

Endoscopy and the Surgeon

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The thoracic surgeon is now at a major turning point in his evolution. Because noncardiac thoracic surgery is recognized more and more as an independent specialty, the dimension and extent of his activities in the field is expanding. Esophageal and lung diseases, mediastinal pathologies, and chest wall and diaphragm abnormalities all represent areas of investigation and treatment requiring special knowledge and expertise. The evolution and appearance of subspecialties within surgery dictates the development of a new vision for the surgeon's role. Wherein surgeons could formally be considered physicians with technical expertise, the evolution of knowledge now requires that they must be familiar with basic physiology and pharmacology, with molecular biology and genetics, with all techniques to study function and dysfunction, and with all endoscopic techniques related to diagnosis, staging, manipulation, and treatment of diseases. This new vision allows the surgeon to lead a horizontal role in the management of thoracic surgery patients, promoting a comprehensive approach to them while favoring maximum efficacy management.

The thoracic surgeon, just because his clinical activities are so much involved in investigating lung and esophageal diseases, is in a position where he can transform and orient both the investigation and management of these pathologies. At present, patients in most centers around the world are investigated and treated in "silos." Lung problems are sent to them by family physicians; they are then seen by the chest physician and investigated for function and endoscopic manifestation of disease, and a referral is made to a thoracic surgeon. In a very similar way, esophageal conditions are examined and referred by the family physician, usually

for investigation by a gastroenterologist who in the end will transfer the patient to the "surgical silo." In these situations, the thoracic surgeon is usually the final examiner in the referral line with two or three interposed actors providing second- and third-hand information to the treating surgeon, who is consulted as a technician. If evolving in an academic environment, the surgeon will often focus his interest mainly in a specific section of the thoracic surgery field. Whatever his interest, however, he must learn to define the problems in his area of expertise. And though he must have the mind and knowledge of a physiologist as much as the technical expertise of the surgeon, overall he must develop the most objective evaluation of his patient, enabling him to offer the best possible management for the patient's condition.

And reaching these goals is where endoscopic expertise becomes so essential. Regardless of the specialty environment in which he lives, the thoracic surgeon must be trained to be an expert endoscopist, one where in-depth knowledge of the diagnostic, staging, and therapeutic roles of this investigative technique must parallel the functional investigation, the radiological and scintigraphic observations, and the potential treatments available. The thoracic surgeon, by becoming and being such an expert in both esophageal and bronchial endoscopic techniques, has the potential to remove the actual "silo" investigation philosophy and its obvious inefficacy and to replace it with a single horizontal investigation platform oriented toward the full benefit of the patient.

In esophageal diseases, flexible and rigid endoscopies are at the base of esophageal investigation for benign and malignant conditions alike. In reflux disease, endoscopic and histological documentation of the mucosal alterations can quantify the disease in parallel with refluxate documentation and motor function recording. These four investigative methods are the most objective evidence documenting the disease, each in turn offering equivocal and nonequivocal proof of existing dysfunction or damage. Endoscopy, however, offers the most reliable objectivity in documenting the disease as long as the visual classification of mucosal abnormalities (MUSE and Los Angeles classifications)

