Mycotic aneurysm following subacute bacterial endocarditis in a child with coarctation of the aorta


New Delhi

The increased susceptibility of patients with coarctation of the aorta to develop subacute bacterial endocarditis, has been recently re-emphasized by Campbell (1970). However, the occurrence of mycotic aneurysm following subacute bacterial endocarditis is extremely rare. Thus while reviewing 1476 patients with coarctation of the aorta, Skandalakis et al. (1960) could find only 12 such instances, mostly adults. Our purpose is to report this unusual complication in a child and to discuss the pathogenesis of the lesion and salient features that may help in the ante-mortem diagnosis.

Report of a Case

Y.C., a twelve-year-old boy with coarctation of the aorta who was being followed regularly at the Paediatric Cardiac Clinic, had remained relatively well until one month prior to the present admission when he developed persistent low grade fever. There was no history of haematuria, petechiae, dysphagia or chest pain.

On admission, the temperature was 103°F. The vital signs were normal. The blood pressure in the arm was 160/90 mm.Hg. No blood pressure could be recorded over the lower extremities. There were no petechiae, Osler’s nodes or splinter haemorrhages below the nail beds.

The pertinent cardiac findings included a systolic thrill over the suprasternal notch, left ventricular heave, and gr.iii/vi harsh, ejection systolic murmur which was more prominent at the back. The second heart sound over the pulmonary area was physiologically split with normal intensity of the pulmonary component. There was no ejection click or fourth heart sound. The tip of the spleen was palpable.

The significant laboratory data included haemoglobin of 9.5 G.%, white blood cell count 18,000 per cubic millimetre with neutrophils 68%, and erythrocyte sedimentation rate of 30 mm first hour. The routine urine analysis and chest roentgenogram were normal. The electrocardiogram showed left ventricular hypertrophy. Three of the six blood cultures grew Staphylococcus aureus, coagulase positive.

A diagnosis of subacute bacterial endocarditis superimposed on post-ductal coarctation of the aorta was
made and antibiotic therapy with 20 million units daily of intravenous penicillin and 0.5 G. of streptomycin intramuscularly twice a day was started. The patient became afebrile within 72 hours and remained so for 1 week when he again started running a low grade fever. On the tenth day of hospital admission he developed bouts of dry, hacking and brassy cough. Chest roentgenogram at this time showed a large mass with irregular margins occupying the base of the heart on its left border. Over the next few days the patient developed progressive dysphagia and frequent paroxysms of cough. Barium swallow studies delineated a globular mass causing severe compression and displacement of the trachea anteriorly and of the oesophagus to the right. Fluoroscopy demonstrated a pulsatile mass intimately associated with the proximal portion of the descending thoracic aorta. On the eighteenth hospital day the patient complained of several episodes of severe chest pain and looked anxious. The skin was cold and clammy and the blood pressure dropped from 160/90 to 110/70 mm. Hg. The electrocardiogram did not show any evidence of left ventricular strain or ischemia. Emergency surgery was deemed necessary.

Surgery. The left pleural cavity was entered through a posterolateral thoracotomy. The initial exploration revealed prominent collaterals in the chest wall and a large pulsatile mass, 6 cm. × 4 cm. in relation to the proximal portion of the descending thoracic aorta just distal to the coarcted segment. Inferiorly the mass extended below the level of the upper lobe bronchus pushing and compressing the left main bronchus anteriorly. Medially it extended behind the trachea displacing the oesophagus far to the right. Posteriorly, the mass was limited by the bodies and transverse processes of the dorsal vertebrae.

Once the outline of the mass and its relation to the neighbouring structures were delineated, the descending thoracic aorta distal to the mass, the arch of aorta proximal to the left subclavian artery, the intrapericardial portion of the pulmonary artery which was densely adherent to the mass and to the left subclavian artery were mobilized. The aorta was cross-clamped proximally and distally prior to dissection of the adherent pulmonary parenchyma. A suitable DeBakey dacron woven graft was selected and preclotted and the aneurysm was opened. Although the intercostal vessels draining into the aneurysm were identified and controlled, the patient started bleeding profusely. Rapid blood transfusion was started. The rectal temperature dropped suddenly and the patient developed intractable ventricular fibrillation which terminated fatally.

Pathology. The dilated aortic segment measured 3.5 cm. in length and at one edge the intima showed a tear. Microscopically, the media was thin, vascularized and presented early degenerative changes. The periadventitial tissue was markedly fibrotic with many capillaries and numerous plasma cells and lymphocytes suggestive of a slow rupture or leakage into the adventitial tissue with subsequent orga-