



Case Report

Transcatheter aortic valve implantation in a patient with severe aortic valve stenosis, colon cancer, and obstructive ileus: A case report



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ABSTRACT

An 82-year-old woman with symptomatic severe aortic stenosis (AS) developed an obstructive ileus caused by colon cancer. Colectomy was considered a high-risk surgery due to both the severe AS and obstructive ileus. Therefore, we planned placement of a colonic stent for the obstructive ileus. After stenting, we performed transcatheter aortic valve implantation (TAVI) instead of surgical aortic valve replacement (SAVR), because of the risk of bleeding during extracorporeal circulation and the perioperative risk of AVR (Society of Thoracic Surgery predicted risk of mortality: 7.4%). Successful colonic stenting and TAVI allowed a safer colectomy. The period from TAVI to colectomy was 12 days. TAVI could be useful for symptomatic severe AS in high-risk patients prior to non-cardiac surgery, especially for malignant tumors.

<Learning objective: In patients with symptomatic severe aortic stenosis, aortic valve replacement is recommended prior to non-cardiac surgery. However, in patients with a malignancy, the complications due to the tumor and the risk of extracorporeal circulation remain a challenge in surgical aortic valve replacement. In such cases, transcatheter aortic valve implantation may be a useful option to reduce the incidence of complications and the time to surgery for the malignancy.>

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Introduction

Severe aortic stenosis (AS) is a known risk factor for mortality and morbidity in patients undergoing non-cardiac surgery [1]. In patients with symptomatic severe AS, surgical aortic valve replacement (SAVR) prior to non-cardiac surgery is recommended [2]. However, SAVR is considered a high-risk procedure in patients with frailty, history of coronary artery bypass grafting, porcelain aorta, or history of chest irradiation. For these patients, balloon aortic valvuloplasty (BAV) could be a therapeutic option [3]. Recently, transcatheter aortic valve implantation (TAVI) has emerged as an alternative for patients with intermediate or high surgical risk [4], but the usefulness of TAVI prior to non-cardiac surgery remains unclear.

We report a case in which preceding SAVR was difficult due to complex medical problems, and multiple therapies including TAVI were effective prior to non-cardiac surgery.

Case report

An 85-year-old woman without significant past medical history was referred to our hospital due to severe AS. She presented with symptoms of dyspnea on exertion and leg edema (New York Heart Association class III) for one month.

Echocardiography revealed severe AS (aortic valve area, 0.5 cm²; maximum jet velocity, 4.5 m/s; and mean aortic pressure gradient, 52 mmHg). She was found to have anemia (hemoglobin level: 8.9 mg/dl), and fiber optic colonoscopy confirmed advanced colon cancer in the ascending colon (Fig. 1A). On the 5th day after colonoscopy, the patient developed vomiting and was diagnosed with obstructive ileus due to ascending colon cancer (Fig. 1B). The patient was admitted with severe AS, obstructive ileus, and colon cancer.

