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Diagnosis of Lung Cancer

In vivo microscopic imaging of the bronchial mucosa using an endo-cytoscopy system

Authors: Shibuya K et al.
URL: http://www.sciencedirect.com/science/article/pii/S0169500210003855
Comment: In this study a probe was passed through the 4.2 mm working channel of the bronchoscope, allowing cellular imaging of the tracheobronchial tree during bronchoscopy. Twenty-two patients (7 with squamous cell carcinoma, 11 with squamous dysplasia and 4 after photodynamic therapy) underwent white light, narrow band imaging (NBI) and autofluorescence imaging (AFI) bronchoscopy. Abnormal areas and normal bronchial mucosa were examined by endo-cytoscopy at high magnification (570×), after staining with 0.5% methylene blue. The investigators demonstrated that ciliated columnar epithelial cells were visible in normal bronchial epithelium, whereas large polymorphic tumour cells were observed in squamous cell carcinoma. These cellular images correlated well with the histology. The authors concluded that endo-cytoscopy was useful for discriminating normal bronchial epithelium from dysplasia or malignancy during bronchoscopy, and may lead to optical biopsy in order to better understand the process of carcinogenesis.
Virtual bronchoscopic navigation combined with endobronchial ultrasound to diagnose small peripheral pulmonary lesions: a randomised trial

Authors: Ishida T et al.; for the Virtual Navigation in Japan (V-NINJA) trial group


URL: http://thorax.bmj.com/content/early/2011/07/11/thx.2010.145490.long

Comment: This prospective multicentre trial showed that the combination of navigation bronchoscopy with endobronchial ultrasound (EBUS) led to a higher diagnostic yield for small peripheral pulmonary nodules, compared with no navigation (80.4% vs. 67.0%, $P = 0.032$). The median procedural time and time to biopsy were also reduced, without complications. In fact, the only adverse event was a pneumothorax that did not require intervention.

Endobronchial Ultrasound (EBUS)

EBUS-guided lymph node biopsy (EBUS-TBNB) with a transbronchial needle forceps (TBNF) - a pilot study

Authors: Herth F et al.


URL: http://erj.ersjournals.com/content/early/2011/06/20/09031936.00033311.long

Comment: As tissue specimens are needed for molecular characterization to allow individualized therapy, the investigators sought to determine if a novel needle forceps inserted through the working channel of the endobronchial ultrasound (EBUS) scope could be used to safely obtain tissue from enlarged mediastinal lymph nodes. Fifty patients were recruited, and bronchial wall penetration with the needle forceps was achieved in 48 patients (96%), with adequate tissue specimens being obtained from 45 patients. A specific diagnosis was established in 43 patients (86%), and no clinically significant procedure related complications were encountered.

Endobronchial-ultrasound guided miniforceps biopsy of mediastinal and hilar lesions

Authors: Chriissian A et al.


URL: http://www.sciencedirect.com/science/article/pii/S0003497511007272

Comment: In this study, endobronchial ultrasound-guided transbronchial needle aspiration (EBUS TBNA) was performed first, in patients with enlarged mediastinal lymphadenopathy, using a convex probe linear array endobronchial ultrasound bronchoscope and 22-guage aspiration needle. Four to six passes were taken from each lymph node station. This was followed by EBUS-miniforceps biopsy (EBUS-MFB), in which the 1 mm miniforceps was advanced through the airway mucosa to the target lesion, under continuous EBUS guidance. The overall diagnostic yield of EBUS-MFB was 91%, compared with 81% for EBUS TBNA, and there were no procedure related complications.
Using EBUS features to predict lymph node metastasis in patients with lung cancer

Authors: Wang Memoli JS et al.


URL: http://chestjournal.chestpubs.org/content/early/2011/06/01/chest.11-0252.abstract

Comment: The investigators showed that lymph node size as measured by CT and endobronchial ultrasound (EBUS), and round or oval shape, were predictors of malignancy; however, no single characteristic could exclude a visualized lymph node from biopsy, as 10% of metastatic disease would have been missed in this series of patients, if small, PET-negative lymph nodes were not biopsied.

