CASE REPORT

EVAR with the ultra low profile Altura Stent Graft System

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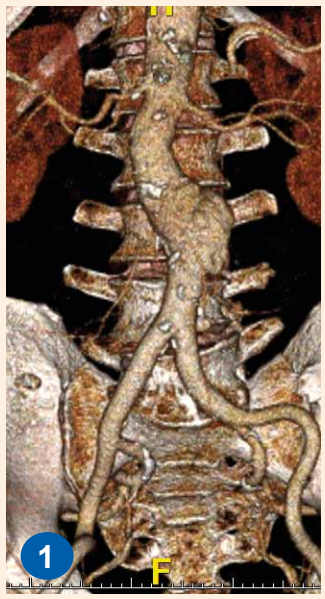
We started using the Altura Stent Graft System (Lombard Medical) in January 2014, initially in the device first-in-man registry and then in the Elevate multicentre study. We were attracted by the 14F profile and the simplicity of Altura's concept; two stent grafts that sit side by side in the aorta, extending distally in each common iliac artery, avoiding the need to cannulate a contralateral gate. We also felt the braided construction added flexibility and the potential to dilate stenoses while the woven graft, attached to the outside of the braid at the ends, prevented the braid from overdilating while giving the opportunity for the graft to inflate outside the braid to provide an extended sealing area.

To date, 26 of our patients have received an Altura Stent Graft and we have used percutaneous access in all cases, using the Proglide or Perclose devices. The Altura team and users are to be congratulated because the data from every one of the more than 100 cases performed to date have been captured on a monitored database with third party over-reading of all imaging and clinical endpoints, yielding even more quality to an already rich dataset.

An example case is described here: this 76-year-old male patient was treated with the Altura Stent Graft System in Riga, Latvia, on 19 January 2015 and is patient number 25 in our 26-patient series. The patient was ASA grade III with a history of coronary artery disease, coronary angioplasty, peripheral vascular disease, hyperlipidaemia and hypertension.



1 Aortic anatomy involved a 38mm long aortic neck, 22mm in diameter and a maximum sac diameter of 51mm. The procedure was started with bilateral groin puncture, dilation and pre-placement of Perclose sutures to allow percutaneous access of the Altura delivery systems. After use of appropriate wires and catheters, a Meier wire was placed to the arch from the right access site and a marker pigtail catheter from the left side. The Altura delivery systems allow contrast injection proximally from the aortic components and distally from the limb components, but in my practice we use a preintroduction angio run from a pigtail catheter to confirm the anatomy is as planned.

2 The delivery systems were introduced over Meier wires and the sheaths of both devices were retracted about 6cm before contrast was injected through the delivery system to confirm position of the proximal margin of the graft material (shown by a single lateral marker dot in each graft) against the renal arteries. Note that in this image, although the sheath has been retracted, the stent graft remains unexpanded to allow precise juxtarenal placement. With two aortic devices, each one can be placed juxtarenally, even with axially offset renal arteries.

3 Following initial placement, the grafts were dilated by bringing the proximal ends of the delivery systems distally. This step is completely reversible; if you are not satisfied with the position of the graft, the proximal ends can be pushed away and the graft collapsed and repositioned.

4 Following successful juxtarenal placement, the top caps are triggered, releasing the proximal end of the graft. After this stage, barbs in the bare suprarenal stent will engage the walls of the aorta and no further repositioning is possible.

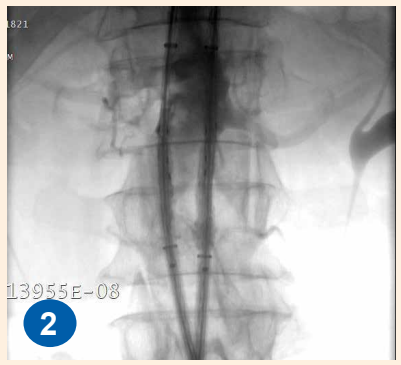
5 The left distal limb was deployed with the aid of contrast injected from the delivery system to visualise the hypogastric artery. Uniquely, the Altura limb is deployed from distal to proximal, and the ability to inject contrast from the distal end of the stent graft greatly assists accurate distal landing. In this image, the right limb has already been deployed, showing the long sections of graft that allow the limb to "telescope" into the aortic body. These overlapping zones all share a common size of 13mm, allowing any combination of aortic and limb components to be assembled.

