Fiberoptic Bronchoscopy and Intracranial Pressure

To the Editor:

In the article “Fiberoptic Bronchoscopy in the Presence of Space-Occupying Intracranial Lesions” that appeared in the July 1993 issue of Chest, Dr. Bajwa et al concluded that fiberoptic bronchoscopy (FFB) carries a low risk in patients with elevated intracranial pressure (ICP). We consider that without discrimination and monitoring of ICP, it is a dangerous statement, particularly if applied to patients with elevated ICP due to head injury.

In the ICU, FFB is performed for either diagnostic or therapeutic purposes. Depending on premedications, anesthetics, irrigations, suctioning, coughing, length of manipulation as well as the pressure existing ICP, FFB can be a very stressful procedure. The fluctuation and increase of ICP secondary to the change of intrathoracic pressure can be significant enough to cause cerebral ischemia due to the decrease of cerebral perfusion pressure. Our experience with therapeutic FFB in the ICU on patients who have head injuries with continuous ICP monitoring has taught us the following: (1) ICP can rise by 10-40 mm Hg depending on the pre-existing levels. Patients with poor intracranial compliance are at higher risk; the elevated ICP may persist and lead to deterioration of the cerebral pathology; (2) it is essential to avoid hypoventilation, hypercarbia, hypoxemia, and hypertension during FFB; (3) adequate premedication and topical anesthesia should be provided; intravenous barbiturates, etomidate, or xylacaine are useful in controlling ICP; adequate amount of xylacaine applied topically should suppress cough reflex, if not, then neuromuscular agents should be used; and (4) because of the potentially high risk, we consider that patients who have head injuries with elevated ICP are relatively contraindicated for therapeutic FFB unless it is absolutely necessary.

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REFERENCE

To the Editor:

The letter by Tai-Shion Lee, M.D., regarding our article “Fiberoptic Bronchoscopy in the Presence of Space Occupying Intracranial Lesions” (Chest 1993; 104:101-03) raises concerns regarding the safety of fiberoptic bronchoscopy in patients with central nervous system (CNS) trauma, and raised intracranial pressure (ICP) that has been documented by invasive monitoring. His observations and suggestions regarding that special setting deserve careful consideration. None of the patients in our series fell into that diagnostic category. Rather, all had intracranial mass lesions attributable to metastatic neoplasia. We do reference a prior report in which the use of ICP monitoring during bronchoscopy in the “critically ill surgical patient” has been described. In that report, significant elevations in ICP during FFB were noted in one patient. Nonetheless, these elevations were without clinical consequence and pressure reverted to normal immediately on interruption of the procedure. Readers should be aware of the issues that Dr. Lee raises, but only larger studies especially designed to address this question will resolve the controversy.

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REFERENCE

The Dialogue Continues
Thoracoscopy Forum

To the Editor:

I was fascinated by the recent Communications to the Editor forum on thorascopic surgery or video-assisted thoracic surgery (Chest 1992 102; 6:1915-16). As a surgeon practicing in a country outside the United States, but one who spent a few years in several of your centers, I believe I can be more objective than most of your readers. What follows might be distasteful to many pulmonologists; but nevertheless, I challenge you to publish my communication.

Although historically true that Monaldi type pleuroscopy was performed by many pulmonologists in the management of tuberculosis, that procedure only remotely resembles modern day video-assisted thoracic surgery. It is closer to chest drain insertion, which is in itself a surgical procedure.

Pulmonology as a subspecialty gained its popularity with the invention of the fiberoptic bronchoscope, when surgeons were busy with the evolving technique of coronary artery bypass surgery. With the new knife envy came the transbronchial biopsy and fine-needle aspiration biopsy. Here and there thoracic surgeons were called to treat complications of these procedures, but by and large almost the entire field of diagnostic pulmonology was handed over to nonsurgeons.

Now there’s a new tool—the thoracoscope. Imitating our fellow general surgeons and gynecologists, the thoracic surgeons, too, were harsh to use the new technique. I personally believe that video-assisted thoracic surgery is largely abused. Even in laparoscopy the simple operation of cholecystectomy, which is accomplished with practically zero percent mortality in the open...
method, is reported to be associated with some fatal cases. There is certainly a personal learning curve. Are there volunteers for the fatal outcome?

In video-assisted thoracic surgery, as in laparoscopy, the three main justifications for the technique are (1) decreased pain (2) shortened hospitalization and (3) diminished costs. The first point is correct when video-assisted thoracic surgery is compared with formal thoracotomy. Diagnostic procedures like mediastinoscopy and parasternal mediastinotomy are not very painful, and this is also true for limited axillary thoracotomy used for pleurabrasion.

