The roentgenographic differential diagnosis of an enlarging mass immediately after a biopsy procedure should include bleeding after the procedure, edema, or pneumonia. Clinical observations and laboratory findings for correlation are essential for a final accurate diagnosis.

Recently Khan1 summarized the roles, merits and low incidence of complications of fiberoptic bronchoscopy. Although it is one of the safest and most easily performed procedures in the diagnosis and management of most bronchopulmonary disorders, fatal pneumonia may occur after the procedure.2

After a transbronchial biopsy, we usually search for the evidence of pneumothorax, a not uncommon complication, on a chest x-ray film. We suggest that careful comparison of the size of the mass lesion on chest x-ray films taken before and after a biopsy procedure can add useful information leading to the diagnosis of pneumonia or bleeding.

ACKNOWLEDGMENT: The authors would like to thank Dr. A. L. Loomis Bell, Jr., for his clinical follow-up and Miss Jeanette Rainey for typing the manuscript.

REFERENCES


Preoperative and Postoperative Echocardiographic Studies of Pulmonic Valvular Endocarditis*

Cheng-Wen Chiang, M.D.; Ying-Shiang Lee, M.D., F.C.C.P.; Chau-Hsiung Chang, M.D.; Jui-Sung Hung, M.D.; and Liang Chen, M.D.

The echocardiographic manifestations of pulmonic valvular endocarditis in a patient with underlying heart disease consisting of a ventricular septal defect and infundibular stenosis are reported. The abnormal shaggy echoes observed on the pulmonic valve were confirmed to be vegetations based on surgical and pathologic findings. This was further proven by the disappearance of the shaggy echoes after surgical excision of the vegetations. We conclude that echocardiograms can detect the presence and disappearance of pulmonic valvar vegetations, which may be of aid in the diagnosis of pulmonic valvular endocarditis.

*From the Division of Cardiology, Department of Internal Medicine, Chang Gung Memorial Hospital, Taipei, Taiwan, Republic of China.

Reprint requests: Dr. Chiang, 199 Tung Hwa North Road, Taipei, Taiwan, Republic of China 105

The echocardiographic manifestations of bacterial endocarditis involving the aortic, mitral, or tricuspid valve have been extensively described in the literature;1-4 however, there were only a few cases of pulmonic valvular endocarditis diagnosed by echocardiograms.5,6 Furthermore, echocardiographic changes after excision of vegetations have never been reported. The present study illustrates the echocardiographic findings in pulmonic valvular endocarditis, both before and after the surgical removal of the vegetations in a patient with underlying heart disease consisting of a ventricular septal defect and infundibular pulmonic stenosis.

Case Report

Clinical Course

A 22-year-old man was admitted on July 15, 1978, with the complaints of fever, edema of the legs, and hematuria for three weeks. He had been told of nontuberculous congenital heart disease by a local medical doctor during childhood. On physical examination the heart rate was 96 beats per minute, and the blood pressure was 126/70 mm Hg. Examination of the heart revealed cardiomegaly, normal heart sounds, and a grade-5/6 holosystolic murmur at the left sternal border, with maximum intensity at the third intercostal space. The sound of breathing was clear. The liver was enlarged, while the spleen was not palpable. There were no petechiae, clubbing of fingers, or cyanosis.

The pertinent laboratory examinations showed a hemoglobin level of 7.1 gm/100 ml and a white blood cell count of 22,200/cu mm, with a differential cell count showing predominant segmented neutrophils. Urinalysis disclosed proteinuria and hematuria. The electrocardiogram showed normal sinus rhythm and biventricular hypertrophy. The chest x-ray film showed cardiomegaly and a hazy density in the right middle pulmonary field. After obtaining blood for several cultures, therapy with aqueous penicillin, cephalothin, and tobramycin was instituted. Septic pulmonary embolism, pyothorax, and a murmur of pulmonary insufficiency developed during the course of therapy. The cultures of blood were all negative. Before admission, antibiotics had been given by some local medical doctors.

Because of the initial poor response, the antibiotics were changed to oxacillin, carbenicillin, and tobramycin. The patient's condition improved thereafter. Two months after clinical cure, cardiac catheterization showed a ventricular septal defect and infundibular pulmonic stenosis with a Qp/Qs of 2 and a peak systolic gradient of 70 mm Hg between the right ventricular outflow tract and the inflow portion. The subsequent operation revealed a large subaortic ventricular septal defect, infundibular pulmonic stenosis, and two vegetations on the right cusp of the pulmonic valve (Fig. 1). Closure of the ventricular septal defect with a patch and myotomy of the infundibulum were performed. The vegetations were excised, but the valve was preserved. Histologic examination of the vegetations showed focal necrosis, hylalnization, calcification, and mild granulomatous reaction. The postoperative course was smooth. The patient was discharged in good condition and is still alive and well at the time of this writing.

Echocardiographic Findings

The echocardiograms were obtained with an ultrasonoscope (Rohr) using 2.25-MHz and 5-MHz transducers.
which were 13 mm and 6 mm wide, respectively. The latter appeared to afford better resolution of the images of the anterior structures, including the pulmonic valve.

