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James K. Wu MD

Lehigh Valley Health Network, james.wu@lvhn.org

Caitlin O'Connor BS

Lehigh Valley Health Network

Tim S. Misselbeck MD

Lehigh Valley Health Network, Timothy_S.Misselbeck@lvhn.org

Theodore G. Phillips MD

Lehigh Valley Health Network, Theodore.Phillips@lvhn.org

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De-branching of the Aortic Arch During Thoracic Endovascular Aortic Repair

James Wu, MD; Caitlin O'Connor, BS; Timothy Misselbeck, MD; Theodore Phillips, MD; Division of Cardiothoracic Surgery, Department of Surgery
Lehigh Valley Health Network, Allentown, Pennsylvania

Objective

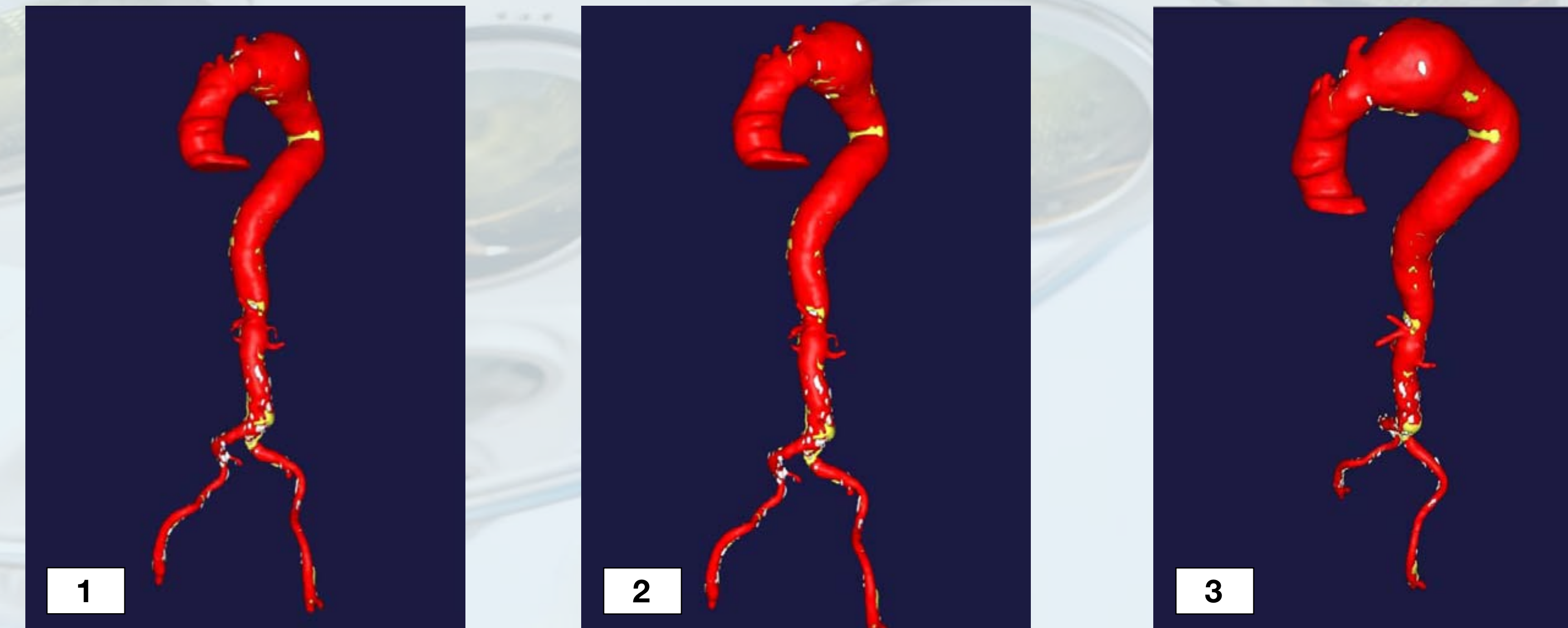
Aortic arch diseases are difficult to treat with open surgical repair. We evaluated aortic arch de-branching with thoracic endovascular aortic repair (TEVAR) as an emerging alternative to treat this problem.

