

IMAGES IN INTERVENTION

Emergent Extracorporeal Circulation for Refractory Ventricular Fibrillation via Transapical Cannulation as an Arterial Line During Transapical Transcatheter Aortic Valve Replacement



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An 84-year-old woman with severe aortic stenosis presented for transapical transcatheter aortic valve replacement because her aorta was severely calcified and tortuous.

We inserted a 24-F sheath into the left ventricle and performed balloon aortic valvuloplasty with a 20-mm balloon under rapid pacing (Figure 1A). We then immediately deployed a 23-mm SAPIEN XT valve (Edwards Lifesciences, Irvine, California) (Figure 1B, Online Videos 1 and 2). As refractory ventricular fibrillation occurred, we cannulated the ascending aorta as an arterial line via the apical sheath through the bioprosthetic valve (Figure 1C, Online Video 3). Thereafter, we confirmed the intact right coronary artery (Figure 1D). Extracorporeal circulation (ECC) stabilized her hemodynamics,

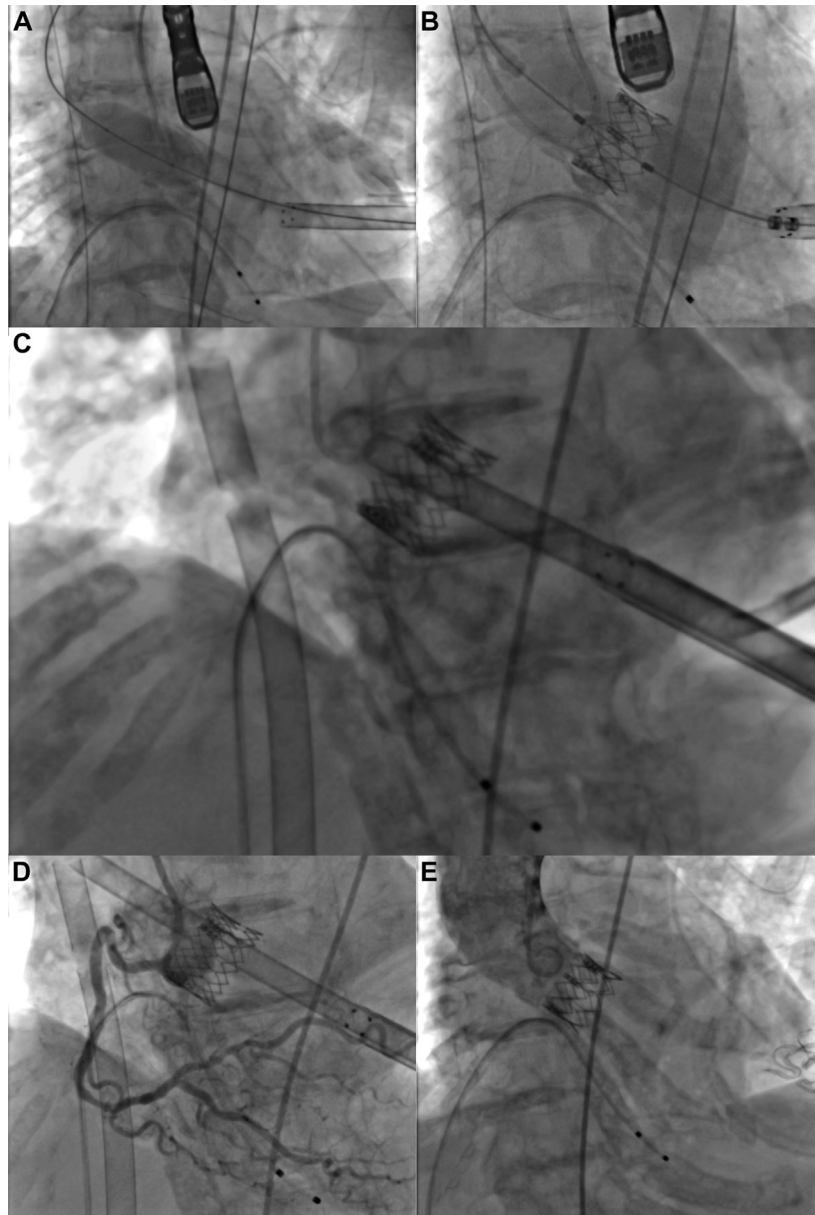
and electrical defibrillation was successful 25 min later. ECC was withdrawn after retrieving the apical sheath and confirming complete hemostasis (Figure 1E).

ECC can be used to stabilize a patient's condition and to achieve hemodynamic stability during transcatheter aortic valve replacement, especially after rapid pacing (1). Transapical cannulation is the fastest and safest access in patients with a severe atherosclerotic aorta (2).

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FIGURE 1 The Procedure

(A) Balloon aortic valvuloplasty is performed with a 20-mm balloon that slightly slipped to the ascending aorta ([Online Video 1](#)). (B) A 23-mm SAPIEN XT valve (Edwards Lifesciences, Irvine, California) is deployed ([Online Video 2](#)). (C) Emergent extracorporeal circulation is established with an arterial line via the apical sheath ([Online Video 3](#)). (D) Right coronary artery occlusion is absent. (E) Extracorporeal circulation is successfully withdrawn, and no aortic regurgitation is noted.

REFERENCES

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KEY WORDS extracorporeal circulation, transapical, transcatheter aortic valve replacement, ventricular fibrillation

APPENDIX For supplemental videos and their legends, please see the online version of this article.