

Infective endocarditis with *Abiotrophia defectiva*: the first Australian experience

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Clinical record

A 40-year old Indigenous woman was admitted to our hospital for an elective Fisher's cone biopsy of the cervix. Her past medical history included a mitral valve replacement in 1994 for rheumatic heart disease, chronic obstructive pulmonary disease, paroxysmal atrial fibrillation and smoking.

During the first night of the admission, the patient was noted to have a fever (temperature, 38.8°C). She also complained of joint pain of the left knee. The next day, her temperature again spiked, at 38.3°C. Blood was taken for culture, and cefazolin was begun. The following day, the cone biopsy was performed as planned, with no complications. Blood culture results showed gram-negative cocci with slow growth, and antibiotic therapy was changed to ampicillin, gentamicin and metronidazole.

The patient's temperature continued spiking to 37.4°C over the next 3 days. After consultation with the infectious diseases team, the antibiotic therapy was changed to vancomycin and ticarcillin–clavulanic acid. After a further 3 days, *Abiotrophia defectiva* was identified from the blood cultures, and ticarcillin–clavulanic acid was replaced by rifampicin.

The next day, the patient developed severe vaginal bleeding and hypotension, for which she was admitted to the intensive care unit. After fluid resuscitation and transfusion of blood and fresh frozen plasma, a transthoracic echocardiogram revealed mild mitral valve regurgitation. However, a transoesophageal echocardiogram identified a mobile structure attached to the mitral valve prosthesis (Figure 1), compatible with endocarditis, and mild paravalvular mitral valve regurgitation with eccentric jet towards the lateral wall of the left atrium.

The patient was transferred to a cardiac surgical centre where further dehiscence of the mitral valve prosthesis could be expediently managed. Five days later she underwent mitral valve replacement. The postoperative course was uncomplicated, and she was discharged from hospital after a further 7 days.

Discussion

Nutritionally variant streptococci (NVS) were first mentioned in 1961.¹ They require the addition of L-cysteine or vitamin B6 to usual streptococcal culture media for growth.² In 1989, NVS were classified as *Streptococcus defectivus* and *Streptococcus adjacens*. In 1995, they were reclassified on

ABSTRACT

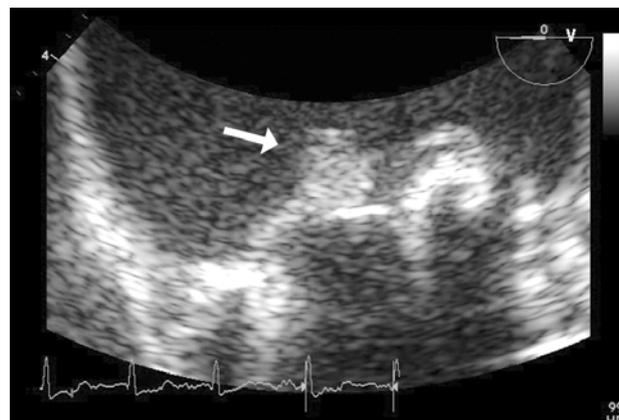
A 40-year old Indigenous woman with a history of mitral valve replacement was admitted to the Royal Darwin Hospital, Northern Territory, for an elective cone biopsy of the cervix. During the admission, she had recurrent fever and joint pain of the left knee. Blood was cultured, and she was treated with broad-spectrum antibiotics. *Abiotrophia defectiva* was identified from the culture, and a transoesophageal echocardiogram revealed endocarditis of the mitral valve prosthesis.

A review of the English-language literature suggests that this is the first reported case of *Abiotrophia* endocarditis in Australia, and the third reported case of prosthetic-valve endocarditis caused by this species worldwide.

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the basis of RNA analysis as *Abiotrophia defectiva* and *Abiotrophia adiacens*. Since 1998, three new species have been added: *elegans*, *balaenopterae* and *para-adjacens*. Finally, *A. defectiva* was classified as a genus on its own, while the other species were reclassified in a new genus, *Granulicatella*. Both genera form part of the normal flora of the oral cavity, the genitourinary tract and the intestinal

Figure 1. Transoesophageal echocardiogram



The echocardiogram showed a vegetation of the mitral valve prosthesis (arrow).

CASE REPORTS

Table 1. Case reports of *Abiotrophia* endocarditis worldwide

Author	Year	Age (years), sex	Valve involved	Antibiotic treatment	Underlying disease	Source	Outcome
Our case	2007	40, F	Mitral	Vancomycin, gentamicin, rifampicin	Mitral valve prosthesis	Unknown	Valve replacement
Yemisen et al ¹	2006	66, F	Mitral	Ampicillin, gentamicin	Mitral valve prosthesis	Unknown	Cured
Sharaf et al ⁵	2005	36, M	Aortic	Penicillin, gentamicin	Bicuspid valve	Dental procedure	Prosthetic valve
Lainscak et al ⁷	2005	26, M	Mitral	Penicillin, gentamicin	Marfan syndrome	Tonsillitis	Cured
Lainscak et al ⁷	2005	62, M	Aortic	Penicillin, gentamicin	Aortic valve prosthesis	Dental procedure	Cured
Hashimoto et al ²	2004	75, F	Aortic	Penicillin, gentamicin	Aortic stenosis	Unknown	Valve replacement
Raff et al ⁸	2004	5, M	Aortic	Nafcillin, gentamicin, vancomycin	No	Dental procedure	Cured
Chang et al ⁹	2002	12, M	Mitral	Ampicillin, gentamicin	No	Dental procedure	Cured
Ray et al ⁶	2002	10, M	Aortic	Penicillin, gentamicin, cloxacillin	No	Unknown	Valve replacement
Poyart et al ¹⁰	2000	5, M	No TOE	Amoxycillin, gentamicin, rifampicin	Ventricular septal defect, pulmonary stenosis	Cardiac surgery	Surgery
Christensen et al ⁴	1999	61, M	Mitral	Penicillin, gentamicin	Mitral valve failure	Unknown	Valve replacement

F=female. M= male. TOE = transoesophageal echocardiography.

tract, and are a rare cause of endocarditis (1% to 2% of all cases of infective endocarditis).

The genus *Abiotrophia* grows more slowly than other streptococci, which may be one of the reasons for the difficulty in its identification. *Abiotrophia* species are estimated to cause up to 6% of cases of seemingly culture-negative endocarditis.

These organisms are sensitive to a broad range of antibiotics, but are often resistant to penicillin. Tuohy et al found in-vitro susceptibilities to penicillin ranging from as low as 8% of isolates to as high as 55%, depending on the strain and species studied.³ A sufficient dose of effective antibiotics should be administered for an adequate duration. Even after appropriate therapy, in-vivo eradication of the bacteria is only around 60%,⁴ which contributes to a relapse rate of 17% for *Abiotrophia* endocarditis.⁵ In addition, as the organism is often resistant to penicillin G, ceftriaxone and gentamicin — usual treatment for endocarditis — infection may persist. If strains have intermediate sensitivity or resistance to penicillin, then vancomycin should be used instead of β -lactam antibiotics.⁶ Specific antimicrobial therapy and continued surveillance are needed to prevent the significant morbidity and mortality associated with this infection.⁷

We found 10 case reports in the English-language literature of endocarditis caused by *A. defectiva* (Table 1). In eight of these cases, penicillin G and gentamicin appeared to be effective. We treated our patient with vancomycin, rifampicin and gentamicin, continued for 1 week after surgery, with a successful outcome.

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