***Abiotrophia defectivus* infectious endocarditis: Think beyond the heart.**

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In September 2013, a 19-year-old female-Caucasian, college-student presented to hospital with a one-week history of occipital headache, and preceding symptoms including one-month of intermittent right calf pain, generalized malaise and fevers. Her past medical history was unremarkable and she did not report any alcohol or illicit drug abuse. On examination she had a temperature of 390C, a diastolic murmur in the left parasternal area and a pan-systolic murmur in the apex.

Initial investigations showed raised C-Reactive Protein (146.4 mg/L) and no evidence of immunocompromise. A brain-MRI demonstrated a small, left superior frontal gyrus cortical infarct. A trans-oesophageal echocardiogram showed severe aortic regurgitation with a 3cm vegetation prolapsing across a trileaflet aortic valve (**Image 1**) and moderate mitral regurgitation with perforation of the anterior leaflet. Three sets of blood cultures were taken and, pending the availability of results, empirical treatment for presumable infectious endocarditis (IE), with intravenous vancomycin, gentamycin and rifampicin was initiated. On day 2, blood cultures yielded a Gram-positive streptococcus, identified as *Abiotrophia defectivus* (*AD*). After incorporating the echocardiographic and blood culture findings into the Duke criteria, a definite diagnosis of *AD* endocarditis was made and the antibiotics were changed to intravenous amoxicillin 2g, 4-hourly and gentamycin 80mg, BD according to the hospital protocol. Due to the significant valve insufficiency the patient underwent an urgent tissue aortic valve replacement and mitral valve repair. Aortic valve histopathology demonstrated white cells with gram-positive cocci. Valve culture was negative. On the third post-operative week, a right calf pain recurred. Her examination demonstrated non-edematous legs with good peripheral pulses and a faint right radial pulse. A duplex ultra-sound and a CT-angiogram showed a 20 x 19 x 17mm right peroneal mycotic aneurysm (**Image 2)** and an occluded right brachial artery with adequate collateral circulation to the ipsilateral ulnar and radial arteries. Excision of the aneurysm and tibial-peroneal trunk to posterior tibial artery bypass surgery were successfully carried out. The histopathology revealed scanty white cells and coccobacilli in keeping with the *AD* infection. The right arm was managed conservatively. The patient was discharged on day 50, after completing 6 weeks of antibiotics. At the last follow-up, on January 2014 the patient was well and asymptomatic. Her echocardiogram showed a normal aortic valve bio-prosthesis and moderate residual mitral regurgitation.

*A.defectivus,* a nutritionally variant streptococcus, represents a rare but important cause of IE (5-6% of streptococcal IE).1 Abiotrophia species are gram-positive coccobacilli, mainly found in the normal oral flora and the affected patients often report previous dental procedures.2 In our case, even though we suspected an oral origin, no specific portal of entry was confirmed. *A.defectivus* IE has a slow clinical course and most commonly occurs in the setting of preexisting heart disease.3 It is associated with increased mortality compared to other streptococcal endocarditis forms, not least due to its extra-cardiac manifestations. Commonest complications include heart failure, sepsis and embolic events.1 More rarely, it is associated with rheumatological manifestations, haemophagocytic syndrome and mycotic aneurysms.3-5 Surgery is usually required, but the low susceptibility to antibiotics and the late diagnosis often result in treatment failure.3 To our knowledge this is the first reported case in the United Kingdom of an *AD* endocarditis in a young person without an underlying heart disease, complicated with embolic infarcts and a mycotic aneurysm. Infectious endocarditis can occur in the absence of predisposing conditions such as structural heart disease. Furthermore, *AD* endocarditis runs an indolent course, which contributes to its late detection and high mortality and complication rates.

**Contributors**

All authors looked after the patient; ASK and AS wrote the report; LA contributed to the final version.

**Conflict of interest**

None

**References**

1. Ramos JN, dos Santos LS, Vidal LM, et al. A case report and literature overview: Abiotrophia defectiva aortic valve endocarditis in developing countries. *Infection* 2014; **42**(3): 579-84.

2. Bouvet A. Human endocarditis due to nutritionally variant streptococci: streptococcus adjacens and Streptococcus defectivus. *European heart journal* 1995; **16 Suppl B**: 24-7.

3. Kiernan TJ, O'Flaherty N, Gilmore R, et al. Abiotrophia defectiva endocarditis and associated hemophagocytic syndrome--a first case report and review of the literature. *Int J Infect Dis* 2008; **12**(5): 478-82.

4. Haeusler GM, Goeman E, Cheung M, Creati M, Curtis N. Hip to the heart. *Lancet* 2012; **380**(9844): 858.

5. Flor-de-Lima F, Lisboa L, Sarmento A, Almeida J, Mota T. Mycotic brain aneurysm and cerebral hemorrhagic stroke: a pediatric case report. *European journal of pediatrics* 2013; **172**(9): 1285-6.

**Image legends**

**Image 1.**

Trans-oesophageal echocardiogram, trans-gastric long axis view. A 3 cm vegetation arises from the upstream side of a thickened right coronary cusp and extends across the aortic root during systole. The vegetation was associated with severe aortic regurgitation (Pressure half time of 104 milliseconds and holodiastolic flow reversal of the descending aorta).

**RCC**: Right coronary cusp.

**Image 2.**

Duplex ultra sound with color flow Doppler of the right lower limb arteries, showing a 20 x 19 x 17 mm pulsatile mass, suggestive of a peroneal mycotic aneurysm (white arrow).