Length of hospitalization in minor thoracic surgery is related to the length of drainage, which is not necessarily shortened in video-assisted thoracic surgery. The question of cost effectiveness is debatable and a matter of geography. It depends on how much special equipment is used. Whereas endoscopic staplers cost about $600 per video-assisted thoracic surgery bleed resection, for example, the cost of hospitalization in Israel is $250 (though I must admit we are charged less than our colleagues in the United States for endoscopic staplers). On the other hand, video-assisted thoracic surgery has inherent disadvantages. The need for lung collapse requires a more complicated anesthesia. Thoracoscopic procedures require longer anesthetic and operating periods, which may increase the morbidity slightly and certainly add to the cost. Despite this argumentation, I agree that lung biopsy and pleural inspection are probably the best indications for video-assisted thoracic surgery, and hence, the interest for pulmonologists.

Being, or not being, enthusiastic about video-assisted thoracic surgery, it is still a type of surgery done under general anesthesia, requiring double lumen endotracheal tube with full surgical equipment in the operating theater. Intraoperative complications usually require immediate open thoracotomy. Yet pulmonologists are vividly willing to perform it. I have not heard of nonsurgeons involved with laparoscopic surgery, although it may also occasionally be diagnostic. The reasoning that pulmonologists should do video-assisted thoracic surgery because it is another diagnostic tool is bizarre. Are we to understand that therapeutic surgery is the domain of surgeons, and diagnostic surgery is to be done by less qualified physicians?

In Israel, where 95 percent of medicine is socialized, not one pulmonologist performs diagnostic video-assisted thoracic surgery. The initiative of the financial benefit does not exist in most cases, and our colleagues are happy to trust us with thoracoscopy as we trust them with fiberoptic bronchoscopy. I would dare state that much of the discussion published in Chest is but a mere rationalization of nonmedical issues.

Endobronchial Tuberculosis

Report of 102 Cases

To the Editor:

We read with great interest the article by Lee et al., which appeared in the October 1992 issue of Chest. Over the past 3 years, a total of 102 patients with endobronchial tuberculosis (21.6 percent) out of 472 subjects who had undergone flexible bronchoscopic examination were found at our hospital. There were 65 men and 37 women; the median age was 45 years (range 15 to 75 years). Hemoptysis and barking cough with sputa were present in 40.2 percent. Other complaints included chest pain, generalized weakness, dyspnea, and fever. Prebronchoscopic sputum sample was positive for acid-fast bacilli (AFB) in only nine cases. Thir-ty-five patients (34.3 percent) showed no abnormality on chest x-ray films.

Diffusive mucosal congestion edema is the most common finding in 36.2 percent. Other bronchoscopic findings included hypertrophy with luminal narrowing, erosion and ulceration, cicatricial stenosis, and granuloma in 29.4, 15.7, 14.7, and 3.9 percent of the cases. Three types of specimen were obtained by fiberoptic bronchoscopy: brushing, washing, and biopsies. All specimens were examined microscopically after staining by the Ziehl-Neelsen method after concentration when necessary. Transbronchial biopsies were stained with hematoxylin and eosin and by the Ziehl-Neelsen method. Biopsies were considered positive of caseating granulomas or AFB (or both) were present. Of these, 76 were positive by brushing only, 5 by washing, 6 by biopsies, 7 by both brushing and washing, and 5 by both brushing and biopsies. Therefore, brushing was particularly useful. The positive rate achieved 96 percent, probably because it is possible to position the brush under fluoroscopic guidance to sample the lesions directly. Washing gave a lower yield, and this may be a result of using small volumes of lavage fluid (10-20 ml normal saline solution) to minimize the risk of seeking tubercle bacilli in other parts of the lung. In no cases did the bronchoscopic examination lead to a worsening of the symptoms.

In conclusion, the intensive use of fiberoptic bronchoscopy will improve the diagnostic rate in patients with negative sputum smears and in whom endobronchial tuberculosis is suspected, and the detective rate would be increased when the various methods of obtaining specimen at bronchoscopy were carried out.

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REFERENCES


To the Editor:

We appreciate Dr. Wang's interesting comments regarding our article on the useful means of "brushing" through the fiberoptic bronchoscopy to detect acid-fast bacilli (AFB) among the patients with endobronchial tuberculosis. In his Chinese investigation, brushing stains surprisingly yielded a high positive rate reaching 86 percent not with further evaluation by a brushing specimen culture but with available fluoroscopic guidance as suggested. Although a culture for AFB takes a long time, the radiation hazard should be cautiously kept in mind. Obviously, the possibility of a normal roentgenographic picture even after careful reading would be consensual for the symptomatic patients. In this regard, age and sex differences are epidemiologically interesting for clinical attention. Of course, innovative developments of molecular biology such as polymerase chain reaction or in situ hybridization may be promising for the rapid identification of AFB from the specimens of brushing or biopsy undertaken by fiberoptic bronchoscopy. We would like to emphasize also the importance of bronchoscopy in a therapeutic trial of curetage of the pseudomembrane for relieving atelecstasis caused by endobronchial tuberculosis.