monia or pulmonary infiltrates with eosinophilia (PIE) presenting as acute respiratory failure? Certainly the case described in their letter is an interesting example of chronic eosinophilic pneumonia progressing to acute respiratory failure and requiring mechanical ventilation. However, the diagnosis of chronic eosinophilic pneumonia was possible only when the patient relapsed, not when he presented acutely. Although no figures are available, a case like this must be fairly unusual.1 We considered this possibility, but neither patient seemed to have a clinical course consistent with chronic eosinophilic pneumonia. The first patient had chronic myelogenous leukemia in the accelerated phase. He had been carefully followed for several years by his hematologist, who felt that all of his symptoms were related to his profound anemia and underlying leukemia. When he presented with acute respiratory failure and bilateral infiltrates, it was assumed he had opportunistic lung infection. His lung disease responded to the institution of corticosteroid therapy as described in our paper. The patient died a few months later of leukemia. The second patient presented with acute respiratory failure and had no previous lung disease. He was treated with high dose steroids for two weeks during his episode of acute respiratory failure. He was discharged without corticosteroid therapy. Subsequent clinic visits have shown no evidence for any lung disease in this patient. In preparing the paper, we felt that these patients did not fit the usual clinical criteria for chronic eosinophilic pneumonia or PIE. This becomes a matter of whether one is a "lumper" or " splitter." How far do we extend the original definitions of a disease process before a new entity needs to be described? However, the main purpose of our article was not the description of a new entity. Rather we wanted to point out the usefulness of finding a large number of lavage eosinophils in the setting of acute respiratory failure of unknown etiology. We stand by our claim that a high percentage of lavage eosinophils suggests a non-infectious cause of acute respiratory failure that may be corticosteroid-responsive. This is all the more unique and important now that controlled series of ARDS currently being submitted for publication prove that steroid therapy has no efficacy in ARDS.

We agree with Drs. Whitlock and Tenholder that disparity may exist between BAL findings and biopsy results. In our own study, only one of the patients had pulmonary eosinophilia confirmed by biopsy. This disparity may represent a sampling error or, as mentioned in our paper, eosinophilic inflammation of the small airways and/or bronchioles.

In terms of the "national debt" (reference 5), many acute respiratory failure patients have bronchoscopy and BAL as a matter of course looking for an infectious agent. Cytoreparation of the lavage fluid is easy and inexpensive. In our cases we believe it led to the institution of steroid therapy and rapid recovery of the patients.

W. Bruce Davis, M.D., F.C.C.P., Columbus, Ohio

Reprint requests: Dr. Davis, N325 Means Hall, 1854 Upham Drive, Columbus, Ohio 43210

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Cryotherapy or Nd-YAG Laser in the Treatment of Tracheobronchial Tumors?

To the Editor:

We have read with great interest the article of Homasson et al. (Chest 1986; 90:159-64) concerning bronchoscopic cryotherapy.

Our experience in this technique confirms that cryotherapy is a safe and effective method.

In three months, we treated eight patients with the method described by Homasson (cryoprobe introduced in a rigid bronchoscope). In these cases (five squamous cell carcinoma, one endobronchial hamartochondroma, one carcinoid tumor, one cylindroma), cryotherapy was preferred to laser therapy because of complete bronchial obstruction in three cases, long stenosis with submucosal involvement in five cases. Among these eight cases, two patients were previously treated by laser therapy without success.

During these three months, we treated eight other patients (tracheobronchial squamous cell carcinoma, six cases; benign post intubation tracheal stenosis, two cases) by Nd-YAG laser.

In six of eight cases, cryotherapy was effective. The result was assessed ten days later after cryotherapy on chest x-ray film changes (reventilation) and on the endobronchial destruction of the tumor.

In one case, tumor destruction was incomplete without reventilation. In the last case results could not be appreciated. No side effects or complications occurred after cryotherapy.

Cryotherapy was very effective in four of eight cases, on protruding tumors and short bronchial stenosis, but useless on extensive bronchial stenosis and submucosal involvement.

Histologic study of the bronchial tumor was not possible after laser therapy. On the other hand, immediate biopsy showed no change on histologic findings after cryotherapy. Ten days after cryotherapy, bronchial biopsy specimens showed necrotic tissue. However, in two cases benign epidermoid metaplasia was observed.

In our experience, Nd-YAG laser and cryotherapy are two complementary methods. Laser seems better in protruding tumor cases and in tracheal-narrowing stenosis. Although it is an expensive method, it gives immediate results. Cryotherapy is a safe and effective method and destroys various types of endobronchial tumors. The result was delayed. On bleeding tumors, the coagulating effect of cryotherapy was immediate and remarkable.

