

Video-Assisted Thoracoscopic Surgery

Expanding the indications for minimally invasive cancer surgery while improving outcomes

■ BY PHILIP LINDEN, MD



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Thoracoscopy originated a century ago, when the Swedish internist Hans Christian Jacobaeus reported the first diagnosis and treatment of pleural effusions by thoracoscope. The development of fibro-optic light transmission, additional image processing techniques and related surgical instrumentation enabled the invention of video-assisted thoracoscopic surgery (VATS) in the early 1990s.

Thoracoscopy is still useful in the diagnosis and treatment of pleural effusions. In patients with exudative effusions, thoracoscopy allows for the diagnosis and treatment at the same setting. In patients with a malignant pleural process, if the lung is seen to fully expand under positive pressure ventilation, then talc pleurodesis offers a highly successful treatment. If the lung is unable to expand under positive pressure (either from intrinsic disease, bronchial obstruction or encasement with tumor) then insertion of a drainage catheter allows for palliative drainage at home.

Surgeons with specialized training in VATS continue to expand its applications beyond the treatment of pleural effusions, and the current literature cites several advantages of VATS in both short-term and longer-term surgical oncology outcomes.

REDUCTION IN COMPLICATIONS AND LENGTH OF STAY

A recent propensity-matched analysis of the largest national thoracic surgery database (Society for Thoracic Surgery) has shown fewer complications and shorter length of stay with VATS lobectomy as compared with open lobectomy. VATS patients were more likely than thoracotomy patients to have no complications. VATS lobectomy was associated with a lower likelihood of arrhythmia, reintubation and blood transfusion. The average length of stay for a VATS lobectomy was 4.0 days as compared with 6.0 days for a lobectomy done with a full thoracotomy.

With an experienced team, it is possible to combine a thorough lymph node dissection by a VATS procedure at the time of VATS lobectomy. The thoracoscopic approach to lobectomy is associated with less blood loss and postoperative pain with little or no change in operative time and a quicker return to baseline function.



Philip Linden, MD, performs a video-assisted thoracoscopic surgery (VATS), a minimally invasive procedure.

NOVEL APPLICATIONS OF VATS

Approximately 75 percent of lobectomies at UH Ireland Cancer Center are done with a VATS approach instead of a large thoracotomy incision; even difficult cases can be done with minimally invasive incisions.

Our surgeons perform VATS segmental resection, a more complex procedure than a lobectomy that preserves more healthy lung tissue and is most useful in patients with impaired lung function, such as emphysema.

UH Ireland Cancer Center surgeons are pioneers in the VATS hybrid approach in patients with cancers metastatic to the lung. This procedure combines a conservative wedge resection for peripheral lesions with ablation of deeper lesions that would otherwise require the removal of an entire lobe of lung. This approach provides the optimal treatment of patients with marginal lung function, and allows for the conservation of lung tissue in patients who are at high risk of developing additional lung metastases in the future.

Ireland Cancer Center at University Hospitals Case Medical Center offers additional options in the treatment of patients with lung cancer who are at high risk of complications from lung surgery, including those with poor lung function or elderly patients. These options range from minimally invasive resection to ablation with CyberKnife® radiation or other ablative techniques. Our expertise in the management of compromised patients along with our multidisciplinary approach gives the patients the best chance of a tailored therapy that is best for them and their quality of life.