrian Civil Defense, pulled from the rubble of a Russian air strike in the Qaterji neighborhood of rebel-held eastern Aleppo. Within hours of being posted on Twitter, that heartbreaking image has been shared tens of thousands of times across social-media platforms and has since gone viral and onto the first page of major international newspapers.

During several days, hundreds of journalists, politicians, opinion leaders and diplomats, have reminded the humanitarian catastrophe that Syria is meaning and prompted for an urgent solution. The world was moved and showed its sympathy by millions of tweets, likes, and shares and the public outrage resulted in considerable compassionate donations to aid organizations. But after a few days, the world moves on, and the image and the crisis are forgotten. And once more, a moving picture may inspire people to contribute money or be concerned for a day or a week, but ultimately, it's not going to make a difference in any real way,

United Nations Secretary-General Ban Ki-moon warned "In Aleppo we risk seeing a humanitarian catastrophe unprecedented in the over five years of bloodshed and suffering in the Syrian conflict. The fight for territory and resources is being undertaken through indiscriminate attacks on residential areas, including through the use of barrel bombs, killing hundreds of civilians, including dozens of children." Ban also urged Russia and the United States to quickly reach a deal on a ceasefire in the city and elsewhere in the country.

But in the meanwhile, the war goes on. Over 18,000 casualties — including around 5,000 children — have come out of Aleppo. Military airstrikes from Russia and the Syrian government systematically ignore the Geneva Convention rules and continuously target medical facilities held by rebels and humanitarian aid groups. There are thousands of children like Omran who are being bombed daily, killed daily. As a result, the 1.5 to 2 million people that still remain in Aleppo face a terrible choice: stay in a city subjected to uninterrupted bombing putting keeping their lives in constant risk or embark in the nightmare of a dangerous journey across the sea, trying to reach a safer place for them and their families.

The WABIP has always included in their essential values the care of the undeserved and forgotten peoples all over the world. We know their members are very sensitive to this current situation. But it is also true, that is very unclear to people how they can make a difference.

We cannot be simplistic. There isn't an obvious mechanism through which we can turn our anger and compassion into change. Urging to "end the war" may mean for some opinion leaders to increase the military presence or the bombardments, whichever the side. And in fact, one of the key issues in the conflict has been the supply of weaponry to both sides, which has kept the fighting going.

So, in such a complex context, what can a regular doctor, honestly eager to cooperate to decrease this horror?

The first and most important thing to do, is not to look away and forget all of this because this not our business. It is our business as each one of us is in a certain way responsible of the suffering of any human being in the world. And if we can do even the tiniest action to decrease that suffering, it is our ethical duty to do it.

Not every doctor may or should give a direct help on site. Humanitarian medical work in armed conflicts is a task for professionals, properly trained and with previous experiences in less dangerous and challenging aid missions. But many groups are out there risking their lives to provide medical care and all of us may give some help at their headquarters or through financial support. The UN Refugee Agency distribute sleeping bags, thermal blankets, raincoats, socks, clothes and footwear to the refugees. Unicef delivers vaccines, winter clothes and food. Save the Children supplies food and supports education in refugee camps. Médecins Sans Frontières/Doctors Without Borders is providing rescue ships in the Mediterranean Sea to carry people to safe land. All of them need the recognition and logistic and financial support.

Very importantly, those people that has fled the country trying to save their lives become what is coldly called “the refugee problem”. It is a problem, but a problem all of us have to contribute to solve. Of course, you can donate to groups like Migrant Offshore Aid Station, or mainly the UNHCR. But the most important contribution is to understand that those people are not in your country because they want, they (like you) would want nothing more passionately than going back to their own homes. But they cannot. Looking into ways that your community can help improve the living conditions of refugees that have arrived in your country is a very direct way of action.

And at last and surely not the least, being informed and feeling responsible of playing an active role in advocacy is something anyone may and should do. The war keeps on moving because the supply of arms never stopped. The Syrian government is armed mainly by Russia and Iran. The rebels get the vast majority of its weaponry on the black market. But many countries supply that weaponry (officially declaring that they only give non-lethal aid) to the rebels: Qatar, Saudi Arabia, Lydia, Turkey. In May 2011, the European Union imposed an arms embargo on Syria which (despite that UK and France lobbied to be able to supply arms to "moderate" forces in the opposition) is still valid. But although EU member states do not supply arms directly to the rebels, some European countries and also the US are suspected to secretly and unofficially, supply weaponry in large-scale.

