Gemella morbillorum (G. morbillorum) is part of the commensal flora of the oropharynx and intestinal tract, and on rare occasions causes infective endocarditis. A 55-year-old man with massive aortic regurgitation caused by recurrent infective endocarditis with G. morbillorum had a history of prior endocarditis caused by ß-hemolytic streptococcus and multiple antibiotic allergies 5 years prior, and was successfully treated by aortic valve replacement. Almost all the reported cases of endocarditis caused by G. morbillorum have been bacteriologically cured with antibiotics and this is the first reported case of recurrent endocarditis caused by G. morbillorum in which the initial infection was bacteriologically cured by antibiotics and the secondary infection treated with valve replacement. This organism can be one of the causes of infective endocarditis and prompt surgical repair is mandatory if the infection is refractory or there is progression of congestive heart failure under antibiotic cover. (Jpn Circ J 2001; 65: 997–1000)

Key Words: Aortic regurgitation; Aortic valve replacement; Gemella morbillorum; Infective endocarditis

**Case Report**

A 55-year-old man with persistent fever and nocturnal dyspnea was referred to hospital. He had a history of non-insulin dependent diabetes mellitus and type B hepatitis. Without any history of rheumatic fever, he had been diagnosed as having aortic regurgitation 35 years prior, and he had a history of infective endocarditis caused by ß-hemolytic streptococcus, which was treated 5 years prior in another hospital with several different antibiotics with bacteriological cure. However, he had developed agranulocytosis because of gentamycin sulfate and piperacillin sodium therapy, and then suffered acute renal failure from interstitial nephritis following the administration of cefoperazone sodium. Fosfomycin and minocycline hydrochloride was able to be used without any side effects. The cardiac catheterization data showed a normal left ventricular end-diastolic pressure of 6 mmHg. The left ventriculogram showed a left ventricular end-diastolic volume index of 149 ml/m² and a decreased left ventricular ejection fraction (LVEF) of 45%. Echocardiography showed severe aortic regurgitation without valvular vegetation and mild mitral regurgitation.

Upon admission to hospital, his temperature was 39.3°C, blood pressure was 130/58 mmHg, and the heart rate was regular at 88 beats/min. He had extensive caries destruction of the teeth. Osler’s nodes or splinter hemorrhage was not detected. On auscultation, a to-and-fro murmur with an intensity of Levine 3/6 was heard at the Erb’s area. Dilatation of the neck vein was detected at the Fowler’s position. A bounding pulse was palpable in the left femoral artery, but pulsation of the right femoral artery was not. Hepatosplenomegaly or pretibial edema was not observed.

Laboratory examination showed a leukocyte count of 9,600 cells/m³, a hematocrit of 28.2%, and a hemoglobin of 9.3 g/dl. C-reactive protein (CRP) was 5.19 mg/dl. Urinaly-...
The volume index of 249.8 ml/m² and a decreased LVEF of 49.2%. Coronary angiography showed almost normal coronary arteries, but abdominal aortography showed a total occlusion of the right common iliac artery. The bacteriologic cure did not improve the cardiac symptoms, which continued despite oral diuretics and digoxin.

It was decided to treat the patient's condition surgically. Upon operation, 2 cusp perforations were detected: one with a smooth margin located in the left coronary cusp in the periannular portion close to the right coronary cusp, and the other, which was surrounded by slight thrombotic vegetation, located in the central portion of the right coronary cusp (Fig 3). Neither the mitral valve nor the tricuspid valve had evidence of infective endocarditis. The aortic cusps were resected and replaced with a 25-mm St Jude Medical valve prosthesis.

The histopathological findings of the right coronary cusp showed mononuclear and polymorphonuclear infiltrates, fibrin deposit and fibroblastic proliferations. The left coronary cusp showed degeneration and calcification. However, Gram-positive cocci were not detected in the right coronary cusp. Postoperatively, the patient was given intravenous tobramycin (120 mg/day), cefmetazole sodium (3 g/day) and fosfomycin (3 g/day) for a 6-week period, which resulted in a bacteriologic cure. The CRP level returned to normal. Before discharge, his 2 decayed premolar teeth were extracted under intravenous antibiotic cover. He remains well without fever or cardiac symptoms and is followed up as an outpatient.

**Discussion**

*Gemella morbillorum*, formally *Streptococcus morbillorum*, was transferred to its present genus in 1988 based on DNA homology, physiologic properties and 16S RNA cataloguing. It has been isolated from the human oropharynx, gastrointestinal tract and genitourinary tract, but is seldom associated with infections other than rare instances of endovascular infections and endocarditis (only 15 cases of endocarditis caused by *G. morbillorum* have been reported previously; Table 1). The patients ages ranged from 19 to 84 (mean, 56.3) years and poor dental hygiene, dental procedures and colon disease or procedures were
predisposing factors. Steroid therapy, diabetes mellitus and hepatoportal dysfunction will also predispose to infective endocarditis with this organism. Not only preexisting valvular lesions, but also other intracardiac lesions, such as hypertrophic cardiomyopathy 6 and cardiac myxoma 7 can be the underlying condition for endocarditis. Any of the valves located in either the left side or right side of the heart, other than the pulmonary valve, can be affected, as with endocarditis caused by other microorganisms. The tricuspid valve has been affected in a case of drug abuse 8 and prosthetic valves 9 and vascular prostheses 10,11 can also be affected. Almost all the cases reported with endocarditis and endovascular infection caused by G. morbillorum have been bacteriologically identified by antibiotic therapy, usually a combination of penicillin and aminoglycosides. For the penicillin-resistant or penicillin-allergic patient, monotherapy or a combination of other antibiotics, such as vancomycin 5 or erythromycin plus rifampicin 12 has been effective. In the present case, the intracutaneous test for penicillin-G was positive and the pipellicillin that had been used initially had induced agranulocytosis. In addition, subsequent use of cefoperazone sodium had resulted in acute renal failure. Therefore, surgical treatment was chosen without hesitation because of the reaction to multiple antibiotics, even though the patient rejected the surgical option. Only 4 previous cases have been treated by the valve replacement 6,10,13,16 One patient died of refractory cardiac failure 1 week after aortic and mitral valve replacement because of severe valvular insufficiency 13 but the remaining 3 cases had a satisfactory outcome. Hemodynamic deterioration because of poor cardiac function resulting from the destruction of the infected valve is an absolute indication for valve replacement or valvuloplasty. One case of infected left atrial myxoma was also successfully treated by antibiotic therapy followed by early surgical excision of the tumor 17 No other case of relapse after medical or surgical treatment has been reported.

In the present case, we suspect that the β-hemolytic streptococcus that caused the first bout of infective endocarditis was in fact G. morbillorum, although it was not bacteriologically identified. Most cases of endocarditis caused by G. morbillorum will have a satisfactory result from antibiotic or surgical treatment. However, miserable results occasionally occur, such as cerebral mycotic aneurysm 13, pulmonary infarction 11 or refractory cardiac failure 14. Although G. morbillorum is highly sensitive to most of antibiotics, prompt surgical treatment is required for cases with progressive heart failure, large vegetations, which can be an embolic source, reactions to multiple antibiotics or antibiotic-resistant infection.

References


