Endovascular treatment of thyrocervical trunk pseudoaneurysm with covered stent implantation

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Section: Interventional radiology
Case Type: Clinical Cases
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Patient: 24 years, male

Clinical History:

A 24-year-old male patient was involved in a traffic accident two months ago and a physical examination done revealed the presence of a pulsatile right supraclavicular mass.

Imaging Findings:

The patient was involved in a traffic accident two months ago and a physical examination done revealed the presence of a pulsatile right supraclavicular mass, and digital subtraction angiography (DSA) showed the existence of a giant right thyrocervical trunk pseudoaneurysm (Fig. 1). He was referred to our hospital for endovascular treatment. A unilateral femoral access was carried out to allow the placement of a 6F guiding catheter (Envoy; Cordis, Miami Lakes, FL) to the right subclavian artery. A selective right thyrocervical trunk catheterization was also done using a 5-F Picard (Cook, William Cook Europe) catheter. The results of selective DSA showed the existence of a partially thrombosed pseudoaneurysm four days after the first DSA examination with a small remnant lumen (Fig. 2). Using digital roadmap guidance, a 0.016in hydrophilic guidewire (Terumo, Radiofocus, Leuven, Belgium) and a microcatheter were carefully maneuvered distal to the pseudoaneurysm. Next, the guidewire was replaced with a 0.014 inch microwire (Choice Extrasupport, Boston Scientific Corporation, Miami, FL, USA). A 3.5 mm diameter x 16 mm length Jostent Coronary Stent-Graft (Jomed Implantate GmbH, Germany) was deployed across the pseudoaneurysm and the stent covered the whole extent of the pseudoaneurysm (Fig. 3). Post implantation angiography confirmed the patency of the stent without any filling of the pseudoaneurysm (Fig. 4).
Discussion:

Injury to the subclavian and axillary vessels is not very common because these vessels are protected by the overlying bony and muscular structures. Penetrating injuries (e.g. shrapnel, gunshot, stab injuries) are considerably more frequent than blunt injuries. An emergency angiography is mandatory to show the exact type of injury. Percutaneous endovascular therapy becomes an important modality in the treatment of traumatic vascular diseases. Stent technology has markedly developed in the last 10 years and has led to a dramatic reduction in procedural complication (e.g. acute closure). These technological developments are widely applied to the coronary stents in the world. An endovascular treatment with covered stents is a low-risk procedure and appears less invasive than surgery for the treatment of different types of vascular injuries. Covered stent-grafts offer an alternative to endovascular occlusion of the parent vessel and/or surgery in selected cases, as these exclude pseudoaneurysm from circulation as in our case.

Differential Diagnosis List:  Stent graft exclusion of thyrocervical trunk pseudoaneurysm.

Final Diagnosis:  Stent graft exclusion of thyrocervical trunk pseudoaneurysm.

References:


Description: A right subclavian artery angiogram showing pseudoaneurysm sac. Origin:
Description: A selective right thyrocervical trunk angiogram obtained four days after the initial angiography showing a partially thrombosed pseudoaneurysm sac. Origin:
Description: A covered stent-graft was deployed across the pseudoaneurysm and the stent-graft covered the whole extent of the pseudoaneurysm. Origin:
**Figure 4 a**

Description: An angiogram obtained immediately after the stent-graft placement shows that a thyrocervical trunk remains patent but the pseudoaneurysm is excluded. **Origin:**