ml, for rapid clotting within 3 min and aprotime, 3,500 units/ml, to avoid the dissolution of the fibrin clot before the fifth day, when the clot is replaced by fresh connective tissue.

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To the Editor:

The case reported by Yaman et al is of interest for several reasons. It relates the usefulness of bronchofibroscopy in the diagnosis of proximal bronchopleural fistulas (BPFs) and emphasizes the increasing role of the bronchoscopic management of these fistulas. Furthermore, it adds to the scanty literature regarding such an approach. However, the authors' viewpoint that fiberoptic bronchoscopy and fibrin sealant administration should be the first line of management of postpneumonectomy BPFs may be misleading. Each patient needs to be assessed individually regarding the status of his or her overall condition as well as the magnitude of the BPF. Surgery still has an important role in select patients and must not be overlooked as an option in the face of the increasing interest in the bronchoscopic management of BPFs. Thoracoscopic approaches to BPF are also being explored.1

There are multiple sealants available but little published information regarding their relative efficacy.2 According to reports in the literature, fibrin and cyanoacrylate-based agents have been the most frequently used and successful sealants. However, neither cyanoacrylate-based agents nor the fibrin sealant component sets (Tissel; Immuno AG, Vienna) are readily available in the United States. At present, individual components for fibrin sealing and absorbable gelatin sponge material (Gelfoam; Upjohn, Kalamazoo, Mich) are the most readily obtainable agents at our institution.

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Left Ventricular Pseudotendons

To the Editor:

I read with interest the article by Abdulla et al3 in the July 1990 issue of Chest. The authors described the frequency of left ventricular pseudotendons in 100 patients who had undergone echocardiographic examination and whose hearts had been examined at autopsy.

The authors noted that the previously reported frequency of detection by echocardiography has ranged from 0.5 to 61 percent. Two other articles not cited by the authors have also documented low frequencies (0.2 and 0.4 percent, respectively).4,5

In an article from our institution,6 it was noted in a literature review that among approximately 12,300 hearts examined by echocardiography, pathologic correlation was obtained in only 39 cases, 35 of which came from one study. That particular study was performed by Gerlis et al3 and was published in 1984; it was not cited by Abdulla et al.

Finally, in three articles not cited by the authors,4,6 the frequency of left ventricular pseudotendons was established in various autopsy populations and ranged from 37 to 55 percent.

The study by Abdulla et al is an important one and emphasizes the presence of conduction tissue in the false tendons. Their article, however, would have been strengthened considerably by the inclusion of the references cited above.

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REFERENCES

Effect of Opening the Pericardium on Right Ventricular Hemodynamics during Cardiac Surgery

To the Editor:

I would like to congratulate Mathru et al,1 on their attempt to determine the effects of opening the pericardium on cardiac hemodynamics. However, their data seem flawed by either a mathematical or an equipment error. The right ventricular ejection fraction (RVEF) thermodilution pulmonary artery catheter measures cardiac output by thermodilution and RVEF by measuring beat-to-beat differences on the thermodilution washout curve.2 The RV end-diastolic and end-systolic volumes and stroke volume are calculated from cardiac output, heart rate, and RVEF.

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Table 1 in the article by Mathru et al\(^1\) shows that when the pericardium was opened, the cardiac index fell from 2.9 to 2.8, coupled with a rise in heart rate from 63 to 64. This should cause a fall in stroke volume of 5.0 percent, not the 1.7 percent rise (from 50 to 60 ml) claimed in Table 2 in that article. Likewise, Table 3 shows no change in cardiac index. However, that cardiac index value coupled with an increase in heart rate from 66.9 to 69.5 together should cause a fall in stroke volume of 3.7 percent, not the 16.3 percent increase (from 66.1 to 76.9 ml) shown in Table 4.

The total errors of 6.7 percent in group 1 and 20.0 percent in group 2 imply a large enough error in stroke volume and RVEF to call into question the authors' conclusions that the "right ventricle enlarges after opening the pericardium," and that the RVEF decreased in group 1 but not in group 2. Also, with such large differences between RVEF (39.1 percent and 36.8 percent) and ejection fraction area (55 percent and 61 percent) in group 2, studies are needed to determine whether either technique, RVEF, thermodilution or echocardiography, is accurate.

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2 Lahreche2 showed that cardiac index value coupled with an increase in heart rate from 66.9 to 69.5 together should cause a fall in stroke volume of 3.7 percent, not the 16.3 percent increase (from 66.1 to 76.9 ml) shown in Table 4.

Pulmonary Alveolar Microlithiasis

To the Editor:

In the July 1990 issue of Chest, Panet et al\(^1\) reported a case of typical pulmonary alveolar microlithiasis (PAM). In that communication they stated that peripheral white lines are rarely reported on chest roentgenogram in PAM and suggested that those white lines are the result of associated pleural calcification.

From 1965 to 1984 I myself studied eight cases of PAM. Each case had been authenticated by lung biopsy after thoracotomy. Among those eight cases, five were found to have pencil-thin, sharp, dense white lines surrounding (more or less) the lungs, the heart, or the hemidiaphragms. In describing four of those cases in 1970, Lahreche\(^2\) stated that peripheral pulmonary miliary disseminated densities associated with white lines are almost pathognomonic for PAM. Since in each case a thoracotomy was performed, it was possible to see and study directly the pleura. We never saw calcification, but only the pleura thickened by a fibrohyaline process. Mourice A. Petit, M.D., F.C.C.P.,
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Upper Airway Obstruction: Anatomic-Functional Relationship

To the Editor:

In the July 1990 issue of Chest, Shepard et al\(^1\) discussed cross-sectional area changes in obstructive sleep apnea (OSA) detected with computed tomography (CT). The dimensions of the upper airways have, indeed, often been evaluated in OSA, and they have also been compared with airflow resistance measurements.\(^8\)

It is amazing that in upper airway obstruction (UAO) at the level of the larynx and especially of the trachea, studies correlating functional data with diameters or cross-sectional area during quiet breathing and/or forced maneuvers are almost lacking. Miller and Hyatt\(^6\) obtained data in experimental conditions in which they made healthy subjects breathe through added resistances with internal diameters varying between 4 and 13 mm and measured the corresponding changes in PEF, F EV\(_m\), and M EF\(_m\) (Fig 1). The question is, however, to what extent these results may be applied to UAO.

As a first approach to this problem, we investigated whether the relationship of functional indices in UAO was similar to that in the experimental model of Miller and Hyatt (Fig 1). In 18 patients with UAO\(^4\) (11 with variable extrathoracic UAO, five with fixed UAO, and two with variable intrathoracic UAO), we measured PEF, F EV\(_m\), and M EF\(_m\) and found that the relationships were similar to those in the model of Miller and Hyatt.\(^1\) It is, therefore, tempting to conclude that this indicates that in UAO the diameter at the level of the obstruction during forced expiration may be estimated from the superposition of the functional results on the data of Miller and Hyatt.\(^3\)

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Communications to the Editor