

## CASE REPORT

# Treatment of Proximal Angled Neck with Endovascular AAA Stent-graft

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### CASE REPORT

One of the challenges with endovascular aortic repair is the treatment of angled proximal infrarenal aortic neck anatomy. Obtaining proximal seal may be difficult due to the angle between the neck and the abdominal aortic aneurysm.

We report on the successful deployment of the Endologix Powerlink unibody bifurcated stent-graft (Irvine, CA) in an 80 year old female patient with a proximal neck angle of 90 degrees (Figure 1).

Pre-op measurements show a proximal infrarenal aortic neck diameter of 21 mm (Figure 2) and a distal infrarenal neck diameter of 23 mm. The proximal neck potential seal zone length is 10 mm. There is mild thrombus and mild calcium at the neck and no accessory renals are identified. The AAA diameter is 60.0 mm and the distance from the renals to the aortic bifurcation is 112.5 mm. The diameter of the aortic bifurcation is 20.0 mm. The diameter of the proximal right common iliac is 10.0 mm and the diameter of the distal right common iliac is 11.0 mm (Figure 3). The distance from the aortic bifurcation to the right hypogastric is 37.5 mm. The diameter of the proximal left common iliac is 9.0 mm and the diameter of the distal left common iliac is 9.0 mm. The length from the aortic bifurcation to the left hypogastric is 40.0 mm. There is mild calcium noted on the right and left common iliacs. The right external iliac diameter is 9.0 mm and the left external iliac diameter is 8.0 mm.

### METHOD

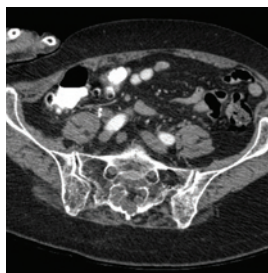
The patient's right side was chosen to deliver the Powerlink bifurcated system with the contralateral side on the left. The left



**Figure 1.**  
Proximal Neck Angle



**Figure 2.**  
Infra-Renal Neck

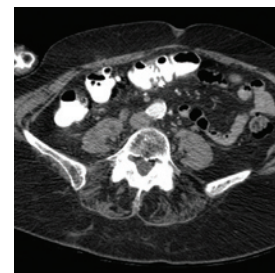


**Figure 3.**  
Distal Common Iliacs

common iliac was pre-dilated with a 10 mm x 4 cm PTA balloon. A 0.035", 180 cm stiff guidewire was advanced into the abdominal aorta through the dual lumen catheter per standard procedure. The device limb wire was advanced through the center lumen of the dual lumen catheter. The Powerlink bifurcated system was loaded onto the stiff guidewire and advanced above the aortic bifurcation. The outer sheath was retracted to separate the stent-graft iliac limbs. The device was positioned on the aortic bifurcation and deployed.

A 25-16-155BL Powerlink stent-graft was implanted. The proximal diameter is 25 mm, the iliac diameters are 16 mm and the total length is 155 mm. Additional iliac length was identified during the procedure by utilizing a marker pigtail catheter. We discussed whether or not to implant a long proximal cuff to assist in making the sharp turn at the neck. We decided the unibody stent-graft would straighten out the aorta and seal below the renals to allow for a one piece case.

Significant calcium is present at the aortic bifurcation and the diameter is 20 mm (Figure 4). Post dilatation of this area was performed with kissing balloons from the distal aorta to the common iliac arteries with 10 mm x 4 cm PTA balloons.



**Figure 4.**  
Aortic Bifurcation

### RESULTS

The Powerlink System for AAA was successfully implanted. Angiography showed excellent flow through the entire stent-graft with no indication of type I or type II endoleaks. The stent-graft was placed on the aortic bifurcation to achieve anatomical fixation. Seal was obtained at the proximal neck with the bifurcated unibody device. The patient has no type I endoleak at thirty days.

### CONCLUSION

The patient had a successful outcome despite the short, straight neck that evolved into a severe anterior angulation to the aneurysm sac. The Powerlink five year clinical trial data shows that the Powerlink appears to have a positive effect on aneurysm morphology demonstrated by decreased aneurysm diameter and volume. The long main body and column strength of Powerlink may contribute to straightening of the angled neck.