CASE REPORTS

Transoesophageal Echocardiographic Diagnosis of Aortico–Left Atrial Fistula in Aortic Valve Endocarditis

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Intra-cardiac fistulas are rarely seen and they are estimated to account for <1% of all cases of infective endocarditis. Fistulization of paravalvular abscesses has been found in 6% to 9% of cases. This is a report of an unusual communication between the abscess region in the aortic root and the left atrium. A 44-year-old patient diagnosed with infective endocarditis had continuous fevers despite antibiotic therapy. Transoesophageal echocardiography revealed multiple vegetations on aortic valve, fistulization of an aortic root abscess to the left atrium and mitral regurgitation and moderate aortic regurgitation. At surgery, multiple vegetations on the aortic valve and a large abscess cavity establishing direct communication between aortic root and the left atrial cavity through a fistulous tract were discovered. This experience demonstrates the improved sensitivity and specificity of transoesophageal echocardiography in defining periannular extension of infective endocarditis.

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Key Words: transoesophageal echocardiography; infective endocarditis; fistula; aortic valve.

Introduction

Periannular extension is common, occurring in 10% to 40% of all native valve infective endocarditis and complicates aortic valve endocarditis more commonly than mitral or tricuspid valve endocarditis[1]. However, intra-cardiac fistula formation is seen less frequently and it is estimated to account for <1% of all cases of infective endocarditis[2]. Fistulization of paravalvular abscesses has been found in 6% to 9% of cases[3,4]. Transoesophageal echocardiography is an invaluable tool in diagnosis of the paravalvular abscesses and fistulas complicating infective endocarditis. This is a report of an unusual communication between the abscess region in the aortic root and the left atrium.

Case Report

A 44-year-old man was hospitalized with complaints of malaise, loss of weight, fever and painful rashes on hands and feet. On physical examination, his temperature was 39.2°C and there were murmurs of aortic insufficiency and mitral regurgitation. The erythrocyte sedimentation rate was 120 mm/h and other remarkable laboratory findings were elevated C-reactive protein level (120 mg/dl), leukocytosis (17 600 mm<sup>3</sup>) and anaemia (haemoglobin: 8.3 g/dl). Three sets of blood cultures grew Streptococcus viridans. The patient was then treated with vancomycin (1 g b.i.d) and gentamicin (80 mg t.i.d) on being diagnosed with infective endocarditis. However, when the patient continued having fevers despite antibiotic therapy, multiplane transoesophageal echocardiography was performed with the high suspicion of a complication. Transoesophageal echocardiography revealed multiple vegetations on aortic valve, fistulization of an aortic root abscess (Figs 1 and 2) to the left atrium, which was not possible to visualize on the trans-thoracic examination, and mild mitral regurgitation.

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and moderate aortic regurgitation. The abscess cavity was approximately 1.3 cm by 1.4 cm with two openings: one to the left atrium and one to the aorta. The transfistula continuous wave Doppler tracing confirmed the pressure difference between the aorta and the left atrium (Fig. 3).

At surgery performed 10 days later, multiple vegetations on the aortic valve and a large abscess cavity covering the region of non-coronary and right coronary cusps was seen. The abscess cavity was cleaned and the fistulous openings on both the left atrium and the aortic root were obliterated with sutures. The aortic valve was replaced with a St. Jude prosthetic valve. The patient remained afebrile and asymptomatic following operation and he was continued on antibiotic therapy for the ensuing 6 weeks.

Discussion

Because of their rarity, intra-cardiac fistulas complicating infective endocarditis are only reported as brief and single cases in literature. The first case of posterior aortic root abscess that ruptured into the left atrial cavity was reported by Behnam in 1992[5]. Anguera et al.[6] recently reported a series of prospectively followed infective endocarditis cases complicated with fistulas.

Our patient is unique among those cases in the sense that the route of the intra-cardiac communication is unusual. According to Anguera et al., the most common site of an aortic root abscess was the right coronary sinus of an aortic annulus. Also, their study showed that ruptured abscesses of the right sinus of Valsalva communicating with the right ventricle, the right atrium or both ventricles. The non-coronary sinus showed fistulization into the right atrium and intracardiac shunt through the membranous septum[6]. In our case, the unusual fistulization of the abscess overlying the non-coronary and the right coronary cusps into the left atrium was seen by transoesophageal echocardiography and then confirmed at surgery.

This experience once again proves the improved sensitivity and specificity of transoesophageal echocardiography in defining periannular extension of infective endocarditis and furthermore shows how meticulous search for these complications can reveal unusual routes of intra-cardiac communication.

References