There is no easy solution, not even easy choices, but the pressing opinion of society, gets more results that most of individuals may believe.

It's easy to feel overwhelmed by the current uncontrolled state of violence in the world and fall in the temptation to ignore the things we are reminded by pictures like Omran Daqneesh's heartbreaking face. But we cannot condemn those real human beings to be just a hashtag moment. They are lives, flesh and blood and all of us can give our tiny contribution to get a fairer life for them.

**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. Silvia Quadrelli is Vice-chair of the WABIP.*

Education and Training

Bronchoscopy Education Project (BEP) in Latin America

I have had the pleasure of being involved in the BEP since its inception,since the first Train the Trainers seminar was held in Buenos Aires in Au-gust 2008, where many bronchoscopy educators met and interacted with a common purpose for the first time. In Argentina, an annual one year postgraduate certification for bronchoscopist (eligible pulmonary, critical care, and thoracic surgery specialists) has been running since 2001. We quickly endorsed and adopted all the major elements of the BEP into our curriculum in addition to moving our hands-on training sessions to inanimate models and step-by-step instructional techniques. Problem-based learning (PBL) sessions became very popular with course participants, and, since 2009, participants are not only required to have performed no less than 100 bronchoscopies, but also required to receive passing grades when tested by independent instructors using BEP checklists and assessment tools. Today, bronchoscopy certification is strongly encouraged by all major teaching and clinical practice institutions in Argentina!

Using Buenos Aires as a central hub in Latin America, subsequent BEP programs attracted participants from neighboring countries, leading to Introductory courses in Peru, Bolivia, Paraguay, Ecuador, Colombia, and Brazil. BEP materials have been translated into Spanish and Portuguese so that all instruction can be provided in our native languages, and now, teams of certified and master instructors include bronchoscopists from Argentina, Peru, and Paraguay, each one of them able and enthusiastic to implement BEP programs in their own countries, and willing to travel to neighboring countries to help spread the word. This is rapidly resulting in the use of a common language to describe airway abnormalities, a uniform use of assessment tools such as BSTAT to monitor student progress along the learning curve, a substantially more rapid acquisition of technical skills by beginner and intermediate bronchoscopists, and, through the use of standardized checklists, a more widespread implementation of informed consent and training for moderate sedation and fluoroscopy.

Another benefit of spreading BEP materials throughout the Latin American continent is that we have encouraged collaboration among national bronchoscopy societies as well as exchange programs for many bronchoscopists. This has helped improve the standards of flexible bronchoscopy for both adult and pediatric populations, as well as prompt new friendships and cultural exchanges. We are seeing new techniques being increasingly implemented in countries where, for example, conventional TBNA or EBUS were only rarely or never performed. There is growing interest and technical capability in interventional pulmonology, as well as new collaborations with the ALAT and national pulmonary societies . All countries of South America (Argentina, Peru, Bolivia, Ecuador, Uruguay, Paraguay, Brazil and most recently Chile) except Venezuela have joined the WABIP, and many South American bronchoscopists, who once had little voice on the international stage, have assumed leadership positions in our growing association.

The success of the BEP in South America is representative of the importance the WABIP gives to the democratization of knowledge, and to the importance of forming a cadre of well -trained educators who can help improve skills and knowledge of bronchoscopy around the world.

For the first time, I do believe that something valuable in terms of standardization of the educational process is being made. I have personally experienced, from the very beginning, the outstanding difference between the conventional method “see one, do one, teach one” and this paradigmatic shift where the focus is the student, in a personalized way that allows to improve abilities and performance at different levels. Once again, the standardized curriculum, the mentored “hands on workshops”, simulation and the interactive activities like Practical Approach and PBL sessions have made the difference.

Of course, much more work is still needed. Brazil, with its enthusiastic group of instructors beginning their experience with BEP materials, needs to spread the program throughout the country. On other hand we need to strengthen relationship with ALAT to combine educational efforts. Mexico, Venezuela and Cuba are pending subjects but also are other countries in different continents.

No matter how long it takes, all efforts should be done in this direction. Our goal is to create future generations of well trained, highly skilled bronchoscopists, able to learn new technologies properly and interact with their own students from a different point of view in a common language all over the world.