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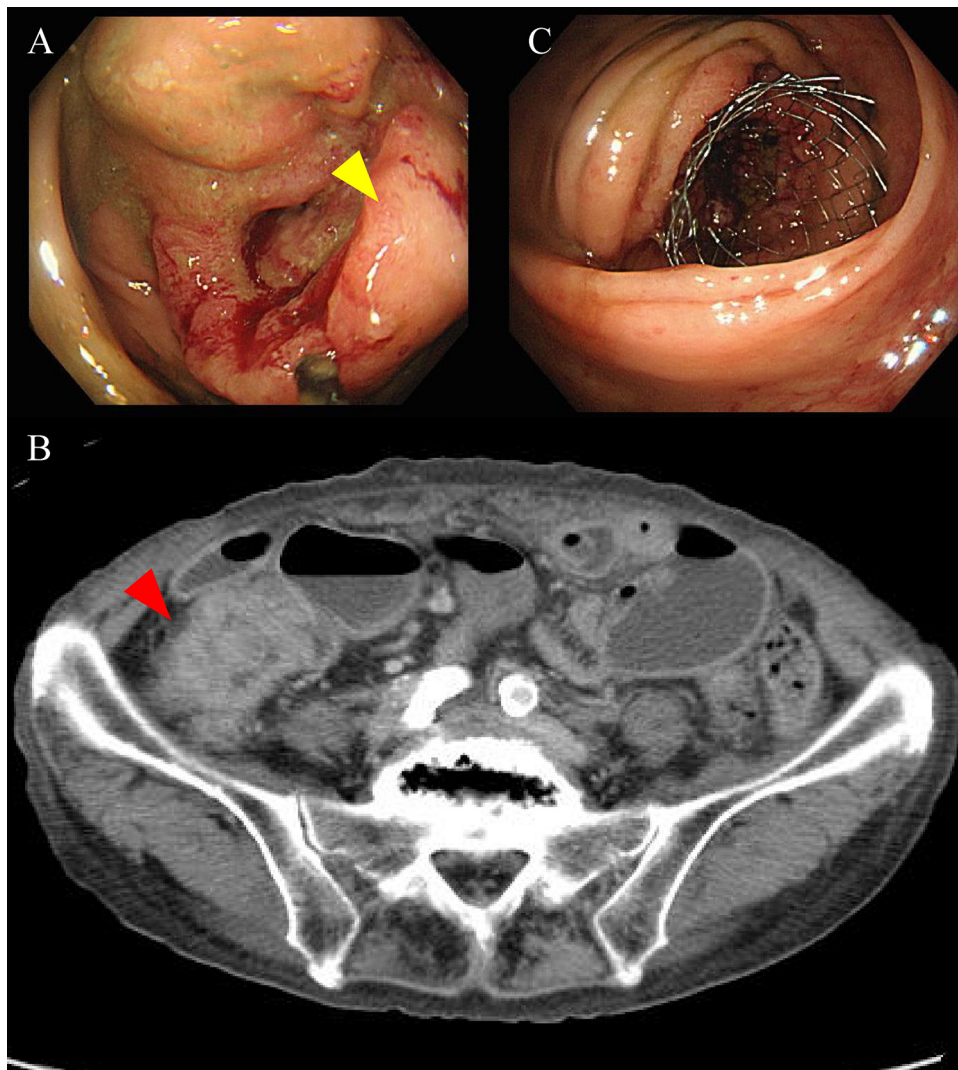


Fig. 1. (A) Colonoscopy showing advanced colon cancer (yellow arrowhead) and obstruction. (B) Contrast-enhanced computed tomography demonstrating colon cancer (red arrowhead) and obstructive ileus. (C) Colonic stenting resolved the obstruction caused by advanced colon cancer.

Colectomy for ascending colon cancer and obstructive ileus was recommended. However, the perioperative risk was high because the patient had symptomatic severe AS. Although preceding AVR was warranted based on European Society of Cardiology (ESC) guidelines [2], SAVR was high-risk because of potential bleeding during extracorporeal circulation and the perioperative risk of AVR (Society of Thoracic Surgery predicted risk of mortality: 7.4%). Furthermore, extracorporeal circulation during SAVR might increase the risk of cancer dissemination by immunosuppression [5]. The fluid therapy to maintain normovolemia for obstructive ileus was difficult due to severe AS. Considering the perioperative management of fluid therapy, obstructive ileus was also associated with an increased risk of both SAVR and colectomy.

A multidisciplinary cardiology team including interventional cardiologists and surgeons decided to place a colonic stent under endoscopic guidance to relieve colonic obstruction. After stenting on the 5th hospital day (Fig. 1C), we planned TAVI for severe AS.

Relief of obstructive ileus allowed the patient to undergo contrast-enhanced computed tomography (CT) and invasive coronary angiography (ICA). ICA revealed moderate stenosis in the midleft anterior descending artery and obtuse marginal artery.

Dual antiplatelet therapy for 6 months is recommended following an implantation of Sapien XT valve (Edwards Lifesciences, Irvine, CA, USA), but the patient had only been treated with aspirin in anticipation of colorectal surgery.

The patient underwent TAVI through the right femoral artery on the 23rd hospital day. A 23-mm Sapien XT valve was placed under fluoroscopic guidance (Fig. 2A). Complete correction of the transaortic pressure gradient from 63 mmHg to 11 mmHg was confirmed, and grade I aortic regurgitation was observed by angiography after valve replacement (Fig. 2B).

After successful TAVI, the patient remained on aspirin and underwent ileocecal resection and three-field lymph node dissection on the 35th hospital day. There were no complications, including bleeding, ischemic stroke, or valve thrombosis, after surgery. The pathological diagnosis was T3, N1, M0 tubular adenocarcinoma, pathological Stage IIIb. The patient was discharged on the 53rd hospital day.

Discussion

Severe AS is considered a high-risk indicator of cardiac complications during non-cardiac surgery [1]. Hypotension and

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