Standard techniques were used, with the patient in the supine position. The preoperative echocardiograms showed a left ventricular end-diastolic dimension of 5.7 cm (or 3.6 cm/sq m of body surface area) and a hyperkinetic interventricular septum. The dimension of the right ventricular outflow tract was 1.8 cm, and an interruption between the interventricular septum and the anterior aortic wall was noted. In addition, there were shaggy echoes above the atiropulmonary sulcus and in the right ventricular outflow tract during diastole (Fig 2). The left cusp of the pulmonic valve was clear and free from the shaggy echoes. The echocardiograms of the aortic, mitral, and tricuspid valves were normal. The postoperative echocardiograms showed continuity between the interventricular septum and the anterior aortic wall, and the shaggy echoes were no longer present (Fig 3).

**DISCUSSION**

Infective endocarditis is becoming a common clinical problem, but its diagnosis is often difficult, since many patients may not have the typical findings of infective endocarditis, such as changes of murmur, evidence of embolism or positive blood cultures. Prior to the advent of echocardiographic studies, the visualization of vegetations, which is required for definite diagnosis, was almost impossible without surgery or autopsy.

In recent years, echocardiograms have been shown to be useful in detecting vegetations of the cardiac valves, especially the aortic, mitral, and tricuspid valves; however, pulmonic valvar endocarditis is rarely been reported. This is perhaps because of the following two reasons: (1) the pulmonic valve is the least affected valve in bacterial endocarditis; and (2) in the absence of pulmonary hypertension, the echoes of the pulmonic valve are the most difficult ones to detect among the four cardiac valves.

In the clinical case reported herein, the shaggy echoes were clearly visible on the pulmonic valve (above the atiropulmonary sulcus). In addition, the presence of the shaggy echoes in the right ventricular outflow tract during diastole also suggested the prolapse of the vegetations. These interpretations were supported by the appearance of a new pulmonary regurgitant murmur during the course and were con-
firmed by the surgical and pathologic findings. The disappearance of the shaggy echoes after surgical excision of the vegetations gave further evidence that the vegetations, rather than any other structures, produced these shaggy echoes.

In summary, we have demonstrated that echocardiograms can detect the presence and disappearance of pulmonic valvular vegetations, which may be of aid in the diagnosis of pulmonic valvular endocarditis.

ACKNOWLEDGMENT: We thank Miss Hui-Chen Hsu and Miss Shu-Ching Wang for their expert technical assistance and Miss Karin Peng and Miss Chung Chen for preparing this manuscript.

REFERENCES

3. Mintz GS, Kotler BL, Segal BL, Parry WR. Comparison of two dimensional and M mode echocardiography in the evaluation of patients with infective endocarditis. Am J Cardiol 1979; 43:738

Unsuspected Esophageal Foreign Bodies in Adults with Upper Airway Obstruction*

Steven D. Handler, M.D.; Mark E. Beaugard, M.D.; Rinaldo F. Canalis, M.D.; and Willard E. Fee, Jr., M.D.

Esophageal foreign bodies rarely cause respiratory distress in adults. While it is well known that upper airway obstruction can occur with esophageal foreign bodies in children, the otolaryngologic literature mentions little of this problem in older patients. Two adults with airway obstruction from unsuspected esophageal foreign bodies are described, with emphasis on the problems of diagnosis and management. The possibility of an unsuspected esophageal foreign body should be kept in mind during the evaluation of respiratory distress in an adult, especially in one who is a poor historian or has a history of a psychiatric disorder. Early endoscopic removal is the treatment of choice, although esophagotomy may be required.

Unsuspected esophageal foreign bodies rarely present with upper airway obstruction in adults. While it is well known that foreign bodies in the esophagus may produce airway difficulties in children, the possibility of this diagnosis is often overlooked in the evaluation of respiratory distress in the adult. To our knowledge, no cases of esophageal foreign bodies causing airway obstruction have been reported in adults. We present two such cases, emphasizing the difficulty in making the diagnosis, the pathogenesis of the airway obstruction, and the management.

CASE REPORTS

CASE 1

A 34-year-old man was admitted to the Presbyterian-University of Pennsylvania Hospital Emergency Room in acute respiratory distress. A history was difficult to elicit because of the patient's agitation. He described having had an upper respiratory tract infection approximately ten days before admission followed by a feeling of tightness in the throat. For the past three days, he had noted difficulty swallowing food and pills. Respiratory distress began on the day of admission. Past medical history was significant only for a "seizure disorder."

Physical examination revealed marked respiratory distress with tachypnea and intercostal and supraclavicular retractions. His temperature was 37° C. Auscultation of the lungs showed bilateral wheezes. The initial impression of the emergency room staff was epiglottitis vs angioneurotic

*From the Department of Otorhinolaryngology and Human Communication, University of Pennsylvania School of Medicine, Philadelphia; Division of Head and Neck Surgery, University of California at Los Angeles School of Medicine; and Division of Otolaryngology, Stanford University Medical Center, Palo Alto.

Presented at the Third World Congress on Bronchoesophagology, Palm Beach, Fla, April 10, 1980.

Reprint requests: Dr. Handler, Otorhinolaryngology, Children's Hospital of Philadelphia, Philadelphia 19104

234 HANDLER ET AL.

CHEST, 80: 2, AUGUST, 1981