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Case Series

Distortion of the CoreValve during transcatheter aortic valve-in-valve implantation due to valve dislocation

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ABSTRACT

Nowadays transcatheter aortic valve implantation (TAVI) is an accepted alternative to surgical aortic valve replacement for high-risk patients (pts). Successful TAVI procedures for failed aortic surgical bioprosthesis (TAV-in-SAV) have already been reported. In the presented two cases of TAV-in-SAV implantation a strut distortion of the stent was revealed on angiographic imaging and confirmed on control CT scan. In both procedures, a dislocation of the medtronic core valve (MCV) prosthesis during implantation led to valve retrieval, with a necessity of reloading it in the 18F introducer before subsequent implantation of the same valve in correct position.

1. Introduction

Transcatheter aortic valve implantation emerged as a new treatment alternative to standard surgical aortic valve replacement for patients with aortic stenosis and a high risk for conventional surgery [1,2]. It also appears a promising alternative to redo surgery for failed surgical bioprosthetic aortic valve in patients at high risk for conventional surgery [3–8]. According to the 'Transcatheter Valve Treatment Sentinel Pilot Registry' comprising 4571 patients, TAV-in-SAV implantations have been performed in 1.7% of patients [9]. During TAVI procedure, a valve dislocation during implantation is always possible. It is defined as a partial or complete valve expansion with its lower inflow portion positioned above the aortic annulus [10]. When using a self-expandable CoreValve prosthesis, and the valve is partially expanded but still anchored in the housing sheath, retrieval of the valve into the 18 F introducer is very often feasible [10,11]. Here we report two proctored procedures with such events including valve retrieval and reloading it into the 18 F introducer, successful placement but with subsequent finding of a distorted valve. To the best of our knowledge no such complication during "valve-in-valve" procedure resulting in valve distortion has been reported so far.

2. Case reports

2.1. Patient # 1

The first patient was a 79 year-old man with severe stenosis of a St Jude medical 25 bioprosthesis (Saint-Jude Medical Epic®) implanted in 2008. At the same time he underwent coronary bypass surgery with left internal mammary artery (LIMA) to the left anterior descending artery (LAD) and saphenous vein grafts implanted to diagonal and right coronary arteries respectively. Co-morbidities included type 2 diabetes mellitus and hypertension. His right internal carotid artery was significantly stenosed (75%). He experienced shortness of breath and several episodes of syncope. Transthoracic echocardiography (TTE) revealed a degenerated fibrotic bioprosthesis with severe stenosis (mean gradient of 58 mmHg, valve area index 0.32 cm^2/m^2) with an aortic insufficiency grade 2 and left ventricle ejection fraction (LVEF) of 45%. The Logistic EuroSCORE was 31.6%.

All bypass grafts were patent. The patient was considered by the heart team to be at high risk of standard open-heart redo surgery and therefore was referred for TAVI.

The procedure was performed in general anaesthesia using left femoral artery. A 26 mm MCV was chosen in accordance to the 23 mm of inner diameter of the 25 mm St-Jude bioprosthesis [12]. During the first attempt of implantation, the valve jumped out into the ascending aorta and was subsequently pulled to the descending aorta where it was successfully reloaded into the 18 F sheath. (Fig. 1A, B). A

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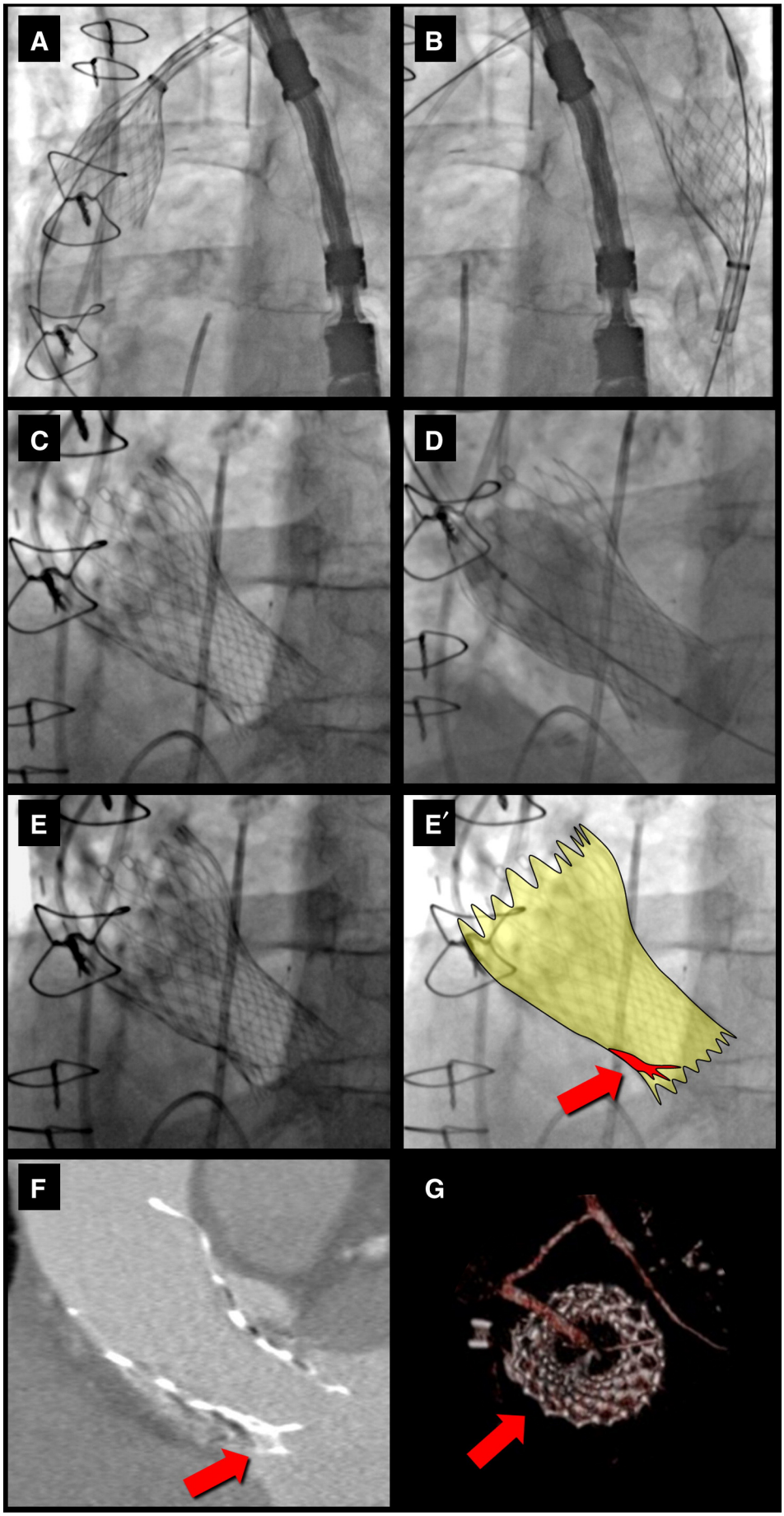
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