Methods

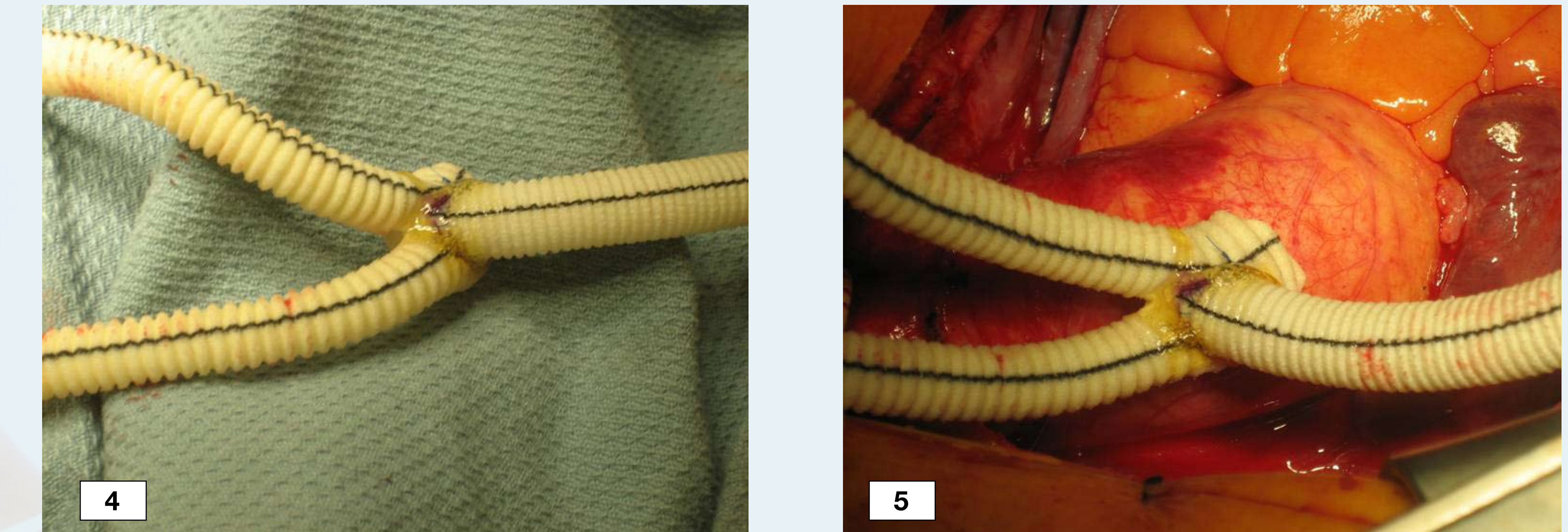
We retrospectively reviewed our seven consecutive TEVAR de-branching patients from January 2010 to June 2011 at our institution from electronic medical records and office charts.

Results

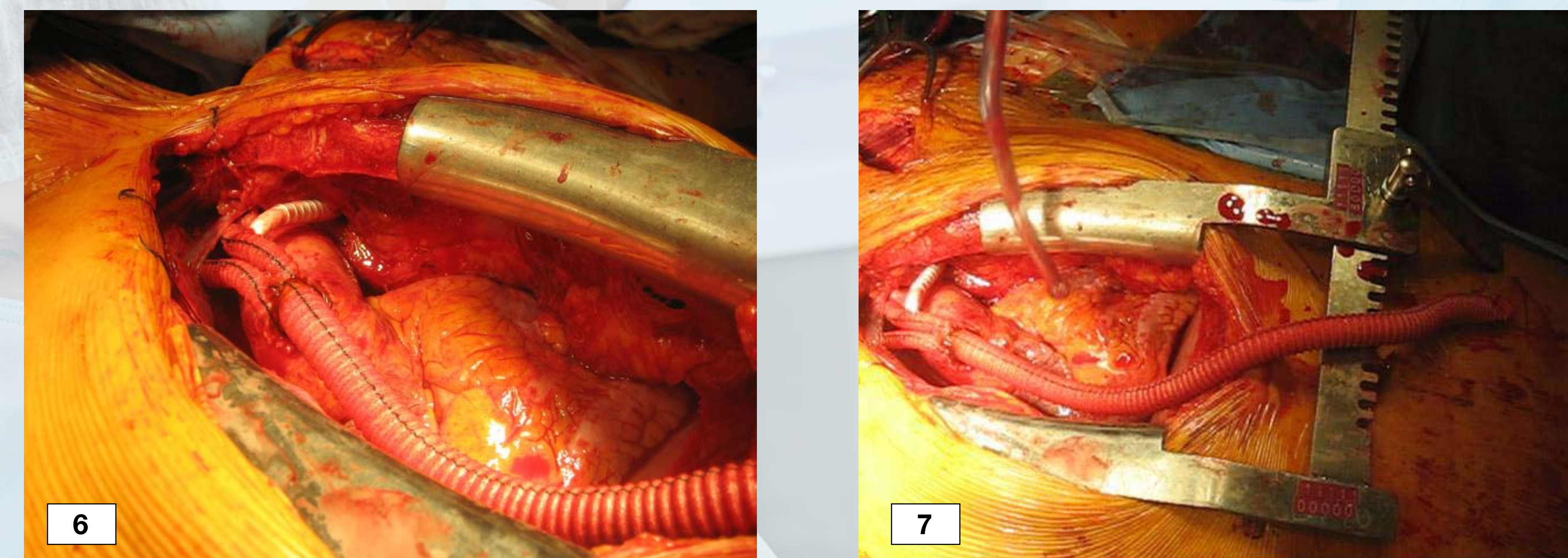
All patients were male. The mean age was 72.6 years (range 57-83). Co-morbid conditions were HTN, PVD, COPD, CAD, history of tobacco use, and history of abdominal and thoracic aortic aneurysm. Postoperative complications included atrial fibrillation (n=5), acute renal failure without requiring dialysis (n=2), mental status changes (n=1), ventricular tachycardia in (n=1) and aortic rupture (n=1). Length of hospital stay ranged from 6-10 days. In-house post-operative mortality was 14.3% (n=1).



