EVAR using an ultra-low-profile bifurcated device is feasible with a very narrow distal aortic neck: a case study

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BACKGROUND:
A number of patients are not eligible for endovascular aneurysm repair (EVAR) of abdominal aortic aneurysms (AAAs) due to anatomical constraints. We present a case study challenged by hostile iliac anatomy, a significantly narrow distal aortic neck and narrow AAA lumen.

METHODS:
1. A 65-year-old man with significant co-morbidities presented with a 5.5cm infra-renal AAA.
2. Planning issues:
   a. narrow external iliac arteries (<5mm)
   b. Bilateral external iliac stents
   c. tight distal aorta measuring 11.5mm in maximum diameter precluded EVAR using a standard bifurcated device.
   d. functioning right-sided femoropopliteal bypass,
   e. it was decided to avoid AUI-EVAR with femorofemoral crossover (FFXO).
   f. the ultra-low-profile (ULP) Ovation Prime (TriVascular Inc., Santa Rosa, USA) bifurcated endograft system was selected [1,2].

CONCLUSION:
This case study confirms successful applicability of a bifurcated ultra-low-profile EVAR device where a narrow distal aortic neck would have precluded use of standard profile bifurcated devices and normally resulted in the therapeutic option being AUI-EVAR and FFXO.

RESULT:
1. Bilateral percutaneous femoral access
2. Endograft body implanted from the right:
   a. contralateral limb buckled within the narrow AAA lumen
   b. contralateral cannulation therefore completed via a percutaneous left brachiofemoral pullthrough wire
3. Iliac limbs synchronously ballooned with ‘kissing balloon’ angioplasty particularly at the distal aortic neck and aortic bifurcation
4. Femoral arterial closure achieved using Angio-Seal VIP (St Jude Medical, Minnesota, US) vascular closure devices via a double-wire ‘post-close’ approach [3].
5. Length of stay was 2 days
   a. no post-operative complications
   b. bilaterally patent iliac limbs at 12-month follow-up
   c. He has since also had a left-sided femoropopliteal bypass
6. Luminal details
   a. Distal aorta (11.5 x 11.1 mm)
   b. Area = 100.25 mm²
   c. Europe’s smallest!

References
1. Available at: http://www.trivascular.com/expanding-evar
   Accessed 03.01.2015.