Eustachian valve endocarditis

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Abstract

M mode and cross sectional echocardiography showed a highly mobile globular pedunculated mass (3.0 cm long with a maximum diameter of 1.5 cm) attached to the eustachian valve in a heroin addict with staphylococcal endocarditis.

Infected endocarditis in drug misusers was first reported in the 1930s.1 Since then, right sided infective endocarditis has become much commoner.2-4 Vegetations are the hallmark of endocarditis. In 1973 Dillon et al reported the first demonstration by echocardiography of valvar vegetations.3 The echocardiographic findings in right sided endocarditis have been widely described.2-4 We report the M mode and cross sectional echocardiographic findings in a patient with a vegetation of the eustachian valve.

Case report

A 23 year old male heroin addict was admitted to hospital with chills, malaise, right pleuritic chest pain, and fever. On physical examination blood pressure was 120/70 mm Hg, pulse 100 beats/min, respiratory rate 20/min, and temperature 38.8°C. The conjunctiva and the optical fundi were normal. There was no jugular venous distension. Fine rales were heard over the right lung base. Cardiac examination showed a normal sized heart. The first heart sound was normal and the second sound was split physiologically. Neither the liver nor the spleen was palpable. There were no petechiae, splinter haemorrhages, or Osler nodes. The haemoglobin concentration was 128 g/l and the white cell count was 15.8 x 10^9/l with a shift to the left. Staphylococcus aureus was given in six consecutive blood cultures. A chest x ray film showed right nodular densities consistent with septic pulmonary emboli. An electrocardiogram showed sinus tachycardia. The M mode and cross sectional echocardiograms showed evidence of a highly mobile mass (3.0 cm long and with a maximum diameter of 1.5 cm) that was globular and pedunculated and attached to the eustachian valve (figs 1 and 2). The other cardiac valves were normal.

Staphylococcal endocarditis affecting the eustachian valve was diagnosed and the patient was treated with oxacillin and gentamicin for 6 weeks. The pleuritic chest pain present on admission disappeared by the fifth hospital day. The fever, leucocytosis, and the radiographic signs of lung disease resolved.

A repeat cross sectional echocardiographic study before discharge again showed the vegetation, which seemed to be smaller. On re-evaluation five months later, the patient was symptom free; the vegetation persisted at the same site but was smaller than before.

Discussion

The eustachian valve or valve of the inferior vena cava is a normal remnant of the right valve of the sinus venosus. In the embryo this valve directs blood from the inferior vena cava into the left atrium through the foramen ovale.5 Its
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1 Kears JJ. Malignant endocarditis due to Bacillus pyocyaneus. Arch Pathol 1936;21:839-43.

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persistence may create or simulate cardiac disease. The anatomical and echocardiographic features of this valve have been described. Successful management of bacterial endocarditis depends on early recognition and prompt treatment. In right sided endocarditis there are often no definitive auscultatory findings and this makes diagnosis difficult. Echocardiography is an established non-invasive technique for detecting vegetations, haemodynamic sequelae, and other complications in patients with infective endocarditis.

Edwards et al also reported a patient with eustachian valve endocarditis. Unfortunately in their patient the eustachian valve was not specifically sought during the echocardiographic examination. Although surgical or pathological confirmation was not available in our patient, the triad of heroin addiction, staphylococcal septicaemia, and pulmonary infarction without evidence of peripheral venous disease supported the diagnosis of eustachian valve endocarditis.

Necropsy studies of patients with right sided infective endocarditis and of opiate addicts showed that the affected valves were nearly always anatomically normal before the onset of the cardiac infection, which was usually caused by highly virulent organisms, especially Staphylococcus aureus. Vegetations associated with right sided endocarditis tend to be large. Echocardiographically confirmed large vegetations do not usually disappear after medical treatment. All these features were seen in our patient.

Our patient and that of Edwards et al suggest that when bacterial endocarditis is suspected, especially in intravenous drug misusers, the eustachian valve should be echocardiographically examined for vegetations.

Figure 2  M-mode echocardiogram of the right ventricular inflow tract showing an abnormal cluster of dense, highly mobile and shaggy echoes (*) within the right atrium. The tricuspid valve (VT) appeared to be normal.
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