Patricia Vujacich

WABIP Board of Regents. Argentinian Association for Bronchology (AABE)

Board of Regents News

Item 1: The WABIP is pleased to welcome two new members on our Board of Regents. WABIP Education committee chair Dr. Patricia Vujacich has been selected by Asociación Argentina de Broncoesofagología, and Dr. Grigoris Stratakos by the Hellenic Thoracic Society (Greece). We are honored by their presence and look forward to the continued collaboration with these two members and societies.

Item 2: Visit the newly revamped **WABIP Pediatric Bronchoscopy** section in which interested members and non-members can now "sign up" directly on the webpage (URL: http://www.wabip.com/education/pediatric). After filling in your personal information, you will receive WABIP Pediatric Bronchoscopy related updates by the section chair and/or and co-chair. Due to demand and involvement by the Chinese speaking IP pediatric community, a Chinese language version of the WABIP Pediatric Bronchoscopy webpage has been in development and now online at http://www.wabip.com/zh/pediatric-zh

Item 3: You are invited to contribute your pre-procedure bronchoscopic images of airway and pleural abnormalities to the brand new **WABIP Academy Image Library** at http://www.wabipacademy.com/imagelibrary
This educational endeavor will enable your images be indexed by Google and other search engines for anyone around the world to search and view.

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Research

One Stop Shop
Bronchoscopic Treatment of Malignant Peripheral Lung Cancer

In recent years, more pulmonary nodules have been diagnosed than ever. This is largely due to screening of lung cancer in higher risk populations with CT chest. Lung cancer screening with low dose radiation CT chest in higher risk populations has shown over a 20% reduction in mortality in the "National Lung Cancer Screening Trial (NLST)" (1). The vast majority of these lesions are benign but there has been a proportionate increase in the diagnosis of malignant lesions. Along with this, the proportionate rise of poor surgical candidates with early stage lung cancer patients, who would otherwise be best treated with surgical resection, is incontrovertible.

With the success of bronchoscopic navigation and localization modalities in reaching small peripheral pulmonary lesions for diagnostic purposes, the desire to bronchoscopically treat malignant lesions using the same tools especially in poor surgical candidates seems logical.

Marriage of ablative modalities such as Photodynamic, Microwave, Cyro, and Brachy therapy, along with Radiofrequency Ablation (RFA) and other navigation and localization modalities are now being investigated in numerous trials globally to treat peripheral malignant pulmonary lesions. Most of these modalities have been already used either in the airways or in other body organs establishing their utility.

Intra-lesional chemotherapy with or without microwave therapy in small animal studies have provided encouraging results for human studies (2). Gene therapy with other ablative therapies for endobronchial lesions has shown promise in humans paving the way for bronchoscopic parenchymal gene therapy for malignant lesions (3). Brachytherapy via navigation and radial ultrasound guided implantation of radioactive seeds in peripheral pulmonary lesions has shown success in small scale human trials . This therapy is particularly exciting due to a long track record in other organs and in the airways. In a recent canine study of navigation guided PDT of peripheral lung cancer followed by lobectomy, promising results were reported in an abstract/poster leading the way for human trials. Microwave Therapy and RFA have been tested via the percutaneous/transthoracic approach with significant number of complications, predominantly arising from violation of pleura (pneumothorax and bleeding), rather than the therapy itself. RFA was recently tested in a small group of inoperable lung cancer patients with a CT guided bronchoscopy with lower complications of pneumothorax. Bronchoscopic cryotherapy and vapor based therapy are other modalities in different stages of investigations.

Needless to say that a tremendous amount of work is being done with a lot of interest and enthusiasm in this area. It is almost certain that there will be several ablative therapies approved for the treatment of peripheral malignant pulmonary lesions. This approach could provide patients with a unified procedure for diagnosis and treatment peripheral lung cancer with significantly less cost and fewer complications compared to current options available for. This might even be a more attractive option for developing countries where the cost of SBRT is prohibitive.

References:

1. **The National Lung Screening Trial Research Team. N Engl J Med 2011; 365:395-409. August 4, 2011**
2. **Hohenforst-Schmidt et al. J. Cancer. 2015;6(3):218-26.**
3. **Weill D et al. Chest. 2000;118(4):966-70.**

