

Endoluminal exclusion of an infrarenal abdominal aneurysm by a ePTFE stentgraft

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Section: Interventional radiology

Imaging Technique: CT

Imaging Technique: Digital radiography

Imaging Technique: Digital radiography

Imaging Technique: MR

Case Type: Clinical Cases

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Patient: 63 years, male

Clinical History:

Infrarenal abdominal aneurysm

Imaging Findings:

Patient presented with dull abdominal pain. Sonography revealed an aortic aneurysm of the infrarenal abdominal aorta. CT proved that aneurysm with a maximum diameter of 4 cm and no signs of rupture or pending rupture (Fig. 1). The patient's history included multiple abdominal surgery for various reasons and obesity was present. Indication for intervention was decided because of the history of abdominal pain although the size of the aneurysm was still borderline. Due to his previous medical history, the abdomen was classified as presumably hostile and endoluminal exclusion was chosen.

Discussion:

Angiography prior to insertion indicated an aneurysm of the distal portion of the abdominal aorta involving the aortic bifurcation but with a fairly long neck of 4 cm to the renal arteries (Fig. 2) A self-expanding aortic stent graft made from ePTFE and a nitinol wire body (Excluder, Gore Inc.) was used for exclusion. The Excluder is a composite stent graft with a main body and one integrated limb. The contralateral limb is attached in a second step. After bilateral arteriotomy, an 18 F vascular sheath was inserted into the aorta. The compressed main body was introduced over an extrastiff guidewire and the proximal end position at the level of the renal arteries (Fig. 3 a). Angiography was performed via a Pigtail catheter left into the aortic lumen. After deployment of the main stent graft body the safe position of the proximal portion was verified by an additional angiography (Fig. 3 b) Then the pigtail catheter was straightened by a straight guidewire and removed. After balloon-dilatation of the proximal and distal end of the graft to attach it to the wall, a 5 F Sidewinder catheter was inserted via the right limb, the orifice of the short limb was cannulated and a hydrophilic guidewire was guided into the left iliac artery where the end was snared. Over the pulled-through guidewire, a catheter was guided into the short limb of the graft and the guide wire was exchanged for a Amplatz extrastiff guide wire (Cook Inc.). After insertion of a 12 F vascular sheath, the left limb was positioned into the main body and was deployed with an overlap to the left iliac stump to achieve blood tight fixation. Aortography showed successful exclusion of the aneurysm and no proximal leak (Fig. 3 c). Retrograde angiography of the right (Fig. 3 d) and the left limb (Fig. 3 e) excluded distal leaks. Contrast-enhanced CT (Fig. 4) one week after insertion showed an effective exclusion of the aneurysm with perfusion of both limbs but no leakage around the stent graft. Endoluminal exclusion of infrarenal aortic aneurysms is now widely spread . Early clinical results are

encouraging but there is a risk of early leakage either from both ends of the grafts or via collateral arteries. There is also a risk of late leakage either due to stent dislocation or growth of the aneurysm. Therefore, endoluminal exclusion should be planned carefully and limited to patients at risk for open surgery. Endoluminal exclusion is not recommended in younger patients.

Differential Diagnosis List: Endoluminal exclusion of an infrarenal abdominal aneurysm by use of an ePTFE - Endograft

Final Diagnosis: Endoluminal exclusion of an infrarenal abdominal aneurysm by use of an ePTFE -Endograft

References:

May J, White GH, Waugh R, Stephen MS, Chaufourt X, Yut W, Harris JP.

Endovascular treatment of abdominal aortic aneurysms.

Cardiovasc Surg. 1999 Aug;7(5):484-90. (PMID: [10499889](#))

Harris PL.

The highs and lows of endovascular aneurysm repair: the first two years of the Eurostar Registry.

