Pseudo-coarctation Following TEVAR in a Young Triathlete

P.O. Myers a,*, A. Kalangos a, A. Panos b

a Division of Cardiovascular Surgery, Geneva University Hospitals & School of Medicine, Geneva, Switzerland
b Division of Cardiac Surgery, Hygeia Hospital, Athens, Greece

INTRODUCTION
Thoracic endovascular aortic repair (TEVAR) has become the main modality for treatment of traumatic aortic isthmus rupture. The long-term complications of TEVAR may be more important in a young patient population.

A 27-year-old male triathlete was an urgent admission to another institution after a motor vehicle accident; he was intubated and in shock. The CT scan showed a grade III rupture of the aortic isthmus and was treated urgently with a Gore TAG endograft (W.L. Gore and Associates, Flagstaff, AZ, USA), covering the ostium of the left subclavian artery. He had an uncomplicated postoperative course and was discharged on the 6th postoperative day. At 6 months' follow-up, the patient's blood pressure was within normal range without antihypertensive medications, and he resumed training normally. The CT scan showed stability and a favorable result.

DISCUSSION
In a recent meta-analysis, Jonker et al. reported significantly lower mortality and fewer pulmonary complications in the TEVAR group than the surgery group, despite the fact that patients in the TEVAR group had more major injuries. Despite numerous encouraging reports from a large number of publications in favor of TEVAR in the acute phase of
traumatic aortic injuries, there remains a lack of evidence to support an improvement in overall survival compared with traditional surgical treatment. Device collapse is a phenomenon observed in 1–19% of TEVAR repairs for blunt thoracic aorta injury, and is primarily attributable to excessive device oversizing combined with a tight aortic curvature radius. While typically noted within 30 days of treatment, late device collapses have been reported up to 6 years after TEVAR and have been most commonly been reported with the Gore TAG device.

Device durability after TEVAR is another issue in this patient population. Clinical trials of endovascular stent grafts regulated by the FDA typically mandate patient follow-up for 5 years after treatment. Pulsatile fatigue testing of thoracic endografts is generally simulated over 400 million cycles, equivalent to 10 years in vivo. This testing is adequate for the study of thoracic aortic aneurysm, since the typical patient lifespan after TEVAR is 7 years. However, survivors of TEVAR for blunt thoracic aortic injury have an expected lifespan of several decades, and long-term device durability becomes a major concern and current stent graft evaluation methods are likely inadequate.

CONFLICT OF INTEREST/FUNDING
None.

REFERENCES