



## AB208. Patient specific modelling—the role of simulation in complex fenestrated endovascular aneurysm repair

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**Background:** Endovascular repair of abdominal aortic aneurysm (AAA) is an established treatment but is limited by aortic anatomy. Devices with additional fenestrations allow deployment in the visceral segment of the aorta extending this treatment modality to complex cases, albeit with increased difficulty. We present the case of a 72-year-old male with a 6.2-cm juxta-renal AAA treated with 4 vessel fenestrated endovascular aneurysm repair (EVAR).

**Methods:** A simulation case was performed in advance of the procedure using a 3D printed aortic model specific to the patients' anatomy. The multidisciplinary team included vascular surgery, interventional radiology, nursing,

radiography and a device specialist.

**Results:** The patient underwent successful deployment of a Terumo Anaconda Fenestrated stent graft with stenting of the coeliac, superior mesenteric, and renal arteries using Atruim V12 balloon expandable covered stents. Pre-operative simulation with a case-specific model confirmed device design, validated case planning, enabled pre-procedural catheter selection, allowed role rehearsal for the team and enabled optimal intra-operative orientation of the imaging systems.

**Conclusions:** EVAR simulation using 3D models has been shown to reproduce all steps with high fidelity. Fenestrated EVAR is more challenging in both planning and deployment. Multicentre randomised controlled trials show patient-specific rehearsal facilitates EVAR deployment by validating graft design and streamlining the operative procedure. It also provides a vehicle for teaching and training.

**Keywords:** Fenestrated; endovascular; simulation; aneurysm

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