

A Practical Approach to Detect a Fastidious but Virulent Microorganism in Infective Endocarditis of Children: Cooperation

The Editor,

Sir,

Abiotrophia defectiva previously classified as nutritionally variant streptococcus is a fastidious Gram-positive bacteria that was described in 1995 (1). Little is known about the pathogenesis and clinical presentation of this organism in children (2). *Abiotrophia* endocarditis (AE) is very rare in children without underlying heart disease (3).

A fourteen-year-old previously healthy girl was admitted to hospital with fatigue and fever for two weeks. She had good oral hygiene and no history about cardiac diseases and indwelling central catheters. On examination, she had paleness, fever (38.2°C) and 3/6 holosystolic murmur which was heard best in the apex. She did not have cutaneous signs. Fundii were normal. Her hemoglobin was 9.5 gr/dl, total leukocyte count was 10.900/ml, erythrocyte sedimentation rate was 39 mm/h and serum C-reactive protein was 48 mg/L. Telecardiography was normal. Echocardiogram showed moderate mitral insufficiency and a large vegetation (21x16 mm) on mitral valve (Figure).

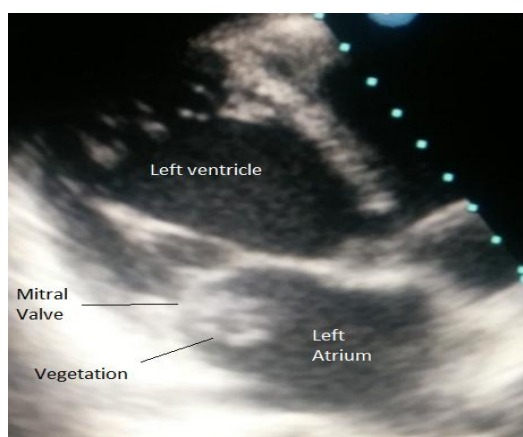


Figure: Appearance of vegetation on the atrial side of mitral valve in two-dimensional echocardiography

1

A provisional diagnosis of infective endocarditis (IE) was made. Gentamycin and ceftriaxone were started as empiric antibiotherapy. Four blood cultures were drawn with adequate technique and microbiology department was informed about the patient. Patient was referred to a another center for surgical intervention. Microorganism grew on 5% sheep blood agar plates from all blood cultures and *Abiotrophia defectiva* was identified with Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS) system. There is not a standardized susceptibility testing method for *Abiotrophia* and there is a poor correlation between in vitro and clinical responses (4, 5). The antibiotic sensitivity was tested according to streptococcus and was found to the following: cephtriaxon, clindamycin, erithromycin, linezolid, vancomycin. The results were shared with the center that patient was referred to.

Abiotrophia accounts for 5–6% of all cases of endocarditis but this value is likely an underestimation, because *Abiotrophia* is a fastidious organism and might fail to grow (6). It is recommended to suspect *Abiotrophia* as a causative agent for IE with negative blood cultures (7). Mortality and morbidity were reported significantly higher for AE (5). In a review, rates of antibiotic failure despite sensitivity, embolization, relapse after therapy, need for surgery and death were as 41%, 27%, 17%, 38% and 17% in AE (8). According to this issues, we think that it would be better to suspect *Abiotrophia* in IE of children without waiting negative blood culture results and inform microbiologists about clinic diagnosis immediately.

We identified *Abiotrophia* with MALDI-TOF MS system but we believe that informing microbiologist contributed to detection of the microorganism in all of the four blood cultures. Cooperation between the microbiologists and the clinicians is essential in identification of this fastidious and virulent microorganism for all cases with IE suspicion.

Keywords: Abiotrophia, children, endocarditis

*Oİ Şahin*¹, *AH Gürsu*², *O Ceylan*³, *EB Uysal Elif Bilge*⁴

From: ¹Division of Pediatric Cardiology, Department of Pediatrics, Faculty of Medicine, Cumhuriyet University, Sivas, Turkey ²Department of Pediatric Cardiology, Sivas State Hospital, Turkey ³Department of Pediatric Infectious Diseases, Sivas State Hospital, Turkey ⁴Department of Medical Microbiology, Faculty of Medicine, Cumhuriyet University, Sivas, Turkey

Correspondence: Dr İO Şahin, Division of Paediatric Cardiology, Department of Paediatrics, Faculty of Medicine, Cumhuriyet University, Sivas, Turkey Fax: +90 442 236 09 68, e-mail: rfnshn@yahoo.com

REFERENCES

1. Kawamura Y, X Hou, F Sultana, S Liu, H Yamamoto, T Ezaki. Transfer of *Streptococcus adjacens* and *Streptococcus defectivus* to *Abiotrophia* gen. nov. as *Abiotrophia adiacens* comb. nov. and *Abiotrophia defectiva* comb. nov., respectively. Int J Syst Bacteriol 1995; **45**: 798–803.
2. Michelow IC, McCracken GH Jr, LUCKETT PM, KRISHER K. Abiotrophia spp. brain abscess in a child with Down's syndrome. Pediatr Infect Dis J 2000; **19**: 760-3.
3. Bhat DP, Nagaraju L, Asmar BI, Aggarwal S. Abiotrophia endocarditis in children with no underlying heart disease: a rare but a virulent organism. Congenit Heart Dis 2014; **9**: 116-20.
4. Clark RB, Gordon RE, Bottone EJ, Reitano M. Morphological aberrations of nutritionally deficient streptococci: association with pyridoxal (vitamin B₆) concentration and potential role in antibiotic resistance. Infect Immun 1983; **42**: 414–7
5. Chang HH, Lu CY, Hsueh PR, Wu MH, Wang JK, Huang LM. Endocarditis caused by *Abiotrophia defectiva* in children. Pediatr Infect Dis J 2002; **21**: 697-700.
6. Raff GW, Gray BM, Torres A Jr, Hasselman TE. Aortitis in a child with *Abiotrophia defectiva* endocarditis. Pediatr Infect Dis J 2004; **23**:574-6.

7. Ray M, Subramanian C, Ray P, Singhi P. Infective endocarditis in a child due to *Abiotrophia defectivus*. *Indian Pediatr* 2002; **39**: 388-92.
8. Stein DS, Nelson KE. Endocarditis due to nutritionally deficient streptococci: therapeutic dilemma. *Rev Infect Dis* 1987; **9**: 908–16.