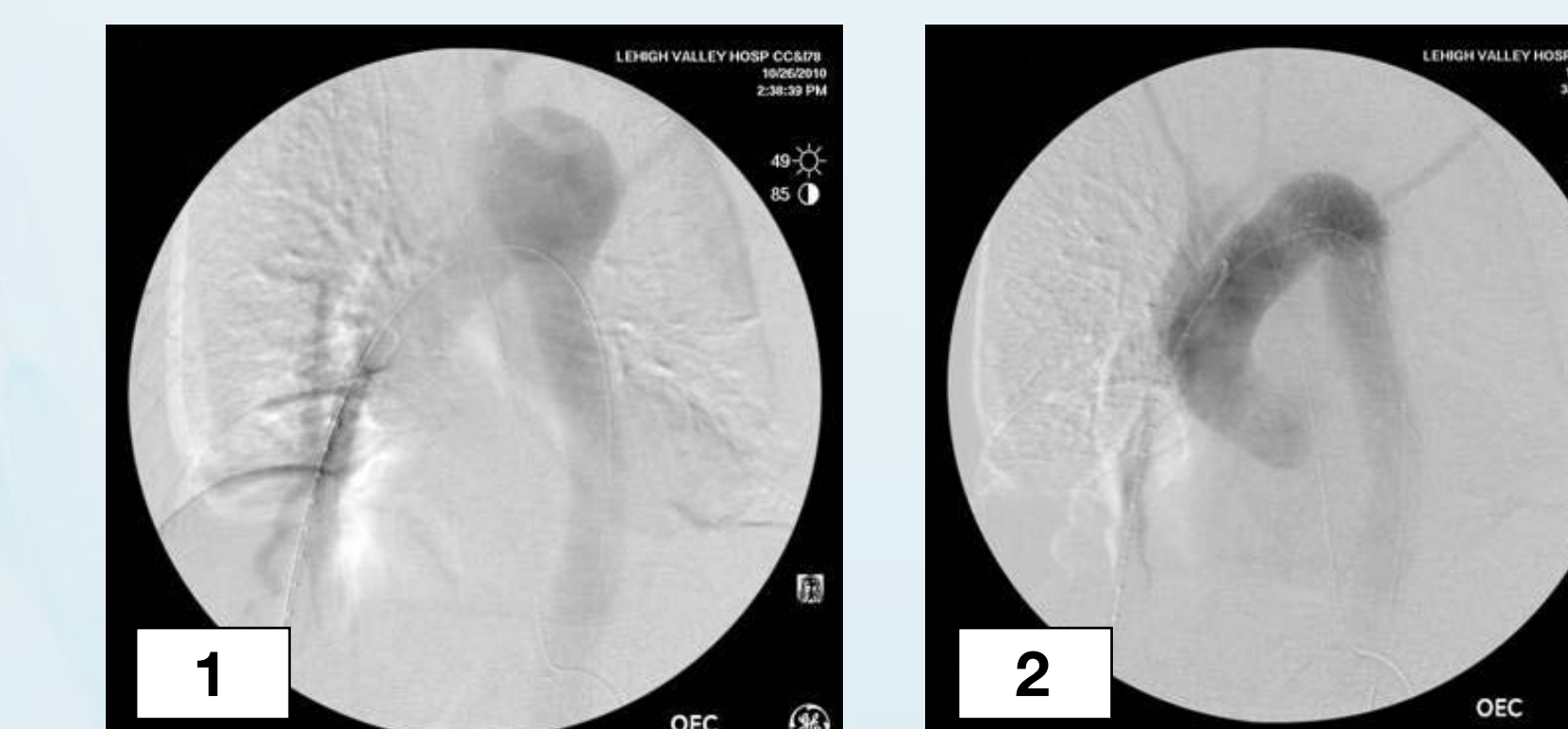
Figures 1-3: Preoperative CT angiography of complex aortic arch aneurysm.



Figures 4-5: Custom made grafts for debranching procedure.



Figures 6-7: Completed aortic arch debranching - in situ.



Angio 1: Intraoperative angiogram prior to TEVAR deployment.

Angio 2: Intraoperative angiogram after TEVAR deployment showing exclusion of aneurysm.

Table 1. Comorbidities	
Hypertension	
Peripheral Vascular Disease	
COPD	
Coronary Artery Disease	
Tobacco Abuse	
Abdominal Aortic Aneurysmal Disease	

Table 2. Complications in Patients Undergoing Aortic Arch Debranching	
Atrial Fibrillation	5
Acute Renal Failure: Requiring Hemodialysis	2
Mental Status Changes	1
Ventricular Tachycardia	1
Aortic Rupture	1

Conclusion

Aortic arch de-branching with TEVAR technique allows surgeons to operate on patients with difficult aortic arch disease problems. This technique is feasible and relatively safe compared to the conventional technique. Aortic dissection is a devastating complication.

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