

HYBRID REPAIR OF TAAA WITH ELECTROSURGICAL SEPTOTOTOMY, TAMBE, AND OPEN REPAIR OF INFRARENAL ANEURYSMS



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BACKGROUND/INTRODUCTION

- Thoracoabdominal aortic aneurysms (TAAA) in patients with chronic aortic dissection and complex iliac anatomy present significant challenges for conventional open and endovascular repair.
- A narrow true lumen may limit endovascular device delivery, while extensive iliac aneurysmal disease can preclude standard fenestrated or branched repair.
- Total open repair may carry increased morbidity in patients with significant comorbidities, including chronic obstructive pulmonary disease (COPD).
- We describe a staged hybrid approach combining electrosurgical septotomy, thoracoabdominal branched endovascular repair (TAMBE), and open infrarenal reconstruction.

PATIENT INFORMATION

- **Patient:** 56-year-old male with tobacco use, COPD, and prior Stanford type A aortic dissection status post open repair and thoracic endovascular aortic repair (TEVAR) in 2023.
- **Presentation:** Chronic type B aortic dissection with associated thoracoabdominal aortic and bilateral common iliac artery aneurysms.
- **Indication for repair:** Aneurysm diameter greater than 6 cm.
- **Anatomic challenges:**
 - Narrow true lumen measuring 8.5 mm.
 - Large bilateral common iliac artery aneurysms precluding standard fenestrated or branched endovascular repair.
- **Treatment considerations:** COPD and the patient's desire for a rapid return to work made total open TAAA repair less desirable.

OPERATIVE APPROACH

Stage 1: TEVAR Extension and Electrosurgical Septotomy

Prior TEVAR was extended, and electrosurgical septotomy was performed to expand the true lumen for planned TAMBE placement. The procedure was complicated by right external iliac artery rupture, requiring covered stent placement.

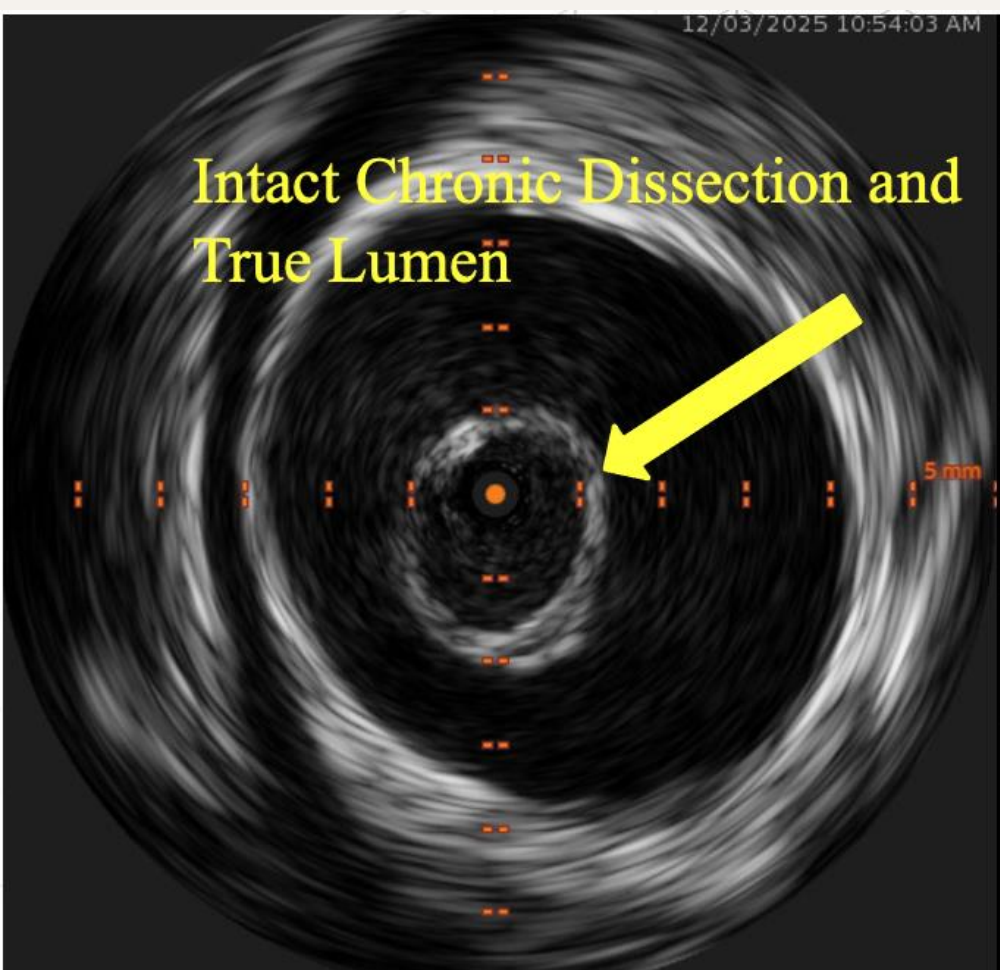
Stage 2: TAMBE Procedure — 7 Weeks Later

TAMBE was performed through right axillary and right femoral cutdown access. The aortic component was deployed with visceral branch stents to the celiac artery, superior mesenteric artery, and bilateral renal arteries. The patient tolerated the procedure well.