Utility of endobronchial ultrasound-guided transbronchial needle aspiration in patients with tuberculous intrathoracic lymphadenopathy: a multicentre study

Authors: Navani N et al.


URL: http://thorax.bmj.com/content/66/10/889.long

The utility of endobronchial ultrasound-guided transbronchial needle aspiration biopsy in the diagnosis of mediastinal lymphoproliferative disorders

Authors: Marshall CB et al.


Comment: The results from these two studies showed that endobronchial ultrasound-guided transbronchial needle aspiration (EBUS TBNA) was useful and safe for evaluation of patients with tuberculous intrathoracic lymphadenopathy and lymphoproliferative disorders.
Persistence of effectiveness of bronchial thermoplasty in patients with severe asthma

Authors: Castro M et al.; AIR2 Trial Study Group
URL: http://www.sciencedirect.com/science/article/pii/S1081120611001852
Comment: The safety and effectiveness of bronchial thermoplasty (BT) for severe persistent asthma have been demonstrated to last for up to one year, with reduction in airway smooth muscle mass persisting for three years. Subjects participating in the Asthma Intervention Research 2 (AIR2) Trial were evaluated. The proportion of subjects experiencing severe exacerbations in year 2 after BT was 23.0%, compared with 30.9% in year 1. The reduction in the number of subjects experiencing severe exacerbations after BT was maintained for at least two years.

A randomized study of endobronchial valves for advanced emphysema

Authors: Sciurba FC et al.; VENT Study Research Group
URL: http://www.nejm.org/doi/full/10.1056/NEJMoa0900928#t=article
Comment: In this multicentre trial, endobronchial valve therapy was compared with standard medical therapy for patients with heterogeneous emphysema. Patients were randomly assigned to receive endobronchial valves (EBV group, n = 220) or standard medical care (control group, n = 101). FEV₁ and 6-minute walk distance were assessed. At six months, there was an increase in FEV₁ of 4.3% in the EBV group, as compared with a 2.5% decrease in the control group, with a mean between-group difference of 6.8% (P = 0.005). Similar between-group differences were observed for the 6-minute walk test. The complication rate was 10.3% in the EBV group versus 4.6% in the control group (P = 0.17). The EBV group experienced more exacerbations of chronic obstructive pulmonary disease requiring hospitalization (7.9% vs. 1.1%, P = 0.03) and more haemoptysis (6.1% vs. 0%, P = 0.01) at 90 days. Heterogeneity of emphysema and fissure completeness were associated with better responses to EBV therapy.
Bronchoscopic spray cryotherapy

Bronchoscopic spray cryotherapy: assessment of safety and depth of airway injury

Authors: Krimsky WS et al.
URL: http://jtcvs.ovid.com/cgi/content/full/139/3/781
Comment: Spray cryotherapy by means of liquid nitrogen was performed on 21 subjects using a CryoSpray Ablation System during standard bronchoscopy, in anticipation of lung resection. A 7F cryocatheter was introduced through the working channel of a therapeutic flexible, videobronchoscope and extended 1 cm beyond the tip. Abnormal sites received targeted delivery of low pressure (2–3 psi) liquid nitrogen, with identical dosimetry of two cycles of a 5-second spray with a 60-second interim thaw. Oxygen saturation and peak airway pressure were monitored constantly and treatment times were shorter than five minutes for all patients. Bronchoscopic and histological examination of the airways were performed at various times, ranging from less than 1 day to 106 days after treatment. Histological inspection of resected specimens revealed varying levels of cryonecrosis, which was limited to the mucosal and submucosal layers with no damage to connective tissue. Complete reepithelialization of the airway mucosa and thinning or absence of the smooth muscle layer persisted for 106 days after treatment. No adverse events occurred during these procedures.