Complications due to Nd:YAG Laser Therapy

In a recent issue of Chest, Casey et al reported a very unusual complication, "intra-tracheal fire" occurring during laser phototheray (LPT). We have been using Nd:YAG laser phototherapy for treating malignant obstructive lesions in the tracheobronchial tree. We agree with the authors' recommendations regarding the prevention of "flash fires" and have the following suggestions:

1. The coaxial airflow of the laser fiber must be maintained at least 50 ml/sec. This is critical in keeping the tip cool. We are not sure if this was maintained or not.
2. Intermittent cooling/cleaning of the fiber tip by immersing in water or hydrogen peroxide. This will also help to remove adherent carbon particles.
3. Intermittent verification of the laser beam, making sure it remains circular and pinpoint. An irregular beam indicates a damaged fiber and should not be used.
4. Pause for 30-60 seconds after delivering 10-15 energy pulses, especially when high energy of 50-75 watts is used.
5. The laser fiber tip should be kept at least 1 cm beyond the tip of the fiberoptic bronchoscope and 3-4 cm from the endotracheal tube.

Harakh V. Dedhia, M.D., F.C.C.P.; N. LeRoy Lapp, M.D., F.C.C.P.; Abnash C. Jain, M.D., F.C.C.P.; and Alex Withers, B.S., West Virginia University Medical Center, Morgantown

REFERENCE


Hypertrophic Osteoarthropathy Associated with Pulmonary Pseudotumor

To the Editor:

Our recent experience with a patient with hypertrophic osteoarthropathy (HO) associated with a pulmonary pseudotumor (syn: plasma cell granuloma, pulmonary histiocytoma, xanthogranuloma, etc) prompted this report.

A 40-year-old man was admitted with the complaint of pain and swelling of fingertips, wrists, elbows and knees. Chest x-ray film demonstrated a large lobulated mass in the left lung. Radiographs of the wrists and knees revealed subperiosteal new bone formation with thickening of the bony cortex.

At thoracotomy, an 8 cm discrete mass was excised from the left lower lobe. By light microscopy, the tumor consisted of fascicles of spindle cells and small vessels arranged in a storiform pattern (Fig 1).

There were no obvious histiocytes, but there was a mild infiltrate of lymphocytes and plasma cells. The final diagnosis was pulmonary pseudotumor.

Postoperatively, there was prompt resolution of the pain and swelling in the digits and the pretrial area. Fifteen months later, the patient has no clinical or radiologic clubbing or HO.

Hypertrophic osteoarthropathy is a clinical syndrome which typically consists of symmetrical tenderness and swelling in the pretrial areas, but may involve wrists, forearms, and ankles. It is typically associated with a primary intrathoracic malignancy, such as mesothelioma or primary carcinoma of the lung, but may also be seen with pulmonary metastases. HO has also been associated with inflammatory conditions such as pyogenic lung abscess and bronchiectasis. Although a pseudotumor has been previously described with digital clubbing, this is the first report of a pseudotumor associated with HO. Our case demonstrates that HO can be seen in association with an inflammatory condition not generally included among the usual granulomatous, and nongranulomatous inflammatory conditions of the lung.

William H. Warren, M.D.; Ronald L. Meng, M.D.,* C. Frederick Kittle, M.D., F.C.C.P.,* and Victor E. Gould, M.D., F.C.C.P.,† Departments of Thoracic Surgery and Pathology,† Rush-Presbyterian-St. Luke's Medical Center, Chicago

Reprint requests: Dr. Warren, 1753 West Congress Parkway, Chicago 60612

REFERENCES


Breakage of Alligator Biopsy Forceps

An Unusual Complication During Fiberoptic Bronchoscopy

To the Editor:

Fiberoptic bronchoscopy (FOB) is a routine diagnostic procedure in clinical pulmonary practice. The overall complications, both major and minor during the procedure, have been reported to be 0.08 percent and 0.2 percent respectively with a mortality rate of 0.01 percent. Dreisin et al reported a complication rate of 11 percent in 205 FOB procedures with a mortality of 0.5 percent. Loss of bronchial biopsy brushes has been reported recently as a rare complication.

At our center, over 700 bronchoscopic procedures were performed with Olympus models B3 and ZTR. The overall frequency of complications observed in our experience was 0.1 percent. We have, however, recently come across an unusual problem of breakage of the biopsy forceps head. This occurred in three alligator forceps (Olympus BC15). The first breakage was
noticed after the forceps had been used for over 50 cases, the second broke after 30 biopsies, and the third forceps jaws broke after only ten biopsies. No unusual force had been used in attempting the biopsy during these procedures. Figure 1 shows a normal alligator biopsy forceps and two showing the line of breakage (left to right). In one patient the broken piece was coughed out after the procedure. Chest x-ray (PA and lateral) films taken on separate dates in all three patients showed no metallic foreign body. The post-procedure course was uneventful in all.