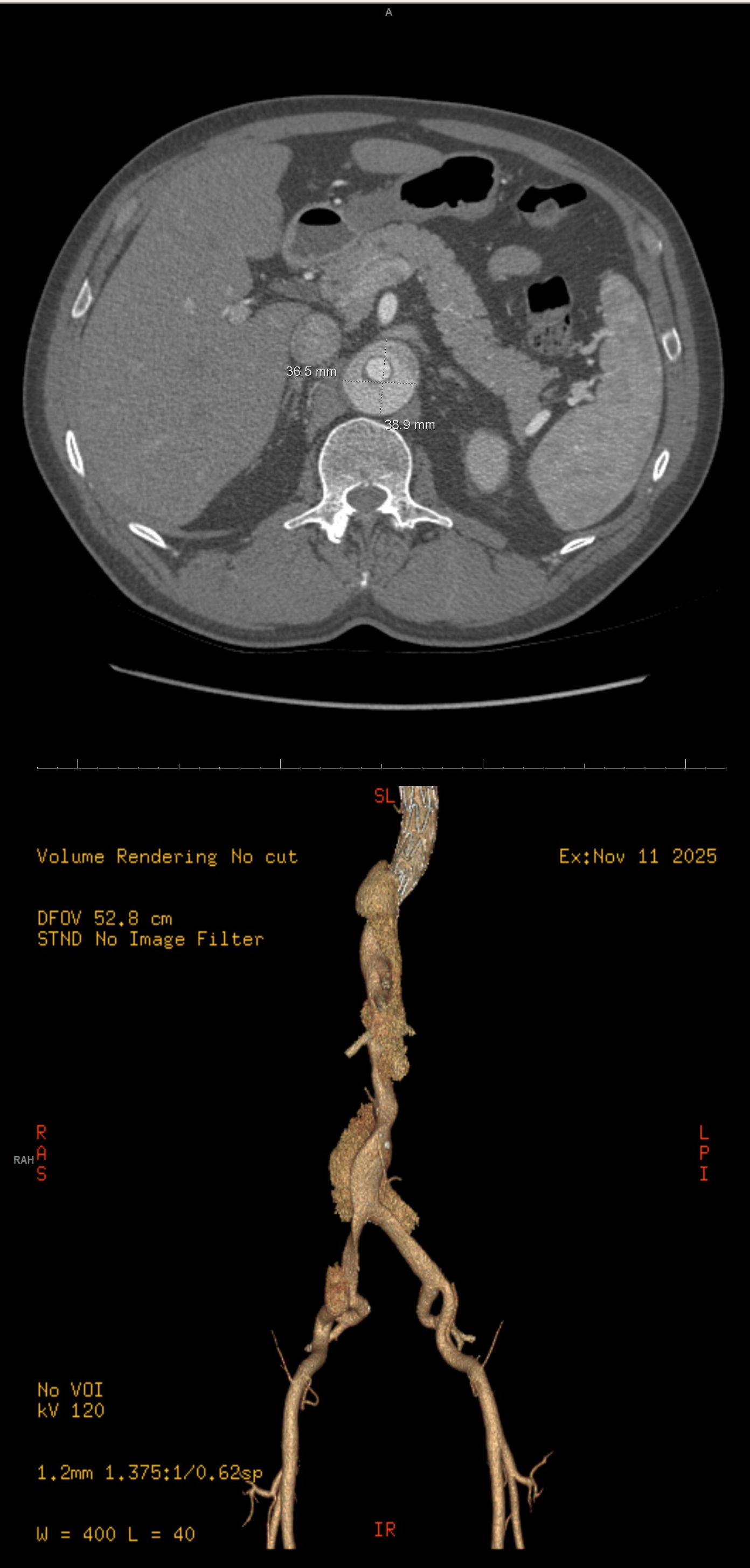
Stage 3: Open Infrarenal and Bilateral Common Iliac Repair — 1 Month Later

Open infrarenal and bilateral common iliac aneurysm repair was performed using a 19 × 8 mm Hemashield Dacron bifurcated graft. The proximal anastomosis incorporated the aortic wall and distal TAMBE graft during infrarenal clamping. Distally, the graft limbs were anastomosed to the hypogastric arteries, followed by transposition of both external iliac arteries to the graft. The patient was discharged on postoperative day 5.

