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**Palliation of Left Main Bronchus Compression Due to Malignant Tumor by Intubation via a Tracheostomy Tube***

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Intubation of the left main bronchus via a tracheostomy tube was performed in a patient with local recurrence of lung cancer associated with invasion and obstruction of the left main bronchus after right sleeve pneumonectomy. The

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**FIGURE 1.** View of the carina with a flexible fiberoptic bronchoscope. The lesion is extrinsic to and narrows the left main bronchus; the fiberoptic scope could not fit into it.

result was satisfactory not only for preventing asphyxia, but also for maintaining the patency of the airway after extubation of the endotracheal tube. (Chest 1991; 100:1735-37)

Various methods have been reported for the management of major airway obstruction caused by malignancy, including radiation or laser treatment, coring out under

**FIGURE 2.** Endotracheal tube (inner diameter, 6.5 mm; outer diameter, 8.5 mm) inserted into the left main bronchus via a tracheostomy tube (inner diameter, 10.0 mm).
The patient died of hepatic failure on November 6, 52 days after readmission. However, after extubation of the endotracheal tube, no symptoms of airway obstruction were observed.

**DISCUSSION**

The management of major airway obstruction in patients with late-stage lung cancer still presents difficulties. With conventional management involving radiotherapy, much time is needed to prevent total airway obstruction. Radiotherapy may at times be counterproductive, since the subsequent edema may aggravate the obstruction. Laser or coring-out procedures hold the risk of choking the patient due to intraoperative bleeding. After design of the silicone T tube for repair and reconstruction of the cervical trachea, its use, not only in surgical management, but also in the treatment of major airway obstruction subsequent to tumor invasion has been reported. In addition, the bifurcated silicone rubber stent was designed and used for the same purpose. And recently, insertions of sleeve stents through rigid bronchoscopy without tracheostomy were reported. The stent method in such patients provides safe and effective relief from airway obstruction, although the insertion procedure is not simple. The design of the stent and its fitting for each patient also may have to be tailored for individual needs. In our present patient, we used a "tube in tube" procedure for palliation of major airway obstruction. The inner tube was carefully inserted under the guidance of a flexible fiberoptic bronchoscope. The procedure was quite simple and did not require any special materials, equipment, or technique. The choice of length and diameter of the inner tube would vary according to the patient, and if necessary, could be adjusted by gradual dilation of the airway by changing the diameter of the inner tubes. Subsequent radiotherapy and chemotherapy also might be possible.

Another important point was that the patency of the airway was found to be maintained after removal of the endotracheal tube. We usually change the first tracheostomy tube after seven days, and at the time of extubation of the endotracheal tube, we considered that any subsequent airway narrowing might be relieved by the same procedure. Thereafter, only a tracheostomy cannula was inserted, and the patient was able to maintain phonatory function. The airway patency was thought to be maintained by the bougie effect of the endotracheal tube. The patency of the airway lasted for 45 days until the patient died. This period of patency would be long enough for similar end-stage cases of malignancy. In such cases, our procedure is thought to be a feasible one for palliation of obstruction, since it is both easy to perform and economical.

**REFERENCES**

Value of Gallium Imaging in the Evaluation of Tattoo Granulomas due to Sarcoidosis*

Charlotte R. Colp, M.D., F.C.C.P.; C. Richard Goldfarb, M.D.; and Fukiat Ongseng, M.D.

We report the case of a patient who developed granulomas in a ten-year-old tattoo. Total body gallium scanning detected the presence of bilateral hilar adenopathy not apparent on routine chest roentgenograms and thus established a diagnosis of systemic sarcoidosis.

(CHEST 1991; 100:1737-38)

There have been several reports of granulomas developing in tattoos. When this occurs, the question generally arises as to whether the patient has a localized foreign body reaction to a substance in the tattoo or a generalized disease, i.e., sarcoidosis. The answer to this question is generally not available by pathologic examination of the tattoo, which often shows only non-specific granulomas, but rather must be sought by general medical evaluation of the patient. Several tests have been shown to display increased sensitivity in detecting various manifestations of sarcoidosis. We used the gallium scan to detect systemic sarcoid in a patient with tattoo granuloma.

CASE REPORT

A 27-year-old light-skinned Hispanic man presented with recently developed induration and discoloration in several blue parts of a tattoo that had been created ten years ago. He was otherwise entirely asymptomatic, but his mother had a history of sarcoidosis. Physical examination was unremarkable except for the presence of extensive tattoos on both arms; the patient pointed out four small areas of discoloration and induration in the tattoos, two on each arm. Laboratory examination was remarkable for the following: AST, 86 U/L; ALT, 145 U/L (normal, 0 to 40 U/L); and angiotensin converting enzyme, 101 IU/L (normal, 16 to 66 IU/L). Roentgenogram of the chest was interpreted by the reviewing radiologist as within normal limits (Fig 1). Results of pulmonary function testing were within normal limits except for evidence of mild small airway disease, unchanged with bronchodilator. A biopsy specimen of the indurated area in the tattoo revealed noncaseating granuloma without a specific foreign body seen.

Whole body gallium scanning (Fig. 2) revealed increased uptake in the lung hila, supporting a diagnosis of sarcoidosis.

DISCUSSION

This patient presented with the development of new

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FIGURE 1. Chest roentgenogram initially interpreted as normal. Granulomas in a ten-year-old tattoo. The systemic nature of the disease became apparent only after fairly sophisticated testing: i.e., slight elevation of liver enzyme values indicated presence of liver disease; elevation of serum angiotensin converting enzyme indicated a general granulomatous process; and finally, total body gallium scanning was most useful in indicating the presence of bilateral hilar lymphadenopathy that was not clear cut on routine chest roentgenograms.

Occurrence of granulomas in tattoos is a well-known phenomenon. It has been described as a manifestation of

FIGURE 2. Gallium image shows bilateral hilar adenopathy.