

Forced Complete Femoral Approach for Urgent Thoracoabdominal Aneurysm Repair Using an Inner Branched Endograft

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INTRODUCTION

Urgent repair of thoracoabdominal aortic aneurysms (TAAAs) presents significant challenges, especially when conventional approaches are not feasible. This article presents a successful case of post dissection TAAA repair using a customized inner branched endograft, exclusively through femoral accesses.

CASE BACKGROUND

A 70-year-old male presented with an expanding TAA following a hybrid treatment for a thoracic aortic aneurysm and type B dissection.

A postoperative CT scan revealed a rapidly expanding TAA requiring urgent repair shutting down the possibility of access from above.

The surgical team opted for a complete femoral approach without the possibility for an upper access bailout. A customized inner branched prosthesis was adapted for this procedure.

TECHNIQUE

- The repair was conducted with an inner branch endograft using a femoral approach. A steerable sheath was needed to achieve cannulation of 2 downward facing branches.
- The intimal perforation to introduce the steerable sheath was achieved using a stiff end guidewire at the right renal artery ostium. The artery was catheterized with a guidewire, followed by the advancement of a branched endograft from the left femoral access, the deployment/sealing of the graft, and closure of the left femoral access to restore perfusion to the left lower limb.
- The steerable sheath was reintroduced from the right femoral artery to access the downward inner branch for the superior mesenteric artery. The sheath tip was angled at 180 degrees and used to cannulate the target vessel and deploying a bridging stent.
- This technique was repeated for the celiac trunk.

RESULTS

- A steerable guiding sheath was essential in stabilizing the system in the selective and sequential cannulation of 2 of the 4 inner branches.
- The procedure was completed without complications.
- After 42 days, the patient was discharged in good overall health.
- At 3 months it was revealed that all side branches were patent, though a type II endoleak persisted, originating from a pair of lumbar arteries and the inferior mesenteric artery, with the aneurysmal sac diameter remaining stable.
- At 8 months, the most recent imaging indicated notable reduction in the size of the residual aneurysmal sac and a decrease in the intensity of the type II endoleak.

DISCUSSION

Numerous studies have been published on the clinical success of steerable sheaths, generally highlighting a substantial decrease in procedural fluoroscopy time.

The use of steerable sheaths has been pivotal in overcoming the limitations of traditional endovascular approaches that require upper limb access and therefore lessen the risk of periprocedural stroke during complex endovascular procedures.

The authors suggest that total endovascular correction of a TAAA through exclusive femoral approach is feasible and may be even faster compared to conventional approach if appropriate tools are available.