THROMBUS WITHIN A STENT GRAFT

To the Editor:

We were intrigued by the study conducted by Ibrahim and colleagues, which revealed that 6.25% of 128 patients who underwent aortic arch replacement surgery with the Thoraflex prosthesis (Terumo Aortic) experienced in-stent thrombus complications. This study brings attention to a relatively underdocumented complication associated with 1 of the 5 hybrid prostheses available globally for aortic arch surgery.

Upon reviewing the literature, we found 2 studies that reported thrombus formation within the stented segment of the Thoraflex prosthesis. Walter and colleagues reported a 6% incidence of in-stent thrombus in a cohort of 304 patients with Thoraflex devices, whereas Martens and colleagues documented an 8.5% occurrence in a series of 281 patients.

The E-vita Open Plus and E-vita Open Neo hybrid prostheses from Artivion, not yet approved for use in the United States, offer an alternative to the Thoraflex prosthesis. Studies on thromboembolic complications with the E-vita Open devices have not reported in-stent thrombus formation. For example, the international E-vita Open multicenter registry, including 1165 patients from 19 European centers, revealed a 3% incidence of peripheral ischemia without any cases of in-stent thrombus formation.

In our cardiac surgery department at Poitiers Hospital, no cases of in-stent thrombus have been reported among the 25 patients who underwent aortic arch replacement with the E-vita Open prosthesis. Unlike the Thoraflex prosthesis, which features a ringed nitinol stent covered with polyester, the E-vita Open device utilizes a flexible, Z-shaped nitinol wire covered with polyester for the stent portion. We believe that the Z-shaped design of the E-vita Open stent provides better position within the aorta and improved intra-aortic conformation, particularly in cases of aortic angulation. In contrast, the rings of the Thoraflex stent may not maintain consistent spacing, potentially leading to turbulent blood flow and promoting thrombotic events. Moreover, this theory is consistent with Ibrahim and colleagues and Coselli, who suggest that stent length is a risk factor for in-stent thrombus.

This hypothesis is supported by existing literature on in-stent thrombus formation in thoracic aortic endovascular repair. Given the reported incidence of in-stent thrombus ranging from 6% to 8.5% with Thoraflex, we suggest that Terumo Aortic should investigate the underlying factors contributing to this complication through further research.

Regular monitoring of postoperative patients using computed tomography scans before hospital discharge is essential for early detection, evaluation, and management of in-stent thrombus complications.

Bobiet Aurélien, MD
Géraldine Allain, MD, PhD
Pierre Corbi, MD, PhD
Jamil Hajj-Chahine, MD
Christophe Jayle, MD, PhD
Department of Thoracic and Cardiovascular Surgery
University Hospital of Poitiers
Poitiers, France

Conflict of Interest Statement

The authors reported no conflicts of interest.

The Journal policy requires editors and reviewers to disclose conflicts of interest and to decline handling manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

References