

CASE REPORTS

**Staphylococcal aortic valve endocarditis with
aortic root to right atrial fistula**

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Summary

Infective endocarditis can be complicated by the development of intra-cardiac shunts. A case of endocarditis secondary to staphylococcal septicaemia is reported where various conduction defects preceded the development of a fistula from the aortic root to the right atrium. Before emergency surgery there was marked worsening of heart failure with the appearance of a new loud murmur throughout diastole.

Case report

A 16-year-old marine cadet presented to his sick-bay 48 hr after a route march. He had symptoms of meningism, but cerebro-spinal fluid from lumbar puncture was normal and blood cultures yielded *Staphylococcus aureus*. An infected blister on his left heel was noted at that time. He developed a pancarditis, and electrocardiograms showed tachycardia and development of nodal rhythm and right bundle branch block. Four days after presentation he developed acute aortic incompetence and he was transferred to the Bristol General Hospital 2 days later.

On examination he had typical embolic lesions on his hands and feet as well as abrasions. There were signs of heart failure and he had an early diastolic murmur that was loudest at the left sternal edge, as well as a widespread systolic ejection murmur.

He was treated with digoxin, diuretics and antibiotics, but his heart continued to increase in size and an echocardiogram suggested the presence of a pericardial effusion. This was drained at operation five days after admission, at which time aortic valve replacement was considered to be inappropriate.

His condition deteriorated dramatically 9 days later with increased heart failure, tachypnoea, rigors, cyanosis and the appearance of a new murmur which was continuous throughout diastole, rumbling in character and loudest over the sternum. Emergency valve replacement was performed the following day when he was found to have a perforated bicuspid aortic valve and a communication from the aortic root to the right atrium. The defect was closed and the aortic valve replaced, but he died post-operatively, on the 17th day of admission.

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Post-mortem examination showed a large abscess cavity in the interventricular septum which communicated with both the aortic root and the right atrium above the tricuspid valve.

Discussion

Jones and Langley (1949) noted that aorto-cardiac fistulae may result from congenital aortic sinus aneurysms and also arise as complications of infective endocarditis, syphilis, atheroma and trauma. These fistulae most commonly terminate in the right ventricle and impose a considerable strain on the heart. Oram and East (1955) observed that in infective endocarditis it may be difficult to be certain whether aneurysm formation and rupture have resulted from infection, or whether infection has occurred on a pre-existing congenital abnormality.

The syndrome of rupture of the aortic root into the right atrium has been described by Herrmann and Schofield (1947). Chest pain and dyspnoea precede the rapid development of the signs of right-sided heart failure and tricuspid incompetence in the absence of marked pulmonary oedema. A harsh, continuous murmur is heard over the lower sternum.

Conduction defects in aortic valve endocarditis may result from direct invasion of the conducting tissue by the infective process and have been shown by Roberts and Somerville (1969) to indicate a poor prognosis.

In aortic valve endocarditis the rapid appearance or worsening of right heart failure and the development of a continuous diastolic murmur and conduction defects should suggest a fistula from the aortic root to the right heart, resulting from burrowing infection.

References

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