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IMAGES IN INTERVENTION

Post-Implantation Repositioning of the CoreValve Percutaneous Aortic Valve

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A 76-year-old man presented with congestive heart failure on the basis of severe aortic stenosis (AS). Echocardiography confirmed severe calcific AS (mean gradient = 45 mm Hg, peak gradient = 78 mm Hg, aortic valve area = 0.5 cm^2, annulus diameter = 25 mm) and globally depressed left ventricular (LV) function (ejection fraction = 30%). He was considered high-risk for surgical valve replacement (Logistic Euroscore = 37.8%) and referred for transfemoral percutaneous aortic valve implantation. A 29-mm self-expanding CoreValve ReValving System (CoreValve Inc., Irvine, California) prosthesis was implanted retrogradely (1). Low suboptimal prosthesis placement was confirmed angiographically (Fig. 1A) and by the presence of hemodynamically severe acute aortic regurgitation (AR) (Fig. 1B) (2). The upper part of the prosthesis was snared (Fig. 2A) with a 30-mm Amplatz GooseNeck (ev3 Inc., Plymouth, Min-

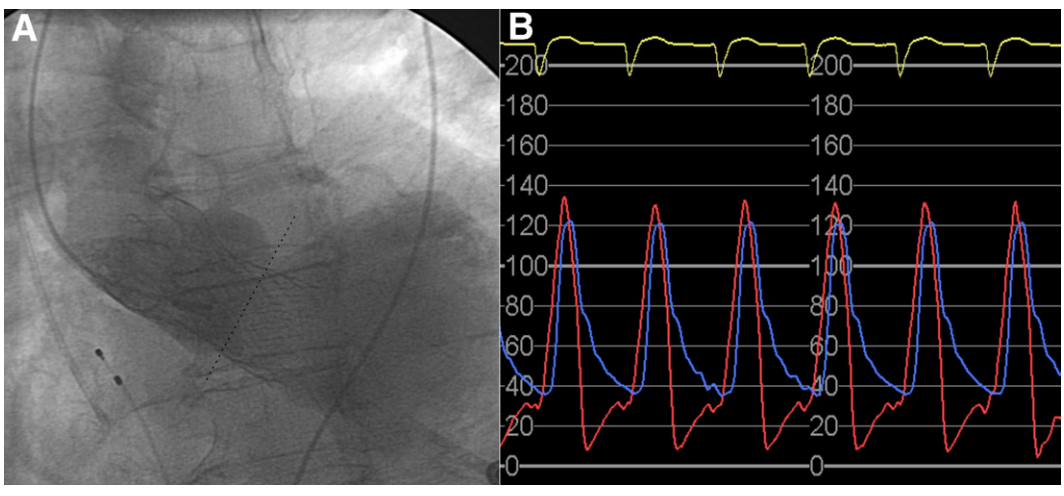

Figure 1. Aortography and Pressure Tracings Immediately After CoreValve Implantation

(A) Post-implantation aortography documenting low implantation of the CoreValve relative to the aortic annulus **(broken line)**, resulting in severe acute aortic regurgitation. **(B)** Simultaneous aortic **(blue)** and left ventricular **(red)** pressure tracings showing a wide aortic pulse pressure (±85 mm Hg) and equalization of diastolic pressures in late diastole confirming severe aortic regurgitation.

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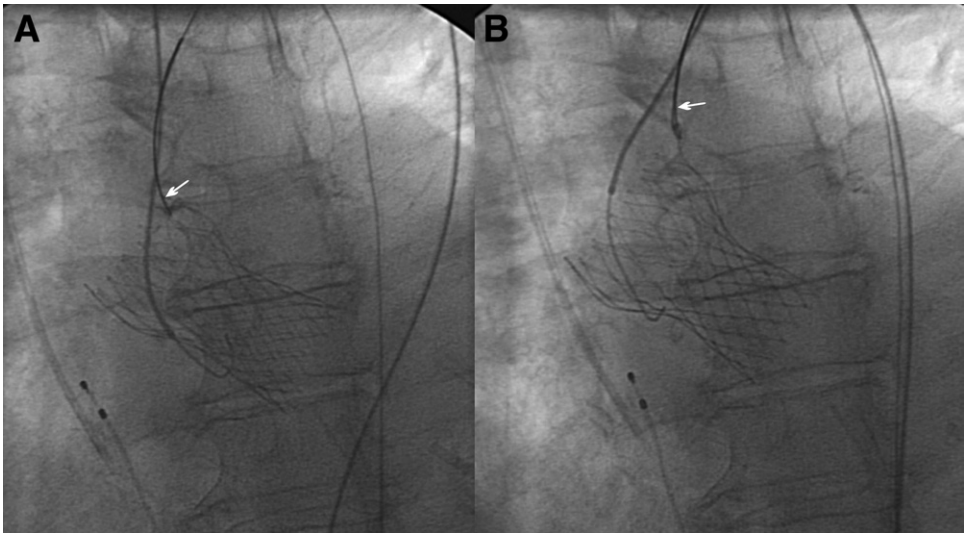

