Endovascular Treatment Of A Large Aorta-To-Renal Vein Fistula (ARVF): It’s Not Simple

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Clinical presentation

- Almost always retro-aortic left renal vein
- Symptoms
  - Abdominal or left flank pain
  - Abdominal bruit
  - Hematuria
  - Non-functioning (left) kidney
  - Lower extremity venous hypertension
  - Varicocele/scrotal edema
  - Right heart failure (volume overload)

Diagnosis

- CT angiography
- Adequate preoperative diagnosis with precise identification of the fistula is crucial in reducing the risk of intraoperative complications and heavy bleeding

Treatment

- Open surgical repair
- EVAR
  - Standard EVAR
  - C-EVAR
- Combined

Open repair

- High mortality (25-60%)
  - Massive blood loss
  - Cardiac failure
  - Pulmonary embolism (debris from aneurysm and air embolism)
  - Bleeding from renal vein (fistula)
- Can address renal vein lesion

Conflict of interest

- None
Open repair


EVAR

- Less invasive
- Does not address the venous lesion
- Controlling the leak from the aorta appears to be sufficient to control bleeding in case of rupture

Dragas M et al, JVS 2010;52:1658-1661
Ferrari M et al, JET 2005;12:512-515

EVAR

- Venous lesion may lead to persistent perfusion of aneurysm sac (type 2 endoleak)
- May necessitate (in more stable situation) renal vein defect closure (covered stent/open repair)

Sultan S et al, JET 1999;6:375-377

C-EVAR

Wu Z et al, JVIR 2015;26:290-292

Combined/hybrid approach

- Endovascular closure renal vein
  - In case of fistula
  - Will get the patient more hemodynamically stable
- Open repair AAA

Siepe M et al, JVS 2009;49:1574-1576

Combined/hybrid approach

Siepe M et al, JVS 2009;49:1574-1576
Conclusions

- Total endovascular repair of ARVF is feasible (with or without treatment of the venous lesion)
- In case of unsuitable anatomy for EVAR, initial closure of the fistula from the venous side may help in reducing morbidity and mortality of open repair