

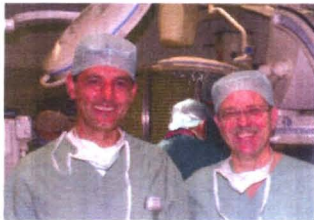
**Learning from experience –  
Challenging cases and  
complications in aortic  
surgery:**  
Room Cervin (08:30–10:00)

## First Successful Treatment of Endoleak Type I with E-xl Stent after Thoracic Endovascular Aneurysm Repair

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**E**ndovascular aortic aneurysm repair is rapidly increasing as a preferred treatment option for many patients with aortic aneurysms given its advantages versus open surgical repair. Although the rapid advances in technology and procedural breakthroughs have contributed to the achievement of a near-complete transformation of the whole field of thoracic aortic surgery, endovascular



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repair is associated with a higher rate of secondary interventions due to complications when compared with open surgical repair.

Exclusion of the aneurysm sac is the main goal of the stent-graft treatment, and clinical success is defined by the "total exclusion" of the aneurysm. However, endoleaks are major complications seen after endovascular repair of aortic aneurysms and are defined as persistent perfusion of the aneurysm sac due to the incomplete sealing at the proximal or distal landing zones (type I) or retrograde perfusion from side-branches (type II) or leaks from the stent-graft or the connection between stent-graft segments (type III). An endoleak implies a failure of the endograft treatment and the patients may be at continued risk of aneurysm rupture. Endoleak type I can occur primarily at initial deployment or later due to graft migration.

Treatment is mandatory, because type I endoleak remains to be a major risk factor for aneurysm rupture after endovascular repair. Conversion to open surgery represents the ultimate solution, but it carries at least 20% perioperative mortality in most reported cases. Endovascular solution implies either extension with another stent-graft, which may be limited by consecutive occlusion of supra-aortic or visceral arteries or additional sealing with a bare metal stent, which was limited in the thoracic aorta by inappropriate diameters of existing stents. The new self-expandable E-xl stent (Jotec, Hechingen, Germany) is available in diameters up to 40 mm. It is a nitinol bare stent with a dog bone appearance which combines flexibility with an acceptable radial force and especially designed for the endoluminal treatment of lesions in the descending aorta, particularly aortic coarctation and dissections, and for the treatment of the vena cava syndrome.

In the reported case a proximal endoleak type I was successfully treated with the new E-XL stent. The patient was a 72-year-old man with descending aortic aneurysm. An endovascular repair was performed with an E-vita stent graft in two segments after extra-thoracic subclavian to carotid artery revascularization to achieve a satisfactory proximal landing zone. Intraoperative angiogram shows a fold of the stent-graft at the proximal neck with an endoleak despite balloon dilatation. CT scan on the 7th postoperative day revealed a continuing endoleak with partial perfusion of the aneurysm (Figure 1). We decided to implant the new E-xl stent to smoothen out the fold and to create an optimal sealing. In this case, the EX-L stent adapted the first stent-graft proximally to the aortic wall, smoothing out the fold and leading to the closure of the endoleak (Figure 2). Thus conventional surgery was avoided. After this first positive experience we have used this stent in other cases and also in cases with angulated and tortuous neck of an abdominal aortic aneurysm with promising results.

This new device is a very promising endovascular tool, which may further expand anatomical limitations of endovascular therapy.



Figure 1



Figure 2