Suppurative bacterial myocarditis: echocardiographic and pathological findings

Tania Elias1,2, Ian Roberts3, Nicola Jones2, Nikant Sabharwal1, and Paul Leeson1

1Department of Cardiology, John Radcliffe Hospital, Headley Way, Oxford OX3 9DU, UK and 2Department of Medicine, John Radcliffe Hospital, Oxford, UK; and 3Department of Cellular Pathology, John Radcliffe Hospital, Oxford, UK

*Corresponding author. Tel: +44 1865 741166; Fax: +44 1865 21111. Email: paul.leeson@cardiov.ox.ac.uk

A 45-year-old man was admitted with anorexia, weight loss, and rigors. Examination revealed a tachycardia (126 bpm), hypotension (86/50 mmHg), and a fever (39.5°C). He was cachectic with tattoos, piercings, and clinically dehydrated. Investigations revealed a normocytic anaemia (Hb 8.6 g/dL), neutrophilia of 11.3 x 10^9/L, and elevated C-reactive protein (>160 mg/L). Chest X-ray was normal. ECG revealed a broadened QRS complex and non-specific inferolateral T wave inversion (Panel A). Intravenous fluid and co-amoxiclav were commenced but the patient rapidly developed severe pulmonary oedema. Echocardiography demonstrated global severely impaired left ventricular systolic function with unusual thickening of the papillary muscles (Panels D–F). The patient initially improved with CPAP, diuretics, and antibiotics, but 12 h later developed pulseless ventricular tachycardia (Panel A) from which it was impossible to resuscitate him. Post-mortem revealed microabscesses containing gram-positive cocci (Panel C) throughout the left ventricular myocardium with confluent collections in the lateral wall and both inferomedial and anterolateral papillary muscles (Panel B, arrows). The rest of the heart, including valves and endocardium, and other organs were normal. Non-paravalvular bacterial myocardial abscesses are rarely diagnosed ante-mortem. They are thought to occur following bacteraemia and to be more common in the immunocompromised. Staphylococcus aureus is the most frequently isolated bacterium and death is usually due to intractable dysrhythmias, cardiac failure, tamponade, or fistulae. Diagnosis is dependent on a high clinical suspicion in septic patients with severe heart failure. Imaging and ECG changes are usually non-specific. However, in this case, transthoracic echocardiography demonstrated abnormalities consistent with the post-mortem findings.

Panel A. ECG demonstrated non-specific broadening of the QRS complexes and inferolateral T wave inversion. This degenerated 12 h after admission into ventricular tachycardia from which it was not possible to resuscitate the patient.

Panel B. Post-mortem specimen demonstrates myocardial abscesses that are confluent in the lateral wall and both papillary muscles (arrows).

Panel C. Histological samples taken from the areas of abscess demonstrate the presence of gram-positive cocci.

Panels D and F. Parasternal long axis and apical four chamber views demonstrate thickening of anterolateral papillary muscle (arrow), which had abnormal function and was associated with moderate mitral regurgitation.

Panel E. Parasternal short-axis view at same level as pathology specimen (Panel B) demonstrates areas of thickening and brightness in the myocardium consistent with the pathological findings.

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