

Introduction

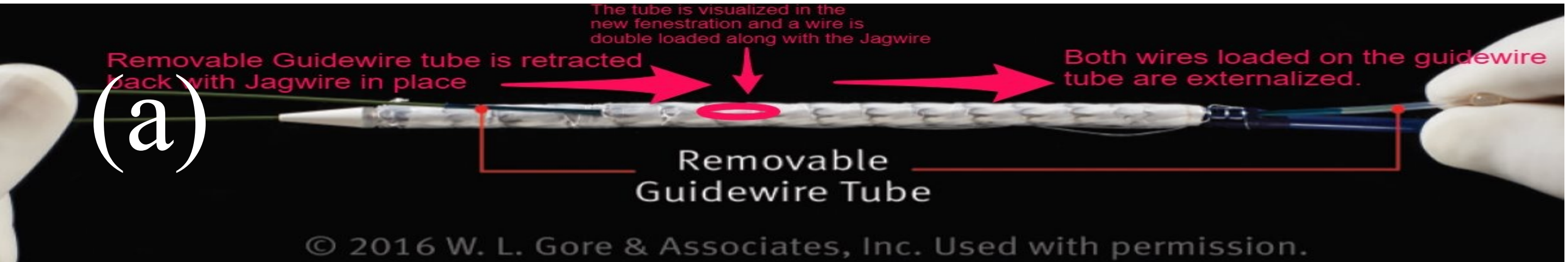
- Endovascular treatment of Zone 0 aortic arch disease (extending from aortic valve annulus to the innominate artery origin) remains challenging.
- The Thoracic Branch Endoprosthesis (W. L. Gore and associates, Inc.) is the only FDA-approved option for Zone 0 and requires complete cervical debranching, increasing operative time and complication risk.
- Physician-modified TBE has been described to allow incorporation of the innominate and subclavian arteries while limiting cervical reconstruction.
- We are reporting our initial experience using this technique

Patients Presentation

Preoperative Management

- Two patients underwent physician-modified Zone 0 Thoracic Branch Endoprosthesis repair.
- Preoperative planning was done using centerline imaging to determine the distance and rotational orientation between innominate and subclavian arteries.
- Device was modified on back-table by creating a reinforced fenestration for the left subclavian artery and preloading a JR4 catheter to facilitate branch cannulation.

- Figure 1. Gore Thoracic Branch Endoprosthesis pre- (a) and post-modification (b)



