



Visceral Arterial Debranching in Preparation for Branched Endovascular Aortic Aneurysm Repair



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Background

- Small, diseased or otherwise abnormal visceral vessels pose a challenge for fenestrated/branched endovascular repair (FB-EVAR) of thoracoabdominal aortic aneurysm (TAAA)
- Diseased vessels, particularly with origin stenosis, may not be able to be cannulated
- Small vessels may be injured by branch deployment, or be at elevated risk of branch thrombosis from flow restriction
- Anomalous vessel origins may be covered by stent components
- Surgical debranching of disadvantaged target vessels might improve the safety and long-term outcome of FB-EVAR

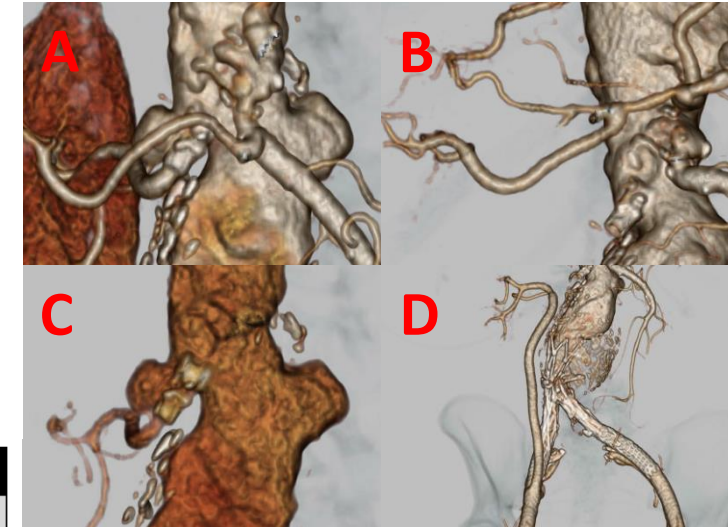
Methods

- Single-institution retrospective review of all patients over the last 5 years undergoing staged aortic aneurysm repair with FB-EVAR
- Six patients (mean age 71.3 years; 50% male) underwent preparatory visceral debranching

Results

- 12 visceral vessels in 6 patients were debranched
- Indications for debranching:
 - Small caliber (n = 7)
 - Stenotic or angulated origin (n = 3)
 - Other incompatibility with endovascular branching (n = 2)
- 4 of 6 patients underwent simultaneous major access procedure
- 30-day mortality: 0%
- Major 30-day adverse events occurred in 4 patients:
 - Sigmoid necrosis requiring colectomy (n = 2)
 - Hepatorenal bypass mycotic aneurysm requiring exclusion (n = 1)

Age	Sex	Vessels Debranched	Inflow	Conduit	Concurrent Procedures	Time to EVAR (days)
72	M	Upper & lower right renal arteries Upper & lower left renal arteries	Right iliofemoral bypass	8mm Dacron to spliced GSV to spatulated renal arteries	Right iliofemoral bypass	30
73	F	Replaced R hepatic artery R renal artery	Left hepatic artery Right iliofemoral bypass	Transposition 6 mm Dacron	Bilateral iliofemoral bypasses Infrarenal endograft	135
83	M	R renal artery	Common hepatic artery	Cephalic vein		152
70	F	R renal artery L renal artery	Common hepatic artery Splenic artery	GSV Transposition		Pending (current POD 64)
66	M	R renal artery	Common hepatic artery	Basilic vein	NAIS with femoral vein	Pending (currently POD 92)
64	F	R renal artery L renal artery	Right iliofemoral bypass	8 mm Dacron to spliced GSV	Bilateral iliofemoral bypasses	Died POD 604



A. Replaced right hepatic artery originates from proximal SMA. Aneurysmal SMA origin with thrombus extending to hepatic artery takeoff. **B.** Right hepatic artery transposition to native left hepatic artery. **C.** Right renal artery with indwelling upwards-angulated stent protruding into narrow aortic flow lumen. **D.** Renal artery debranched with prosthetic bypass from right iliofemoral bypass.

Summary / Conclusions

- Visceral debranching is effective at improving anatomy for subsequent FB-EVAR treatment of TAAA
- In this high-risk patient population, significant complications may occur, especially when performed concurrently with additional major interventions like iliofemoral access procedures.
- Patients should be carefully selected and appropriately counseled about associated peri-procedural risks