Figure 2. Snaring the CoreValve

Fluoroscopic images demonstrating the CoreValve snared with an Amplatz **(arrow)** GooseNeck **(A)** and then pulled into a more proximal position **(B)**.

nesota). Gentle, continuous traction was applied to the prosthesis with the gooseneck for up to 5 min until proximal displacement visually occurred during fluoroscopy (Fig. 2B). Pulling on the prosthesis with jerky and jarring movements should be avoided. Aortography (Fig. 3A) and hemodynamic monitoring (Fig. 3B) confirmed reduction in AR severity. At 6-month follow-up, the patient was asymptomatic, and echocardiography showed recovery of LV function (ejection fraction = 50%) and residual moderate AR.

Low implantation of the CoreValve might result in severe acute AR. This case highlights the importance of hemodynamic assessment of post-procedural AR severity in addition to angiographic evaluation of the paravalvular leak in evaluating the LV tolerance of the regurgitation. The experience with transcatheter aortic valve implantation does

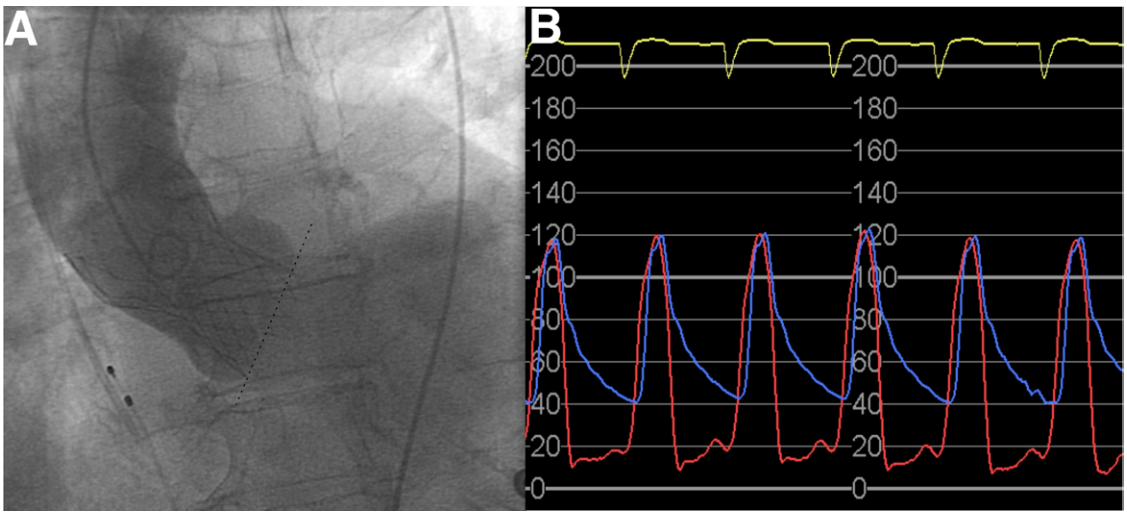

Figure 3. Final Aortography and Pressure Tracings After Repositioning the CoreValve

Final aortography **(A)** demonstrating a better CoreValve position in relation to the native aortic annulus **(broken line)** with reduction of the severity of aortic regurgitation, which was confirmed hemodynamically **(B)** by the finding of a pressure difference in late diastole between the aorta **(blue)** and left ventricle **(red)**.

not differ from balloon aortic valvuloplasty where grade III AR could be well-tolerated in the presence of LV hypertrophy, whereas grade II AR might be poorly tolerated if LV function is depressed. Repositioning of the CoreValve by snaring is feasible and might reduce the severity of AR. However, this high-risk maneuver should be performed cautiously, because it might result in prosthesis embolization into the ascending aorta. If the operator is concerned about the risk of valve embolization, implanting an Edwards-Sapien valve (Edwards Life Sciences, Irvine, California) or another CoreValve inside the first with the valve-in-valve technique could be considered an alternative procedure.

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