DISCUSSION

Migration, perforation, and fracture of right ventricular pacing catheters are known complications of permanent transvenous pacing catheters. This case is a unique occurrence of inadvertent and unrecognized malposition of a permanent transvenous lead through the atrial septum, left atrial cavity, and mitral orifice, with placement in the left ventricular cavity. Subsequent radiographic evaluation determined a posterior orientation of the fractured pacing catheter. Although M-mode echocardiograms showed a left atrial and mitral valvular echocardiographic density, two-dimensional ultrasonographic studies accurately identified the location and spatial orientation of the catheter.

The echocardiographic characteristics of right ventricular pacing catheters have been defined. More recently, M-mode techniques have located a retained left atrial catheter. Although the M-mode echocardiogram may define an intracardiac mass, the single-plane view reveals a density that may be nonspecific; however, two-dimensional echocardiograms provide excellent evaluation of spatial configuration and mobility, as well as confirmation of the M-mode in the evaluation of an intracavitary mass.

Inasmuch as long-term retention of a fractured left atrioventricular permanent pacing catheter has not been previously described, the potential complications are speculative. Friable debris present in the left atrium at the site of the fracture in our patient provided a source for systemic emboli. The corrosion of the wire noted at surgery could create further fragmentation of the lead, with resultant systemic embolization of the wire. Although thrombus was not present, the exposed wire was a potential nidus for formation of thrombus, with the risk of embolization. Consequently, surgical removal of the fragmented pacing lead in the left cardiac system was indicated.

This case represents two-dimensional echocardiographic confirmation and definition of an aberrant pacing catheter. This technique has defined the exact intracardiac course of the catheter and its location and presented precise information for surgical removal of an intracavitary left-sided foreign body. This case further emphasizes the potential of two-dimensional sector scans to localize intracardiac catheters or perhaps a traumatic foreign body.

REFERENCES


Lung Abscess Complicating Transbronchial Biopsy of a Mass Lesion*

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We report a rare complication of transbronchial lung biopsy. A lung abscess developed after transbronchial biopsy of a peripheral mass lesion. Persistent fever, leukocytosis, and roentgenographic evidence of increase in size of the biopsied mass are useful clues for the diagnosis of pneumonia surrounding a tumor.

Credle et al described a low incidence of morbidity (0.08 percent) and of mortality (0.01 percent) in 24,521 flexible fiberoptic bronchoscopic procedures. Among the complications, only two cases of pneumonia after bronchoscopy were described.

Pereira et al described three patients with mass lesions who had new infiltrates distal to the tumor, fever, and leukocytosis after a bronchial biopsy. In this report, we describe a patient with a mass lesion in whom a lung abscess surrounding the tumor occurred after transbronchial biopsy.

CASE REPORT

A 42-year-old man was referred to St. Luke’s-Roosevelt Hospital Center for evaluation of a circumscribed mass lesion in the right upper lobe shown on a routine chest x-ray film and recurrent seizures, which had been well controlled with diphenylhydantoin (Dilantin) and phenobarbital since he had been ten years old. He had been a one half pack/day cigarette smoker for 20 years, from which he had abstained for seven years. The patient complained of having had a dry cough for two weeks before admission.

On admission, results of a physical examination and the laboratory data including hemoglobin, leukocyte count, and

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urinalysis were within normal limits. A tuberculin skin test of intermediate strength was positive. Chest roentgenogram (Fig 1) showed a 4×5-cm sharply defined, round mass in the periphery of the right upper lobe.

On day 5, a fiberoptic bronchoscopy was done, and two bite biopsy and two brush biopsy specimens were obtained from within the mass. Histologic and cytologic studies showed necrotic tissue and large anaplastic cells.

Several hours after the bronchoscopic procedure, the patient had a temperature elevation to 39.4°C and a leukocytosis of 12,100/cu mm, with 90 percent polymorphonuclear leukocytes. A follow-up chest x-ray film (Fig 2) showed increase in size of the biopsied mass. For the next ten days, the patient had persistent high fever, with a dry cough and bloody sputum on two occasions. Physical examination showed a few rales in the posterior right upper chest. Results of many blood cultures were negative.

Seven days after the transbronchial biopsy, a chest x-ray film (Fig 3) showed a large area of consolidation with a cavity in the right upper lobe. The right hemidiaphragm was elevated because of its limited motion. A diagnosis of lung abscess was seriously considered, and the patient began receiving chloramphenicol, 500 mg intravenously (IV) every six hours, and two days later the patient underwent exploratory thoracotomy.

At thoracotomy we observed a 6×5×3.5-cm confluent cavitary mass, adherent to the parietal pleura, in the right upper lobe. The cavity was located above the tumor. A right upper lobe lobectomy was performed. Pathologic diagnosis was anaplastic squamous cell carcinoma, and bacteriologic studies of the specimen showed a Peptostreptococcus species. After surgery, the patient received the antimicrobial regimen of cefoxitin, tobramycin, and clindamycin. His fever slowly defervesced, and he was discharged 22 days after the thoracotomy.

**DISCUSSION**

Over a five-year period at our institution, during which transbronchial biopsies of peripheral mass lesions have been performed, none of the procedures has been complicated by a lung abscess. In the case reported here, although fever and leukocytosis occurred immediately after the bronchoscopic procedure, the diagnosis of pneumonia and lung abscess surrounding the original tumor was not made initially.

In uncomplicated cases, a transient temperature elevation may occur after a transbronchial biopsy procedure, and it usually subsides within 24 hours without treatment. If fever persists longer than 48 hours, infection should be seriously considered. In our patient, sepsis was ruled out by repeated negative blood cultures, and, in retrospect, an increase in size of the biopsied mass shown on a chest x-ray film immediately after the procedure is a useful clue leading to the diagnosis of...
pneumonia.

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.

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REFERENCES

Preoperative and Postoperative Echocardiographic Studies of Pulmonic Valvular Endocarditis*

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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 valvular vegetations, which may be of aid in the diagnosis of pulmonic valvular endocarditis.

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The echocardiographic manifestations of bacterial endocarditis involving the aortic, mitral, or tricuspid valve have been extensively described in the literature;1-9 however, there were only a few cases of pulmonic valvular endocarditis diagnosed by echocardiograms.10,11 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 noncyanotic 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 pectechiae, 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, hyalinization, 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 (Rohe) using 2.25-MHz and 5-MHz transducers.