Simultaneously performed mitral valve replacement and Hartmann’s operation for infectious endocarditis from *Streptococcus bovis* and rectal cancer

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**Abstract** In patients with surgical indications for both cardiac surgery and a malignant neoplasm, cardiac surgery should generally be performed first; however, in some cases simultaneous surgery is recommended. We report a case of infectious endocarditis of the mitral valve caused by *Streptococcus bovis* with rectal cancer. Blood cultures showed a rise in coagulase-negative *S. bovis*, and the source of infection was thought to be the rectal cancer. The patient presented with cerebral infarction prior to surgery, and the possibility of recurrence of an infarction was predicted. The tumor of the rectum was hemorrhagic, so to avoid hemorrhagic complications due to perioperative heparinization and anticoagulant therapy and to remove the source of infection, mitral valve replacement and a Hartmann’s operation were performed simultaneously. The postoperative course was uneventful.

**Key words** Infectious endocarditis · *Streptococcus bovis* · Rectal cancer · Mitral valve replacement · Simultaneous operation

**Introduction**

In patients with surgical indications for both cardiac surgery and a malignant neoplasm, cardiac surgery should generally be performed prior to surgery for the malignancy; however, in some cases simultaneous surgery is recommended. We report a case of infectious endocarditis of the mitral valve with rectal cancer for which mitral valve replacement and Hartmann’s operation were performed simultaneously.

**Case**

A 58-year-old man was admitted to a local hospital because of lumbago, leg exhaustion, and fever. Two days after hospitalization, he fell suddenly. A computed tomography (CT) scan showed cerebral infarction of the middle cerebral artery. After beginning antiplatelet therapy for the cerebral infarction, bloody stool was observed. Colonoscopy was performed to examine the entire colon for the presence of the hemorrhagic lesion; it revealed a hemorrhagic type 2 tumor in the rectum (Fig. 1). His serum carcinoembryonic antigen (CEA) level was 5.6 ng/ml. Histopathological examination revealed an adenocarcinoma. Surgery for rectal cancer was scheduled. Transthoracic echocardiography, performed preoperatively 30 days after he was admitted to hospital, revealed vegetation (14 × 8 mm) on the anterior leaflet of the mitral valve and severe mitral regurgitation (Fig. 2). Contraction of the left ventricle was good, and there was no congestive cardiac insufficiency. Blood culture showed a rise in coagulase-negative *Streptococcus bovis*. The patient was treated with imipenem · cilastatin sodium (IPM/CS) 2 g/day and Amikacin sulfate (AMK) 200 mg/
day for 3 weeks at the local hospital before being transferred to our hospital.

On examination, the patient’s blood pressure was 134/76 mmHg, the pulse rate was 66 beats per minute and regular, and his body temperature was 37.1°C. A Levine grade III regurgitant systolic murmur was loudest at the apical area, and left side hemiplegia and motor aphasia were observed. Laboratory examination revealed a white blood cell count of 7700/µl, C-reactive protein (CRP) level of 0.97 mg/dl, and hemoglobin level of 12.8 g/dl.

After being transferred to our hospital, the patient was treated with IPM/CS 2 g/day and AMK 200 mg/day. Although the infectious endocarditis was almost healed, and the patient seemed to be in a generally good condition, the bloody stools continued. The clinical diagnosis was infectious endocarditis caused by S. bovis with bleeding rectal cancer. Sixty-six days after he suffered the cerebral infarction and 4 days after being transferred to our hospital, mitral valve replacement and Hartmann’s operation were performed simultaneously. Median sternotomy was performed; and after the usual systemic heparinization, extracorporeal circulation was established through cannulating the ascending aorta and the inferior and superior vena cava. After aortic cross-clamping and cardioplegic arrest, the mitral valve was reached using the superior transseptal approach. Vegetation (10 mm) was located in the middle of the anterior leaflet of the mitral valve (AML, white arrow), and infection reached the middle scallop of the posterior leaflet (PML, black arrow) (Fig. 3). The anterior leaflet and middle scallop of the posterior leaflet of the mitral valve were excised, and mitral valve replacement (MVR). (Sorin Bicarbon valve 27 mm; Sorin Biomedica, Saluggia, Italy) was performed.

After MVR, the Hartmann’s operation was undertaken via a lower midline abdominal incision. The location of the rectal cancer was nearer the anus than diagnosed preoperatively and the wall of the rectum was edematous. Therefore, to avoid anastomotic leakage, Hartman’s operation with colostomy at the left hypogastric region was chosen rather than end-to-end anastomosis of the rectum. Although the lesion was hemorrhagic, a radical cure was expected.