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recognize only mucosal breaks as objective evidence of the condition. Endoscopy by the surgeon in that situation will help, without interposed third-party interpretation, to quantify the damage present, and it helps to avoid exaggerations in surgical indications, namely, in patients with symptoms without evidence of mucosal damage. Barrett's esophagus is recognized as one of the most severe complications of reflux disease, especially with its potential cascade from benign metaplasia to adenocarcinoma formation. The thoracic surgeon, or the upper digestive surgeon with a focused interest in esophagology, must essentially be familiar with its pathophysiology and all forms of management. Diagnostic and screening criteria, medical and surgical approaches, significance of low- and high-grade dysplasia, indications and effects of mucosal ablations, with and without reflux correction, should all be mastered by the surgeon. Just as surgeons had to adapt to minimally invasive surgery in reflux disease, they will need to master endoluminal treatment for reflux disease and assess their results with the most objective evaluations. And although natural orifice surgery (NOTES) seems futuristic, it may certainly be part of the surgical armamentarium to treat reflux disease or manage esophageal disruptions or perforations. Esophageal cancer at any stage implies the use of the flexible and rigid endoscopes. Ultrasonography, both endoesophageal (EUS) and endobronchial (EBUS), have recently provided the surgeon with reliable clinical and pathological staging of the disease, allowing for better treatment planning following assessment of the depth of penetration and node status. Mucosal resection has become an added staging method to clarify the deep and circumferential margins for high-grade dysplasia as well as for T1a and T1b tumors. Mucosal ablation has been shown to correlate well with final pathology after esophageal resection, but exclusively so at the mucosal resection site. For advanced cancers, approximately 60% are nonsurgical after proper staging. In this setting, the thoracic surgeon, after the single horizontal platform evaluation, can proceed to offer either the palliation route with self-expanding prosthesis installation, or a curative approach with initial abdominal staging and feeding jejunostomy installation prior to neoadjuvant therapy.

Expertise in tracheobronchial endoscopy is also mandatory for the thoracic surgeon. And although the rigid endoscope has rarely been used in the past three decades, its use at present is considered essential, mainly in proximal airway diagnosis and management. White light endoscopy, which provides diagnoses of endoluminal lesions, also provides a clear assessment of the planned transection

line mucosa before any resection. This is not an interpretation that should be sought and transmitted by interposed personnel. Moreover, knowledge of the 3-dimensional orientation of all pulmonary segments is essential before and after any lung resection. Therapeutic bronchoscopy in the postoperative setting remains an important tool for the surgeon to manage retained secretions and atelectasis. Most important in these times, however, is bronchoscopy with the addition of EBUS. Together they have become essential in the staging of lung cancer as well as of mediastinal nodes and masses. Although level 1 evidence that EBUS and EUS are replacing mediastinoscopy and that anterior mediastinotomy has still not been produced, these endoscopic techniques are rapidly gaining ground in this direction. The thoracic surgeon's familiarity with the endoluminal and extraluminal (mostly vascular) structures puts him at an advantage in the assessment and needle biopsies of mediastinal and peribronchial nodes. Benign and malignant tracheobronchial lesions require mandatory rigid and flexible evaluation. Dilatations and tracheal installation of a self-expanding prosthesis (as well as other prostheses), either as a palliation of tracheal or esophageal lesion, require good control of the airway or experienced manipulation of all types of endoscopes. Compression, invasion, or fistulization of esophageal cancers into the bronchial tree can be palliated adequately for comfort, either by tracheobronchial stenting or by hybrid tracheobronchial and esophageal stenting. Advantages, disadvantages, indications, and contraindications for each stent type must be part of the thoracic surgeon's knowledge.

Endoscopy cannot and should not be seen as the exclusive property of one specialty or another. It is a tool for investigation, a tool that should help to provide objective evidence of disease and its complications. It should provide the surgeon with evidence of success or failure in a variety of treatment options that might have been offered. The turf war manifest in many countries when a surgeon expresses interest in endoscopic diagnosis and therapy is ridiculous. The physicians involved in creating such animosity should stop viewing that surgeon as an enemy who will deprive them of their clientele. Instead, they should ask themselves if that surgeon offers them better expertise and wiser opinions when a treatment is planned. The approach to the patient should aim at the best expertise with maximal efficacy when offering a given service. When lung cancer, esophageal cancer, mediastinal masses, or other lung, esophageal, or diaphragmatic conditions are being investigated, the advantages of a thoracic surgeon's investigation in a single setting are definitely the best

way to abolish the inefficiencies of the “silo” investigation as it exists today. Endoscopy is but one example of diagnostic investigation and management that is encouraged and made mandatory by subspecialization. Other aspects will certainly also emerge. Because of today’s molecular biology and genetic expertise, it is probably

only a matter of time before we will find thoracic surgery units where esophageal and lung cancers are being treated by thoracic surgeon experts in oncology. The future of thoracic surgery is bright, and thoracic surgeons must try to obtain the best available training in all aspects of their specialty to offer the very best services to their patients.