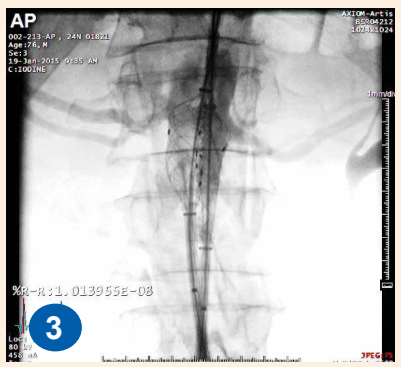
6 After deployment of the entire stent graft system, the full length of the device was ballooned using a kissing balloon technique.

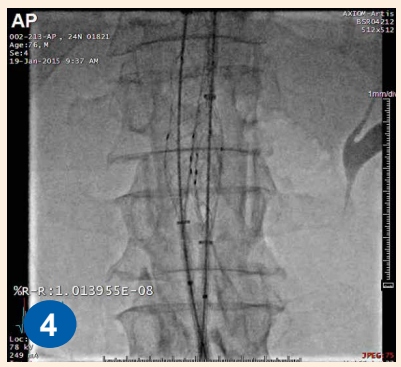
7 This is not a type I endoleak. The Altura graft material is attached on the outside of the braided stent and is stitched to the stent only at its ends. This allows the graft to "billow" away from the stent and potentially improves sealing in irregular regions, such as shown here at the proximal end of the sac.

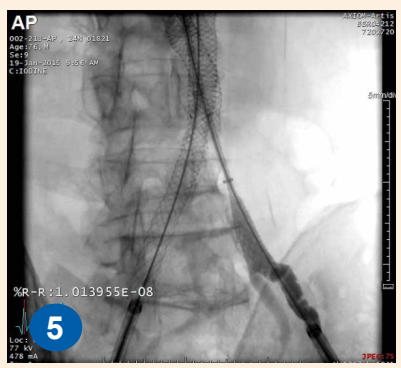
8 The completion angiogram showed successful exclusion of the aneurysm with no endoleaks. The majority of Altura stent grafts are implanted in the "ballerina" arrangement with the right aortic component being placed from the left access vessel and vice versa.

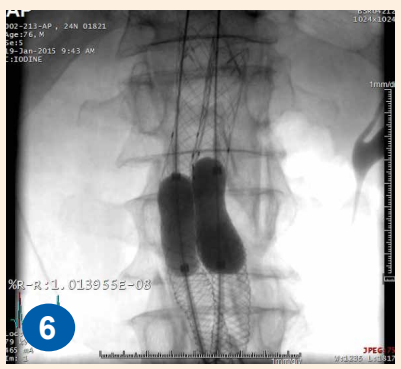
9 This procedure was completed in 45 minutes, skin to skin and follow-up to date is highly satisfactory. The six-month follow-up CT is shown on the image.

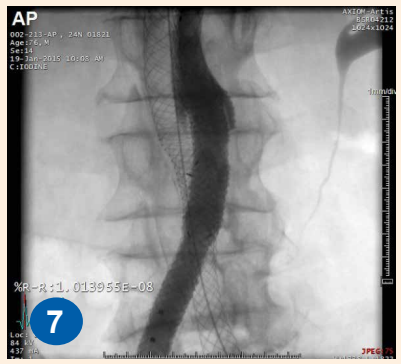


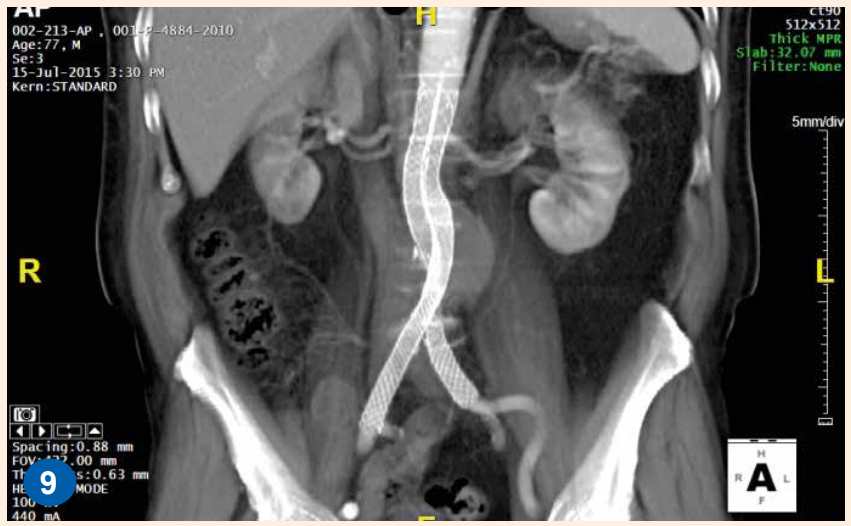












Images courtesy of Dr Janis Savlovskis