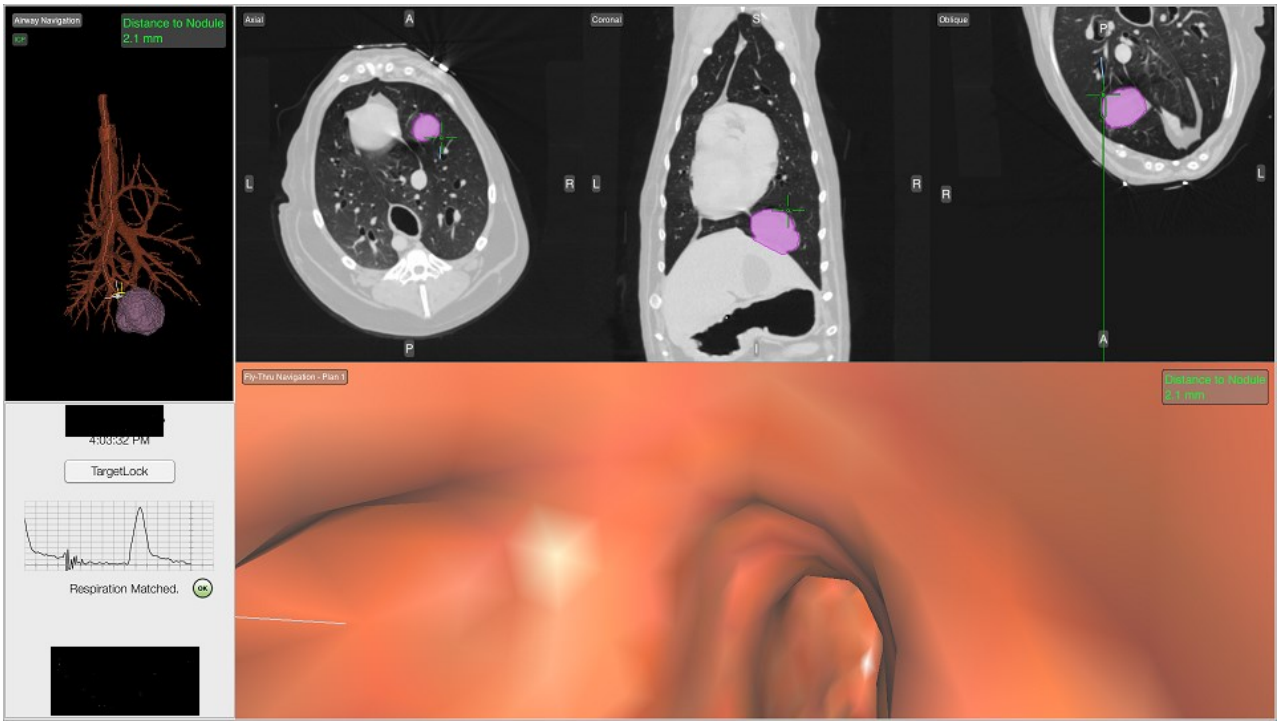

Figure 1: Multiprong approach with navigation bronchoscopy for PDT in a canine model.

UPCOMING EVENTS

Malaysian Assembly Of Bronchology And Interventional Pulmonology
When: 29-30 September 2016
Where: Kota Kinabalu, Sabah, Malaysia
Program Director: Dr Kunji Kannan A/l Sivaraman Kannan
Program Type: Hands-on Workshop, Conference (didactic Lectures)

Introduction to Bronchoscopy
When: December 9-10, 2016
Where: Pavilhão Pereira Filho - Santa Casa de Porto Alegre
Program Director: Paulo J.Z. Teixeira, M.D.
Program Type: Educational seminar (postgraduate may include physicians in practice and trainees)

The Jakarta International CHEST and Critical Care Internal Medicine 2017
When: 25 - 26 March 2017
Where: Kempinski Hotel, Jakarta, Indonesia
Program Director: Ceva Wicaksono Pitoyo, MD
Program Type: Educational seminar (postgraduate may include physicians in practice and trainees), Hands-on workshop, Conference (didactic lectures)

First International Meeting Of The Pediatric Airway Teams
When: 6 - 8 April 2017
Where: Genoa and Cinque Terre, Italy
Program Director: Prof.Bottero, Prof.Torre, Prof.Moslehi, MD
Program Type: Educational seminar (postgraduate may include physicians in practice and trainees), Conference (didactic lectures)

4th European Congress For Bronchology and Interventional Pulmonology (ECBIP)
When: APRIL 27-30, 2017
Where: BELGRADE, SERBIA
Program Director: Semra Bilaceroglu, MD
Program Type: Educational seminar (postgraduate may include physicians in practice and trainees), Educational seminar (for trainees only), Hands-on workshop, Conference (didactic lectures)

Visit www.WABIP.com/events for more details

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