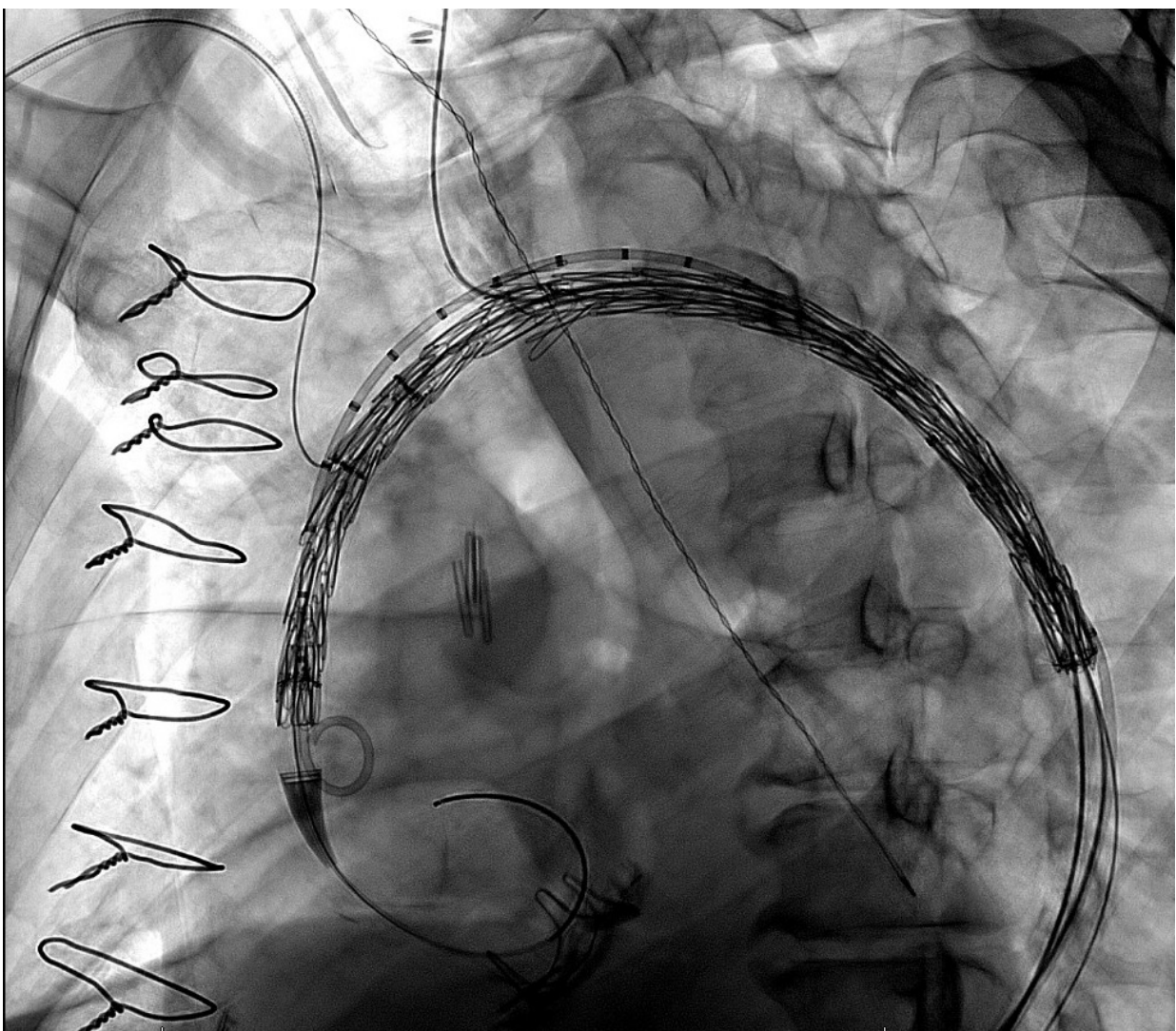
Baseline Characteristics

Characteristic	Patient 1	Patient 2
Age / Sex	70 y.o. Male	66 y.o. Female
Pathology	Chronic Type B Dissection + arch/TAA degeneration	Rapid degeneration after Type A repair
Reason for Modified Thoracic Branch Endoprosthesis	Declined open repair	Arch anatomy unsuitable for standard Thoracic Branch Endoprosthesis
Cervical Revascularization	Carotid-subclavian bypass	Carotid-subclavian transposition

Surgical Course

Intraoperative Images

- Figure 2. Cannulation of the innominate and left carotid artery



- Figure 3. Thoracic Branch Endoprosthesis deployment



- Figure 4. Final angiogram with stents in the innominate and left carotid artery



Postoperative Outcomes

Outcome	Patient 1	Patient 2
Technical Success	Yes	Yes
Stroke	No	No
Endoleak	No	No
Mortality	No	No
Reintervention	No	No
Discharge Date	Post-op Day 2	Post-op Day 9
Complication	None	Pulmonary Embolism

- Patient A underwent staged carotid-subclavian bypass followed by modified Thoracic Branch Endoprosthesis repair and was discharged home on postoperative day two without complications.
- Patient B underwent carotid-subclavian transposition followed by modified Thoracic Branch Endoprosthesis repair during the same operation. Her postoperative course was complicated by a pulmonary embolism, prolonging her hospital stay, but she had no device-related complications.
- Both patients had successful exclusion of the arch pathology with preservation of supra-aortic branch perfusion

Conclusions

- Our experience suggests physician-modified Zone 0 Thoracic Branch Endoprosthesis repair is a feasible option for select patients who are poor candidates for open repair or standard branched devices.
- Our early outcomes are encouraging with no neurological or device complications.
- Larger series with longer follow-up are needed to better define the durability and safety of this approach