Ann R Coll Surg Engl. 1999 May;81(3):161-5. (PMID: [10364946](#))

Figure 1

a



Description: Contrast-enhanced CT-angiography shows a 4 cm diameter infrarenal aortic aneurysm

Origin:

Figure 2

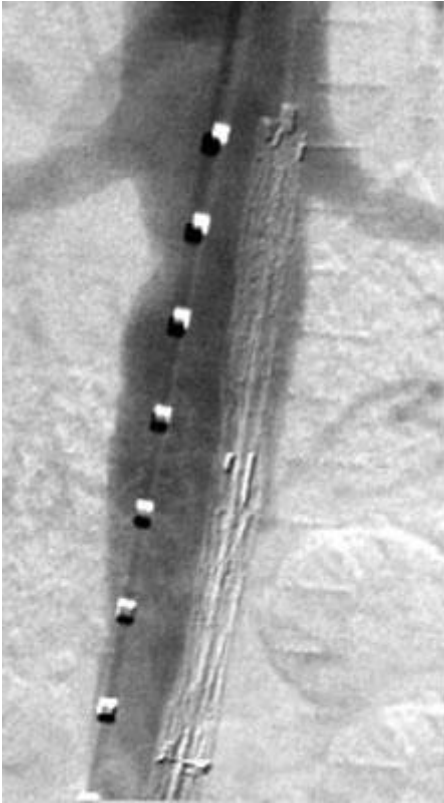
a



Description: Intraarterial aortography shows an aneurysm of the distal portion of the infrarenal aorta with a long neck to the renal arteries but extension over the aortic bifurcation **Origin:**

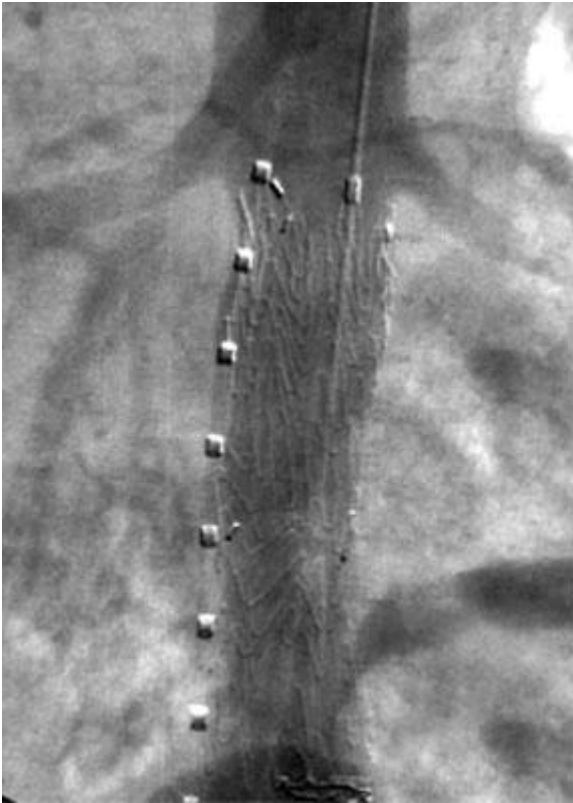
Figure 3

a



Description: The non-deployed stentgraft at the level of the renal arteries. For deployment it was slightly retrieved **Origin:**

b

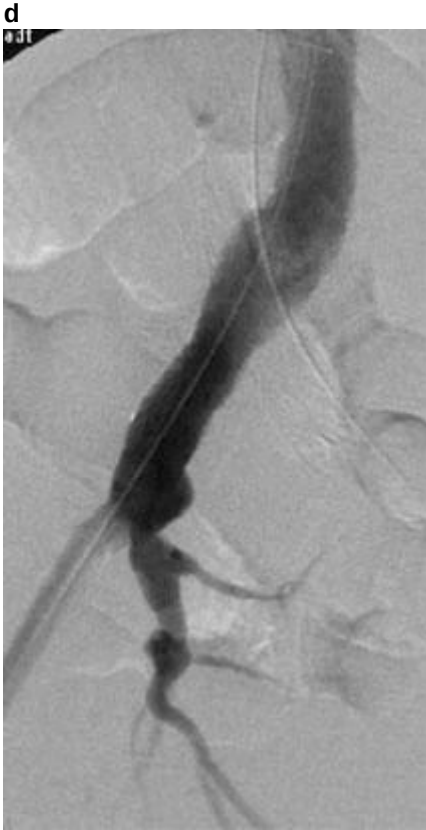


Description: After deployment, the proximal end of the stent graft is well located distally to the renal arteries **Origin:**

c



Description: After complete deployment and delivery of the second limb, aortography shows patency of the graft, successful exclusion of the aneurysm and no leak at the proximal end**Origin:**



Description: Retrograde angiography of the right iliac limb proves absence of a distal leak **Origin:**



Description: Same findings also on the left side **Origin:**

Figure 4

a



Description: Contrast-enhanced CT of the endograft proves successful exclusion of the aneurysm and absence of leakage **Origin:**