Mechanical thromboaspiration and relining with covered stent of an occluded renal bridging stent in bEVAR

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Disclosure

Speaker name: Maria Antonella Ruffino, MD, EBIR

I have the following potential conflicts of interest to report:

- [ ] Consulting
- [ ] Employment in industry
- [ ] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] Other(s)

☒ I do not have any potential conflict of interest
Male, 74 yo

Former smoker
Hypertension

May 2008: AF

May 2008: emergency aorto-aortic bypass for AAA rupture

June 2008: CTA showed a proximal anastomosis aneurysm (52x43 mm)
30.10.2018: BEVAR Evita Thoracic 3GCMD with 4 branches

CT: Covera, Bard, 10x60 mm
SMA: Viabahn, Gore, 8x50 mm
RRA: Covera, Bard, 6x40 mm
LRA: Viabahn, Gore, 6x50 mm
09.02.2019:
patient, anuric since 48 hours, was admitted to our hospital
creatinine 7.92; urea 147, WBC 12.81, PLTs 197, INR 2.47, PCR 123.3, Na 122, K 4.3

CTA: occlusion of the LRA (with renal volume reduction)
occlusion of the RRA
Renal Function Salvage After Delayed Endovascular Revascularization of Acute Renal Artery Occlusion in Patients With Fenestrated-Branched Endovascular Aneurysm Repair or Visceral Debranching

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Abstract
Purpose: To analyze the renal function and outcome after delayed (>6 hours) endovascular revascularization of acute renal artery occlusion (RAO) in patients with fenestrated-branched endovascular aneurysm repairs (EVARs) or open visceral debranching. Methods: A single-center retrospective analysis was conducted involving 7 patients (mean age 61 years, range 49–72; 5 women) with 9 RAOs treated with endovascular revascularization between December 2014 and March 2017. Three patients had a solitary kidney with chronic renal insufficiency; 1 patient had bilateral occlusions as the acute event. Initial aortic surgery included 5 branched and 1 fenestrated EVAR as well as 1 open visceral debranching operation. Revascularization of the RAO was performed using aspiration thrombectomy, local lysis therapy, and stent-graft relining. The time interval between initial aortic surgery and RAO was 10 months (range 0.5–17). Results: Median renal ischemic time to revascularization was 24 hours (range 7–168). Technical success was 100%, with 1 procedure-related access complication. Temporary dialysis dependency occurred in 4 patients. Mean in-hospital stay was 17 days (range 7–32) with 1 postoperative death at day 10 due to cardiac arrest of unknown cause. Mean follow-up was 10.3 months (range 1.5–27) in 5 of 6 discharged patients. During follow-up, 1 reintervention for recurrent occlusion was performed. At follow-up imaging, all renal arteries were patent. No permanent dialysis dependency occurred. Conclusion: Renal function can be salvaged by delayed revascularization for RAO with prolonged renal ischemia. The endovascular approach with aspiration thrombectomy, local lysis, and stent-graft relining is a feasible technique for revascularization after RAO in patients with fenestrated-branched EVAR or open visceral debranching.
09.02.2019: DU showed good post-occlusive hilus and intraparenchimal flow on the left
LEFT BRACHIAL ARTERY ACCESS

- 6-F, 90 cm sheath (Flexor® Shuttle® Guiding Sheath, Cook Medical)
- Radifocus® Guidewire M Standard Type, Terumo
- PENUMBRA INDIGO CAT6 + SEP6
After the intervention, the patient was transferred to intensive care unit. Intake of fluids, urine output, and blood values, including serum creatinine, estimated glomerular filtration rate, inflammatory parameters, and electrolytes were strictly monitored pre- and postoperatively.
The very next day creatinine was 6.85.

The patient underwent dialysis treatment.

Renal scintigraphy demonstrated only mild function reduction after RAO.

At 3 month follow up creatinine was 2.3 and the duplex ultrasound confirmed the patency of the stentgraft.
TAKE-HOME MESSAGE

fEVAR and bEVAR patients are at high risk for renal bridging stenting occlusion with consequent RAO

An attempt at endovascular revascularization should be always made in patients with f/bEVAR renal bridging stent occlusion if:

- collateral perfusion is seen on ultrasound or angiography
- dialysis dependency is probable without treatment
- revascularization might prevent kidney necrosis, with consequent inflammation and possible sepsis

In these cases, aspiration thrombectomy with Indigo Penumbra System and relining with covered stent is a fast, reliable and effective treatment option to restore renal function with low perioperative risk
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