J. M. Vergnon, M.D.; S. Boucheron, M.D.; D. Bonamour, M.D.; and A. Emonot, M.D., Departments of Pneumology, Pathology and Thoracic Surgery, University Hospital, St. Etienne, France

To the Editor:

The intent of Vergnon et al's letter is to compare two methods, cryotherapy and Nd-YAG laser therapy, in the treatment of tracheobronchial tumors. We have no experience with laser therapy and are satisfied that, in some cases, cryotherapy gives better results than laser therapy. We confirmed that histologic findings do not change immediately after cryotherapy and that biopsy samples can be taken without hemorrhage. We shall soon use cryotherapy during thoracoscopic examination, the destruction of tissues by coagulating resection will be avoided, and the quality of histologic samples will be better. Since the publication of our paper, we have also treated three patients with bronchial fibrous stenosis associated with bronchiectasis occurring after tuberculosis, thus avoiding surgical resection.

J. P. Homasson, M.D., Centre Hospitalier, Chelles-Larue, France

Artificial Sapphire Contact Endprobe with Nd-YAG Laser in the Treatment of Subglottic Stenosis

To the Editor:

Tracheobronchial obstruction resulting from benign and unresec-
table malignant lesions is frequently palliated by Nd-YAG laser photosection. The artificial sapphire contact endprobe, however, has apparently not previously been used in the tracheobronchial tree. This form of laser photosection has been described in open surgery and in gastrointestinal endoscopy to treat bleeding and tumors. Lee et al. used an argon laser to heat a metal cautery cap on the distal tip of a flexible quartz fiber for contact photosection of subglottic obstruction in a patient with metastatic squamous cell carcinoma. We recently treated a patient with benign subglottic stenosis using the artificial sapphire contact endprobe with the Nd-YAG laser.

The postoperative course of a 77-year-old man who had undergone right upper lobectomy for squamous cell carcinoma was complicated by several bouts of pneumonia. Ventilatory support was required for three months, and repeated efforts at decannulation were unsuccessful. Stridor was heard in the neck whenever his tracheostomy tube was plugged. Fiberoptic bronchoscopic examination showed a 60 percent obstruction of the subglottis by granulation tissue arising above the tracheostomy opening, further adding to obstruction created by existing tracheomalacia. Nd-YAG laser photosection via fiberoptic bronchoscope was undertaken with general anesthesia. Initially, energy levels of 40 to 50 watts with 0.4 sec duration in 159 pulses were used to administer 3,228 joules to the tracheostomy tube, but failed to produce any of the usual coagulation or carbonization effects (Fig 1A). A vaporization-type artificial sapphire contact endprobe (Surgical Laser Technology, Malvern, PA) was substituted for the standard laser fiber tip and 1,813 joules were administered at energy level of 20 watts with 163 pulses of 0.4 sec duration. Instant carbonization and vaporization took place, creating a U-shaped track within the granulation tissue (Fig 1B). The tissue effects produced in this manner further facilitated rapid coagulation, carbonization, and eventual debulking of the remaining endobronchial process by delivering an additional 1,922 joules with the standard laser fiber tip. The subglottic lumen was fully patent upon completion of the procedure.

Conventional noncontact Nd-YAG laser photosection can be quite time-consuming. In addition, the use of higher wattage necessary to vaporize and resect some tissue increases the risk of endobronchial fire as well as loss of the metallic laser fiber tip. In addition to eliminating these risks, the artificial sapphire contact endprobe has another advantage over noncontact laser resection. The reduction in backscattering of laser light allows lower energy levels to be used. This may eventually allow replacement of higher energy-producing, rather bulky, expensive laser units by smaller, portable, less expensive ones. In addition, we felt that smoke production while using the sapphire endprobe was minimal. This would be an advantage while performing the procedure under local anesthesia, as smoke-induced cough could be prevented.

We did encounter the problem of tissue adherence to the sapphire tip, which made maintaining its cleanliness impossible. This also made passage through the suction channel of the bronchoscope quite difficult. Any harmful effects to the laser unit by “backfire” when attempting to lase through bulky debris is not known. Also, contact between the sapphire endprobe and the lesion itself severely impaired our direct visualization of tissue effects. This limitation could be of some concern, especially when the direction of the distal lumen is in doubt.

In our patient, the granulation tissue proved quite resistant to the contact Nd-YAG laser when safe energy levels were employed. The artificial sapphire contact endprobe permitted rapid elimination of the obstruction with about half the energy expenditure. These properties may facilitate the endoscopic resection of large, bulky tracheobronchial lesions. The lower power requirements, greater precision, and control of the depth of tissue necrosis could result in fewer complications, but further research is necessary.

Atul C. Mehta, M.D., F.C.C.P.; Douglas R. Livingston, D.O.; and Joseph A. Golish, M.D., F.C.C.P., Department of Pulmonary Disease, Cleveland Clinic Foundation, Cleveland

Reprint requests: Dr. Mehta, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland 44195-4774

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