

The Powerlink AAA Stent-graft: Challenging Proximal Aortic Neck Angulation

CASE REPORT

The primary factors that determine suitability for endovascular repair are the diameter and length of the proximal neck of the aneurysm, the tortuosity of the aorta and the anatomy of the iliac arteries. If the angle between the neck of the aneurysm and the aorta is too great, the stent-graft may be displaced from its intended position with a subsequent leak at the attachment site. Type I endoleaks may occur acutely or at a later date as aneurysm shrinkage and remodeling occurs.

We report on two year follow up of a patient with a neck angulation greater than 45 degrees with severe right iliac angulation and tortuosity. The patient was enrolled in the Endologix Powerlink Pivotal U.S. Clinical Trial. MMS (Medical Metrx Solutions) is the core lab for the clinical trial. MMS offers the service of 3D reconstruction based on spiral CT scans.

The patient is a 79 year old male who was diagnosed with an abdominal aortic aneurysm. Pre-op measurements show a proximal infrarenal aortic neck diameter of 24.9 mm, a maximum aneurysm diameter of 59.1 mm, a proximal neck sealzone length of 17.0 mm with mild thrombus and an aortic neck angle of 53.8 degrees. The length from the renals to the aortic bifurcation is 122.0 mm. The right common iliac diameter is 11.5 mm and the left common iliac diameter is 13.0 mm. The length from the aortic bifurcation to the right hypogastric artery is 62.0 mm and the length from the aortic bifurcation to the left hypogastric artery is 64.0 mm. The access vessels measure 7.1 mm on the right external iliac and 6.4 mm on the left external iliac. There is severe tortuosity on the right side with an iliac angle of 81.8 degrees. (Figure 1)

METHOD

The right side was chosen for a cut down to accommodate the 21F delivery system and the left side was accessed by

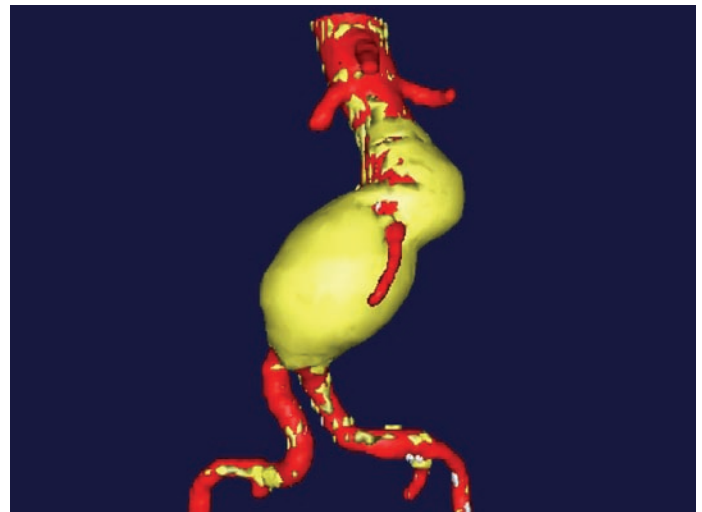


Figure 1

percutaneous insertion of a 9F sheath. The procedure was done under epidural anesthesia. A 28 x 16 x 155 mm Powerlink unibody stent-graft was selected based on pre-op imaging. The proximal diameter is 28 mm, the iliac limbs are 16mm in diameter and the total stent-graft length is 155 mm. A 28 x 55 mm infrarenal proximal cuff was placed to add length to the stent-graft. The cuff is 28 mm in diameter and 55 mm in total length.

RESULTS

The patient was discharged on the day after the procedure. CT scans were obtained and the data was analyzed by MMS. The data is shown in Table 1.

CONCLUSION

No migration, endoleak, wire fracture or graft defect have been identified during patient follow up. 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 the Powerlink may contribute to the findings.

Table 1

Time Period	Pre-op	1 Month	6 Month	12 Month	24 Month
Maximum AAA Diameter	59.1 mm	54.5 mm	46.6 mm	43.0 mm	38.9 mm
Aneurysm Volume	157.3 ml	140.4 ml	120.5 ml	108.5 ml	105.7 ml



**The Powerlink System:
Dependability of Outcome...Durability of Design.**