There were two sudden failures after 24 and 34 months, respectively. In five cases, prophylactic replacement was performed, respectively, after 24, 31, 32, 32, and 42 months (mean 32.2 ± 6.4 months). Correct prediction of imminent battery failure was possible in 13 cases after a mean time of 31.4 ± 4.9 months (range, 24 to 40 months).

Prediction of battery failure was based on changes noted in the final clinic analysis. In all 13 pacemakers, there was a significant increase in impulse interval, with a mean change of +36 msec (SD, 16). In nine cases, there was an important decrease in impulse amplitude, and in ten cases, there was also a significant increase in impulse width. Loss of R-wave sensing as a concomitant finding was present in four cases.

The mean calculated lifetime for all 20 units was 31.4 months (SD, 5.2). When calculated for sudden failures and correct predictions, a lifetime of 31.1 months (SD, 5.0) was obtained.

The risk of sudden failure was 13 percent (2/15, the sum of correct predictions and sudden failures). An 87-percent reliability for a mean lifetime of 31 months seems an acceptable result in comparison to other demand pacemakers with conventional energy sources.

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Catheter Entanglement in Right Atrial Network

To the Editor:

The entanglement of the catheter with an atrial network is a most unusual complication of right atrial catheterization.

CASE REPORT

A 61-year-old woman suspected of having pulmonary emboli underwent pulmonary angiographic studies using a No. 7 French catheter (NHI) inserted through a right antecubital vein. The catheter could not be advanced to the pulmonary artery from the right atrium, and it was removed. Mild resistance to withdrawal of the catheter from the atrium was initially attributed to spasm of the vein; however, when the catheter was removed, tissue was found to be tightly wound around the tip of the catheter. This material proved to be a filamentous reticulated network composed of fibrous tissue (Fig 1). The procedure was well tolerated by the patient, and there were no changes in her symptoms, physical findings, or electrocardiogram.

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Improved Endotracheal Tube for Fiberoptic Bronchoscopy

To the Editor:

I rely heavily on flexible fiberoptic bronchoscopy as a diagnostic and therapeutic tool, having per-

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personally performed over 300 of these procedures. I usually use topical anesthesia and intubate orally. By this route, I have often encountered an element of obstruction at the laryngeal level while advancing the endotracheal tube over the fiberoptic bronchoscope. The modified endotracheal tube illustrated in Figure 1 solves this problem.

As the conventional bevelled-tip endotracheal tube is advanced over the fiberoptic bronchoscope, there is the frequent tendency for the tip of the bevel to fall into the ventricle between the true and false vocal cords and to resist further advancement. Advancing the endotracheal tube with a rotary motion will allow it to move through the larynx. This maneuver is uncomfortable for the patient, and I am sure that it introduces a small but real element of risk.

By tapering a soft plastic endotracheal tube so that its inner diameter approximates the outer diameter of the fiberoptic bronchoscope, this tube slides in easily between the cords. Introducing large fenestrae close to the tip allows the patient to breathe through the sides of the endotracheal tube rather than through its tip, somewhat analogous to the fenestrae in the shaft of the ventilating bronchoscope. When the tapered endotracheal tube is secured at the mouth as shown in Figure 1C, the fiberoptic bronchoscope slides easily through it. This modification of the basic endotracheal tube design may have increased the safety of intubation by this method and has certainly increased the ease of insertion and patient acceptability of this technique.

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Granulomas in Pulmonary Veno-occlusive Disease

To the Editor:

I read with interest the report of Schachter et al1 on granulomas seen in pulmonary veno-occlusive disease. Theirs appears to be the third report of this finding.2,3 I have seen a 64-year-old white male shop teacher and former pigeon breeder whose lung biopsy also demonstrated a foreign-body giant-cell reaction in close proximity to the fragmented elastic fibers of the occluded venule. Liebow et al8 have discussed this finding in relation to the term, "endogenous pneumoconiosis." The hypothesis is that the iron-encrusted elastica of the vein may stimulate the foreign-body reaction. It would, therefore, appear unnecessary to invoke a connection between pulmonary veno-occlusive disease and sarcoidosis, considering the rather protean causes of granulomas and foreign-body reactions. This is especially true in light of the negative findings on lysozyme determination, liver biopsy, and Kveim test, as reported by Schachter et al.1

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REFERENCES


Figure 1. Endotracheal intubation over fiberoptic bronchoscope. A. Entrapment of conventional endotracheal tube in ventricle above true vocal cord. B. Insertion is easily and safely performed with tapered endotracheal tube. C. Intubation is accomplished with full range of manipulation and no loss of ability to ventilate patient through tapered tube.