Human brucellosis is a rare zoonosis in East Asia. A case of brucella endocarditis in a 59-year-old farmer who had mild rheumatic mitral stenosis is presented. Excision of the mitral valve with associated vegetation was performed and a mechanical valve was substituted. Antibiotic treatment with doxycycline, rifampicin, and trimethoprim/sulfamethoxazole was continued for 6 months. After 18 months of follow-up, the patient had no symptoms and no signs of relapse. (Circ J 2008; 72: 500–501)

**Key Words:** Brucella; Endocarditis; Mitral valve

were no reports of human brucellosis in his neighborhood.

On the day after admission, the patient presented with dysarthria and sensory loss on the right side. Magnetic resonance imaging of the brain suggested acute embolic infarction of the left parietal cortex. Transesophageal echocardiography (TEE) was performed to find the focus of embolism, but there was no detectable thrombus in the left atrium, and no vegetation on the mitral valve. The severity of both the pre-existing conditions (ie, mitral stenosis and atrial fibrillation) was unchanged. His chest X-ray showed no active lung lesions, and an abdominal enhanced-CT scan showed only simple renal cysts. Because of the unique event experienced by the patient, and because blood culture and PCR were positive for *Brucella abortus*, the patient was diagnosed with brucellosis.

Rapid improvement of his general symptoms and alleviation of neurological symptoms was evident after administration of doxycycline (200 mg/day) and rifampicin (600 mg/day). He was discharged with the same prescriptions and followed-up at the outpatient clinic.

Despite careful medication instruction, after 40 days, the patient arbitrarily stopped the medication and 10 days later he revisited the emergency room with relapsing fever. Laboratory findings showed an elevated C-reactive protein (CRP) level of 2.15 mg/dl, a predominance of neutrophils (80.5%), but a WBC count in the normal range (7,100/mm³).

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**Fig 1.** Preoperative transesophageal echocardiography shows hypermobile mass attached to the anterior leaflet of the mitral valve (arrow).
We strongly recommended readmission but the patient refused and was discharged with the previous prescriptions. A blood culture taken before discharge was positive for *Brucella* spp. after 7 days of cultivation.

Two months later, the patient was readmitted with relapsing fever, chills, and numbness of both hands of 4 days duration. Drug compliance had been inappropriate during the intervening period. Laboratory findings on admission were CRP 0.63 mg/dl, WBC 9,900/mm³, and neutrophils 69.4% and *Brucella* spp. was detected in blood cultures. A magnetic resonance diffusion image showed a multifocal acute infarct in the area of the right middle cerebral artery. A newly developed hypermobile mass attached to the anterior leaflet of the mitral valve was apparent on TEE (Fig 1).

An urgent mitral valve replacement was therefore performed to prevent further systemic embolization and to cure the systemic brucellosis.

Upon removal, the mitral valve was found to be severely thickened, and calcified because of rheumatic involvement. The vegetation was 1.5×3 cm in size in the middle portion of the anterior mitral valve, and moderate destruction of the leaflet was observed (Fig 2). The mitral annulus and the subvalvular apparatus were free of infection. After the mitral valve tissue with associated vegetation was excised, a bileaflet mechanical valve was placed. Cultures of the excised mitral valve and vegetation were negative for any bacterium. No surgical complication occurred and the neurological symptoms recovered fully without sequelae. To treat this case of relapsed brucellosis, we prescribed a triple antibiotic regimen, consisting of doxycycline (200 mg/day), trimethoprim/sulfamethoxazole (1,600/320 mg/day) and rifampicin (600 mg/day), for 6 months. He was discharged on the 24th postoperative day, in good condition.

Follow-up blood cultures and PCR, which were performed 2 months after the operation, were negative for any bacterium, and no serologic test was conducted during follow up. The triple antibiotic regimen was continued for 6 months after the operation, and drug compliance was good on this occasion. After 18 months of follow-up, the patient had no symptoms, and no signs of relapse.

**Discussion**

*Brucella* endocarditis is a rare but devastating complication of brucellosis. The severely destructive valvular lesions caused by *Brucella* spp. are probably caused by delayed diagnosis rather than an intrinsic virulence of the bacteria. Especially in East Asia, the rarity of cases and the non-specific clinical presentation of brucellosis may result in a delayed diagnosis. Moreover, in some cases, it may be difficult to distinguish between human brucellosis and tuberculosis. In the present case, the lack of suspicion and the relatively low incidence of human brucellosis in East Asia resulted in a diagnostic delay.

The most frequent subtype of human brucellosis in the Mediterranean basin, China, and other endemic countries, is caused by *Brucella melitensis*. In Korea, however, the first 12 cases of human brucellosis, and the present case, were all caused by *Brucella abortus*, suggesting that the latter is the major pathogenic species in Korea.

*Brucella* endocarditis generally requires surgical treatment, but can be treated with antibiotics especially when surgery is unfavorable. Human brucellosis is characterized, however, by frequent symptom-free remission periods, and good response to antibiotics, so improvement of clinical symptoms following brief antibiotic therapy does not infer a microbiological cure. In this report, the patient relapsed with an embolic event and newly developed vegetation on the mitral valve, during antibiotic treatment. The poor compliance of the patient, however, was the main cause of his multiple admissions and the complicated hospital course. Thus, prescription drug compliance is paramount for controlling this disease, and surgery is the treatment of choice in most cases.

In conclusion, brucellosis can be an endocarditis pathogen in non-endemic areas such as East Asia. To our knowledge, this patient is the first case of *brucella* endocarditis in East Asia. Surgical replacement of the vegetated valve, and post-operative treatment with appropriate antibiotics, remain the best options for curing this disease.

**References**