PRE AND POST SEPTOTOMY



PRE OPERATIVE IMAGING



POST OPERATIVE IMAGING

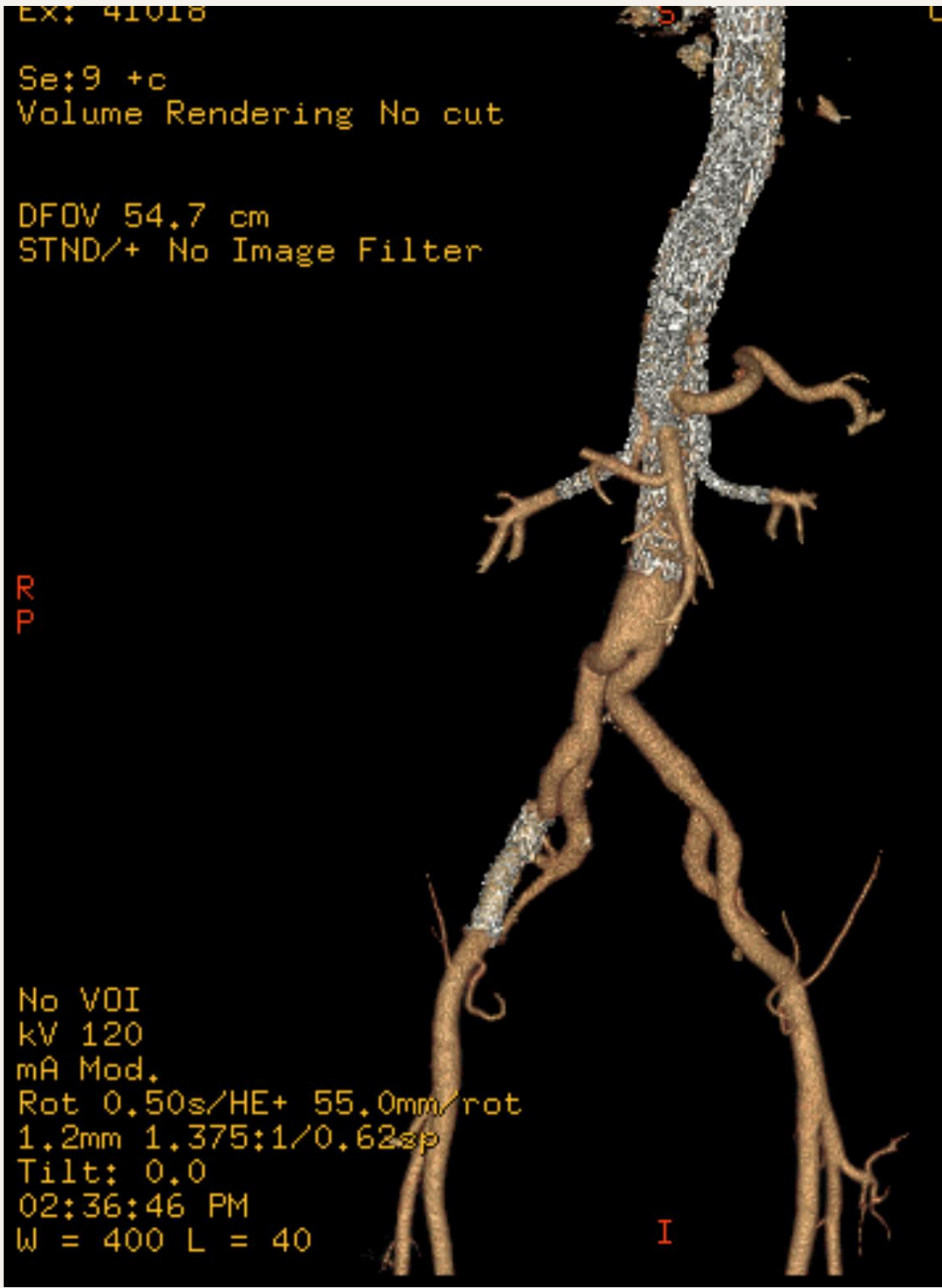


Figure 4,: intact chronic dissection with true lumen and circumferential false lumen
Figure 5: post-septotomy, true lumen now communicates with false lumen

RESULTS

- At three-month follow-up, the patient was doing well and eager to return to work in construction.
- CTA demonstrated patent visceral branches, regression of the thoraco-visceral aneurysm segments, and a patent infrarenal repair.

CONCLUSIONS

Electrosurgical septotomy can expand the true lumen to facilitate branched or fenestrated endovascular repair in patients with chronic aortic dissection and restrictive anatomy. A staged approach can address complex thoracoabdominal and iliac aneurysmal disease using complementary endovascular and open techniques.