Cutaneo-pericardial fistula after transapical aortic valve implantation

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Abstract

Transcatheter aortic valve implantation (TAVI) represents a therapeutic option of increasing impact for the treatment of high-risk patients with symptomatic, severe aortic valve stenosis. We report here the case of an 86-year-old patient with a cutaneo-pericardial fistula after a transapical TAVI procedure.

Keywords: Transcatheter aortic valve implantation • Complications • Wound healing

INTRODUCTION

Transcatheter aortic valve implantation (TAVI) represents a therapeutic option of growing clinical significance for high-risk patients with severe aortic valve stenosis. Several access sites have been established for TAVI procedures. Among those, retrograde implantation via the femoral artery and antegrade, transapical valve implantation through a left-sided mini-thoracotomy are the most commonly used access sites [1].

As demonstrated by the recent PARTNER-Trial, TAVI is a safe and effective therapy in a carefully selected patient population [2].

In addition to the increasing knowledge about cardiovascular complications of TAVI procedures, these patients are also at moderate risk for local complications, including impaired wound healing, which may not only prolong individual in-hospital stay, but also influence the outcome and quality of life of this fragile patient population.

CASE

An 87-year-old female patient was referred to our department with a recurrent infection and fistula formation at the submammarian access site after transapical TAVI at another hospital 8 months previously. There, she had repeatedly undergone surgical wound debridement and vacuum therapy as well as systemic, antibiotic treatment after wound swab tests had detected Staphylococcus aureus.

On admission, the patient showed no signs of fever and was haemodynamically stable. In the absence of any antibiotic treatment at that point of time, blood counts showed slightly elevated total leucocyte levels (10.58 leucocytes/ml) and C-reactive protein (6.2 mg/l, reference range <5 mg/l). Every other parameter appeared to be within the reference range. She suffered from a non-insulin-dependent Type II diabetes mellitus treated with metformin (1700 mg/day) and vitamin B6 (100 mg/day) and arterial hypertension, for which she received ramipril (2.5 mg/day) and bisoprolol (10 mg/day). The patient had undergone coronary artery bypass grafting in 2001 and took acetylsalicylic acid (100 mg/day).

A preoperatively performed computed tomography verified a fistula with marked inflammation of the underlying subcutaneous tissue and the associated thoracic wall including the left costodiaphragmatic recess as well as the adjacent pericardial sack (Fig. 1). Surgical revision was performed 2 days after admission. Methylene blue application into the fistula duct revealed that the fistula had not only extended to the pericardial sack, but also included the pledgets of the purse-string sutures used to close the left ventricular access site for TAVI. Local swabs were taken. As depicted in Fig. 2, the pledgets were carefully removed. Afterwards, the access site was secured using a bovine pericardial patch. In addition, the infectious tissue was removed, including parts of the fifth and sixth rib. We placed two redon tubes, one subcutaneously and one under the pectoral muscle. The patient was extubated shortly after arrival in the intensive care unit and transferred to the ward on the same day, but suffered from postoperative delirium for 2 days. Swab cultures revealed a wound infection with extended-spectrum beta-lactamase producing Proteus mirabilis that was treated according to the respective antibiotic sensitivity testing with ciprofloxacin. Redon tubes were left for 7 days postoperatively. The patient was discharged on postoperative day 10. No signs of a recurring infection could be found up to 3 months later.

COMMENT

Here, we report the case of a recurrent, deep access site infection after transapical aortic valve implantation. The source of this infection involved the felt sutures that had been used for left ventricular apex closure. Only after removal of these sutures and reconstruction with pericardial patches, was persistent recovery
achieved. Until now, we have treated this complication in 1 additional patient. In contrast to the report of other groups, BioGlue was not used [3].

To our knowledge, studies investigating the rate of wound infections after transapical TAVI as well as their potential impact on patient outcome have been rare yet. However, risk factors facilitating impaired wound healing likely overlap with those already established in other areas of surgery, including obesity and diabetes mellitus [4]. Thus, these patients should also receive intensified care when undergoing TAVI. Furthermore, in case of any sign suggesting local infection, surgeons with expertise in wound revision should be consulted immediately. In addition, we feel that TAVI procedures have to be performed under true sterile conditions in hybrid operating theatres, while catheter lab settings should be avoided. Overall, the transapical access site opening and closure still need to undergo repeated evaluation and standardization in order to improve performance quality and avoid additional complications in these high-risk patients.

Conflict of interest: none declared.

REFERENCES