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Commentary: Organized chaos: An acute type A dissection complicating transcatheter aortic valve replacement

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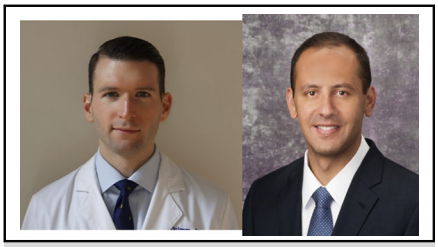

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CENTRAL MESSAGE

An acute type A aortic dissection during a transcatheter aortic valve procedure is a dreaded complication in an already-comprised patient demographic. Prompt identification and a calculated approach to management are critical elements of a rescue strategy to avoid untoward outcomes.

Type A aortic dissection complicating cardiac operations and transcatheter procedures is a rare, but potentially devastating, event. While it is fortunately not common (<0.5%) following transcatheter aortic valve replacement (TAVR), there are several reports outlining successful management strategies using both surgical and endovascular approaches.[1] Cangut and Greason[2] present a challenging case of a frail 79-year-old female patient undergoing TAVR for severe aortic stenosis with difficult arch anatomy who suffered a retrograde type A dissection with a tear in the proximal descending thoracic aorta and extension to the sinus segment. The authors deployed the valve successfully, quickly converted to sternotomy, and used circulatory arrest to perform a felt reinforcement of the sinotubular junction and an ascending hemiarch replacement. On most recent follow-up (44 months), echocardiogram demonstrated a stable root and good valve function.

Discussions regarding the untoward consequences of TAVR have become increasingly germane as this technology, while initially reserved to those deemed inoperable, continues to expand to lower-risk cohorts. In a patient who could otherwise tolerate a traditional open procedure, the decision to proceed with a definitive open repair of dissection in this setting is straightforward. The algorithm is understandably more nuanced in those at prohibitive risk for a complex operation with the understanding that medical management confers substantial in-hospital mortality (>50%).[3]

Once a dissection has been identified, direct aortic or femoral artery true lumen cannulation should be confirmed in an expeditious fashion with the assistance of echocardiography. Without detailed contrast imaging, identification of the entry tear can be challenging, but it should nevertheless be resected or addressed with stenting if possible. It is our practice to reconstruct the sinus segment with felt neomedia, as the freedom from proximal reintervention exceeds 90% at 10 years.[4] If the root is not salvageable due to extensive destruction, a formal root procedure should be performed. Similarly, a distal operation should be executed with careful consideration of the degree of arch involvement and the patient's ability to tolerate a prolonged circulatory arrest. In most cases, an aggressive transverse hemiarch with felt reinforcement is adequate so long as a large fenestration is not present in zones 1-3.[5] In the current report, the authors comment on a proximal descending thoracic aorta tear, which was not directly stabilized. The addition of an antegrade stent has been shown to promote distal remodeling[6] and could be deployed in a relatively straightforward fashion in the hybrid suite with a complete appreciation of preoperative aortic dimensions.

The ability to rescue this patient from a devastating complication highlights one of the many critical

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contributions that surgeons afford TAVR. We must continue to be actively engaged in these procedures to ensure excellent outcomes across all risk cohorts.

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