Breakage of the jaws of the alligator biopsy forceps is rare and has not been reported. We have been unable to sort out the exact reasons for the possible breakage of the biopsy forceps heads. Metal fatigue during repeated sampling and suboptimal tensile strength due to fenestrations in the head of the alligator forceps are probable causes. We do not know if tropical climate affects the properties of the forceps metal.

S. K. Malik, M.D., F.C.C.P.; and D. Behera, M.D.
Department of Chest Diseases,
Postgraduate Institute of Medical
Education and Research, Chandigarh, India

REFERENCE
4 Sanders DM. Needle in a haystack. Chest 1983; 83:935-36

Noncardiac and Cardiac Pulmonary Edema
To the Editor:

Sibbald et al (Chest 1983; 84:452-61) are to be complimented for their most useful article on noncardiac (NCPE) and cardiac pulmonary edema (CPE). I would like to take exception, however, to their statement (page 454) that “the initial clinical presentation in both NCPE and CPE is uniquely similar.” I do not know of any clinical-physiologic study comparing the major respiratory symptom, dyspnea, and its mechanical correlates in CPE and NCPE.

In my experience, the acute respiratory distress syndrome (ARDS) of traumatic or infectious etiology and without left ventricular failure is seldom, if ever, associated with orthopnea. The conscious patient with ARDS (NCPE) who can choose his position in bed, many times lies flat using only one pillow to support his head. I have asked 12 patients with ARDS and a pulmonary capillary wedge pressure (PCWP) less than 15 mm Hg if their dyspnea was improved by elevating the head of the bed to 25-30° or 45°. At 25-30° inclination, their dyspnea was slightly improved; at 45° the additional improvement was barely perceptible. In contrast with the ARDS patient, I would still have to see a conscious patient with acute or “chronic” pulmonary edema and extensive lung infiltrates without orthopnea.∗

For reasons related to the mechanics of breathing, any dyspneic patient, including the bronchitis or asthma patient, may feel more comfortable sitting up than lying down. However, it seems to me that the patient with ARDS has a higher tolerance for dorsal decubitus than the patient with acute cardiogenic pulmonary edema. One would not expect orthopnea to allow a clear-cut separation of ARDS and acute cardiogenic pulmonary edema in all patients, regardless of the degree of pulmonary whitening, PCWP, concentration of serum albumin, etc. This positional and ventilatory response to fluid overload and hemodynamic changes in CPE and NCPE needs to be carefully defined. Until then, I believe that the obvious presence of orthopnea, or alternatively its definite absence in conscious patients, may help separate CPE from NCPE.

If the J receptors have a determinant role in the pathogenesis of tachypnea and orthopnea produced by pulmonary edema, it is intriguing that the presence of excess water in the lung interstitium and alveoli is not invariably associated with orthopnea. The patients with ARDS are tachypneic, a fact suggesting that both the interstitial sensors (J receptors) and the central nervous system (CNS) can react to pulmonary fluid overload. If so, would the orthopneic response of CNS be blunted in the acutely ill or alternatively, would the (reflex?) pathways of tachypnea and orthopnea be entirely different in CPE and NCPE? For instance, the rate of fluid accumulation, the composition of this fluid, and the degree of distension of pulmonary capillaries and veins are ostensibly different in NCPE and CPE. As suspected by Braunwald, for entirely different reasons, and as suggested in this letter, the distension of the pulmonary capillaries and/or veins may constitute an important signal for orthopnea associated with pulmonary edema. Should such a clinical concept be validated physiologically, one could easily understand the biologic significance of this symptom and sign. In CPE, orthopnea is both a mechanically convenient position for patients with increased work of breathing, and a hemodynamically protective mechanism, sparing the upper lung zones (zones with increased venous circulation in this condition) of pulmonary edema. The ARDS patients with “mild” or no orthopnea stand to benefit hemodynamically much less from orthopnea than the patients with CPE; in ARDS the extravasation of fluid is primarily due to diffuse capillary damage, and the venous blood flow is apparently not redistributed to upper zones.

There might be other differences in clinical presentation and respiratory physiology between CPE and NCPE. For instance, paroxysmal nocturnal dyspnea is usually not seen in NCPE, although many of these patients without left ventricular impairment, especially in the early phase of their illness, are fluid overloaded in the hospital; part of the (increased) nocturnal venous return would be expected to filter into the lungs through altered capillaries and lead to acute, nocturnal orthopnea. Then, the bronchial secretions are many times foamy in CPE, but not so in NCPE, in spite of a large protein content of the bronchial secretions of the latter. (Would the

∗Observations made during my affiliation with the Department of Medicine, Medical College of Ohio at Toledo.