**Gemella morbillorum** endocarditis in a patient with a bicuspid aortic valve

Gemella morbillorum (G. morbillorum) endocarditis is rare condition, with few cases reported in the English literature. Despite the improvements in the treatment methods, the morbidity and mortality rates are still high. Delays of weeks or months in antimicrobial treatment increase the risk of the occurrence embolic or immunological events [1, 2]. In this paper, it was reported a case of native bicuspid aortic and mitral valve endocarditis caused by *G. morbillorum*.

**CASE REPORT**

A 37-year-old male patient with the complains of fever, fatigue, sweating, loss of more than 10% of his body weight for one month. Right upper quadrant pain and high fever was began one week ago. The patient had no history of smoking, alcohol consumption or illicit drug use. No history of heart valve disease was ascertained. He was a workman in a chemical factory. On his physical examination, body temperature was 38.6°C, pulse rate was 112 beats/min, respiratory rate was 38 breaths/min, and blood pressure was 90/70 mmHg. Cardiac examination revealed a 3/6 pansystolic murmur. The liver was palpable 2 cm below the right costal margin and his traube’s space was closed. In addition to the available findings, splinter hemorrhage was seen on the fourth finger of the left hand. Laboratory findings were as follows: white blood count (WBC), 4300/mm³ (68% PNL); hemoglobin, 7.9 g/d; platelets, 81000/mm³; C-reactive protein (CRP), 102 mg/L (RR 0–5 mg/L); erythrocyte sedimentation rate, 122/h; albumin, 2.8 g/dL (RR 3.5–5.5 g/dL). Liver and kidney function tests were normal. Three sets of blood culture and bone marrow aspirate were obtained from the patient who was hospitalized to investigate the cause of fever. Intravenous ceftriaxone (1x2 g/day) was started empirically after blood cultures are taken.

Transthoracic echocardiography revealed vegetation on bicuspid aortic valve which was a 22x18 mm in diam-
eter near the left coronary cuspis. There was another vegetation as mobile mass with the diameter of 20x15 mm on the anterior leaflet of the mitral valve and was causing mitral insufficiency (Fig. 1). Ejection fraction was 50%. Similar findings were also demonstrated in transesophageal echocardiography. In abdominal ultrasonography, the liver size was 165 cm and spleen size was 162 cm.

Gram-positive cocci were yielded from three sets of blood culture bottles and bone marrow aspirate (BacT/ALERT, bioMérieux, Marcy l’Etoile, France) after 24 hours. Gemella morbillorum was identified by matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS, Bruker Daltonics Inc.). Antimicrobial susceptibility was performed using Kirby Bauer disk diffusion method and an automated system according to standard guidelines. The isolate was susceptible to ampicillin, ceftriaxone, vancomycin but was resistant to gentamicin. Infective endocarditis was diagnosed based on the modified Duke criteria of one major criterion (evidence of endocardial involvement) and four minor criteria (positive blood cultures, fever, bicuspid aortic valve and evidence of septic emboli).

On the 15th day of the treatment, control transesophageal echocardiography showed no regression of vegetation size. The patient was consulted by the cardiovascular surgery clinic. Mitral and aortic valve replacement was performed. The patient was discharged after 28 days of antibiotic treatment.

**DISCUSSION**

Gemella morbillorum (formerly Streptococcus morbillo-rum), which was first described in 1917 by Tunnicliffe, was classified as a separate bacterial strain with its biomolecular and physiological properties in 1988. G. morbillorum possess gram-positive cell wall structure, but it also has a feature of Gram-variable probably due to their relatively thin cell walls [3, 4]. It is part of the normal flora of the oral cavity, gastrointestinal and genitourinary tract of the human body [4, 5].

G. morbillorum may cause dental abscess, pleural empyema, liver abscess, peritonitis, pericarditis, mediastinitis, sepsis, spondylodiscitis, soft tissue infection, meningitis, brain abscesses, infective endocarditis as an opportunistic agent. It is not a common infectious agent and usually requires the presence of various predisposing factors in order to become as infectious pathogen. These predisposing factors include poor dental hygiene, dental procedures, gastrointestinal procedures, colon malignancies and underlying cardiac pathologies such as rheumatic heart disease, surgically repaired intracardiac lesions, and congenitally bicuspid aortic valve [4–7].

It is reported in a limited number of cases as endocarditis, although endocarditis is the most common clinical manifestation of G. morbillorum. Both native and prosthetic valves can be affected. Aortic valve was more frequently affected than mitral valve [7–9]. Bicuspid aortic valve is the most common congenital heart anomaly with an estimated incidence of up to 0.9–2% in the general population [9, 10]. In our patient, it is mentioned that bicuspid aorta is an important predisposing factor. There were present both aortic valve vegetation and mitral valve vegetation.

In the medical treatment of infective endocarditis due to G. morbillorum, different options were applied taking into account the sensitivity of the agent. Antibiotics were administered between 4 and 6 weeks in alone penicillin G, ceftriaxone, vancomycin or combination with gentamicin, rifampin [4, 5]. In the treatment of our case was started once a day with intravenous, 2 g ceftriaxone. According to the antibiogram results, ceftriaxone was continued without any change in treatment.

G. morbillorum can cause rapid destruction in the heart valves and may lead to a significant clinical deterioration. In some cases, the medical treatment may not be shown the desired response due to the increase in regurgitation and failure of the mitral valve and aor-
tic valve, the size of the vegetation (>1 cm diameter), the presence of septic emboli or the bacterium’s own virulence characteristics [2, 6, 7, 11]. In our case, on the fifteenth day of antibiotic therapy, ruptured mitral chordae tendineae, marked reduction in ejection fraction and vegetation greater than 1.5 cm in both valves were detected in TEE. Mitral valve and aortic valve replacement was performed. Antibiotic therapy was continued for four weeks and was seen to have improved in his clinical findings.

Conclusion
Infective endocarditis is a serious and life-threatening disease. Rare pathogens such as G. morbillorum may be the cause of infective endocarditis and usually affects the immunosuppressive population. This organism can even lead to the occurrence of quite large vegetation.

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

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