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Recommended Citation

Vikas Singh, Prakash Kumar, Endovascular Closure of a Subclavian Artery Pseudoaneurysm *Journal of the Hong Kong College of Cardiology* 2014;22(2) <https://doi.org/10.55503/2790-6744.1040>

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Endovascular Closure of a Subclavian Artery Pseudoaneurysm

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SINGH AND KUMAR: Endovascular Closure of a Subclavian Artery Pseudoaneurysm. Accurate diagnosis and anatomical delineation of pseudoaneurysm is important for the precise management of the patient. A number of techniques like ultrasonography, Doppler imaging, computed tomography angiography, magnetic resonance angiography as well as conventional angiography are currently available. The image submitted shows the sequential steps in the endovascular management of one such pseudoaneurysm. (*J HK Coll Cardiol* 2014;22:42-43)

Covered stent, endovascular closure, pseudoaneurysm, subclavian artery

摘要

假性動脈瘤的迅速診斷和解剖結構特點描述對患者的正確處理至關重要。多項技術應用於此，如超聲檢查、多普勒成像、C T 血管成像、M R 血管成像及傳統血管造影術等。本文中的影像展示了介入技術處理假性動脈瘤的連續過程。

關鍵詞：覆蓋支架、介入夾閉、假性動脈瘤、鎖骨下動脈

Introduction

Pseudoaneurysms are encapsulated hematomas that communicate with an artery because of an incomplete seal by the media. Due to their non-compressibility, relative proximity to vital structures, likelihood of distal thromboembolism and the unpredictable risk of rupture, they pose unique challenges in the management. Accurate delineation of the aneurysm is very important for efficient management whether planned percutaneously or by open technique. Endovascular closure has its own advantages because shorter operative time, less bleeding and a shorter

hospital stay. Open technique is more likely to give problems like injury to nerve trunks in vicinity and difficulty handling branches particularly in presence of active bleed/hematoma.

Case

This 40-year-old male had a history of gunshot injury over left shoulder region a month prior to presentation; and was being managed conservatively with intercostal tube drainage for left hemothorax when he started noticing weakness of left upper limb. Left brachial plexus injury was suspected. Ultrasonography of the neck was done for brachial plexus evaluation which showed that infraclavicular part of brachial plexus trunk was severed. In addition, there was a mass in distal part of subclavian artery. Computed tomography (CT)-angiography was done which showed it to be a pseudoaneurysm in distal part

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Received May 2, 2014; accepted August 11, 2014

of left subclavian artery. Diagnostic peripheral angiography of left upper limb was done which showed a wide neck aneurysm, in the distal part of left subclavian artery directed posteriorly and superiorly (Figure 1a).

Endovascular procedure was performed via access through the right femoral artery. Using 8F multipurpose guiding catheter, pseudoaneurysm was crossed with a floppy wire (Figure 1b) and then 0.035" exchange wire was crossed (Figure 1c).

Endovascular exclusion of the pseudoaneurysm was achieved with the deployment of a 6x22 mm balloon expandable peripheral stent-graft (Advanta, ATRIUM MEDICAL CORPORATION; Hudson, NH, USA) within the lumen of left subclavian artery (Figures 1d & 1e). The process was done under the cover of unfractionated heparin 5000 U, the ACT was maintained above 220 seconds. Completion angiography showed complete closure and exclusion of the pseudoaneurysm (Figure 1f).

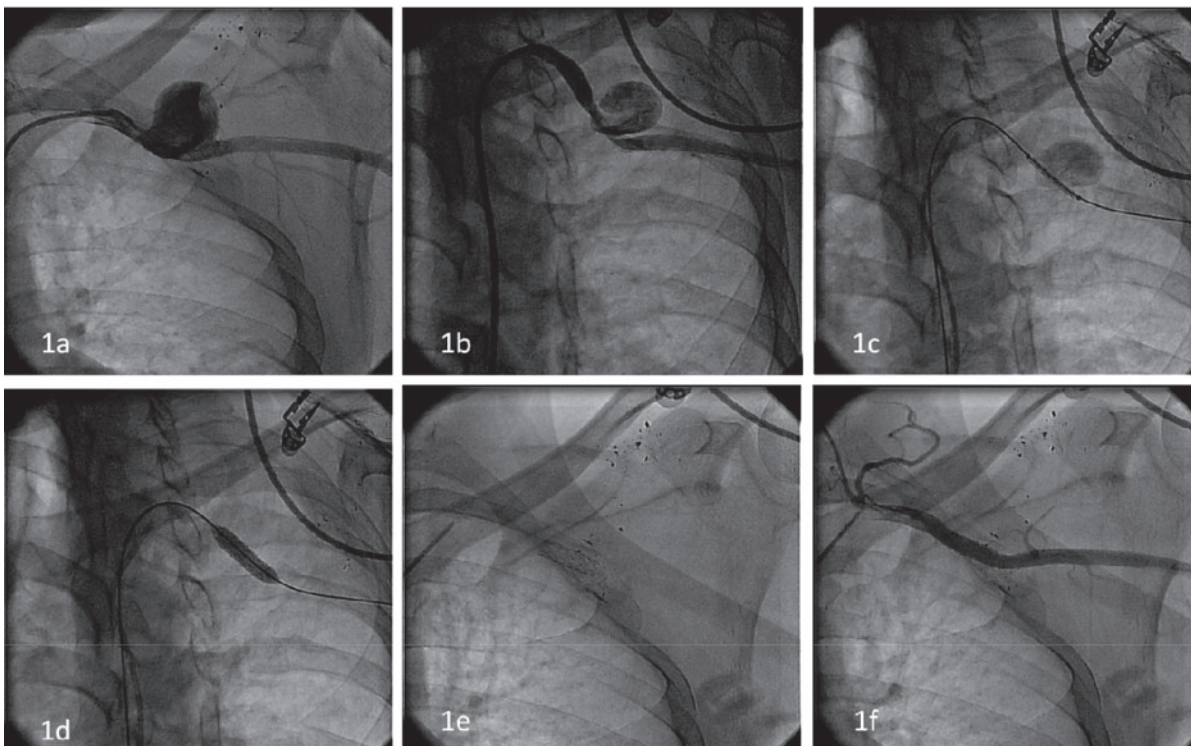


Figure 1. (a) Diagnostic peripheral angiography of left upper limb showing a wide neck aneurysm, in the distal part of left subclavian artery directed posteriorly and superiorly. (b) Using 8F multipurpose guiding catheter, pseudoaneurysm was crossed with a floppy wire. (c) The floppy wire has been exchanged with a 0.035" exchange. A 6 x 22 mm balloon expandable peripheral stent-graft (Advanta, Atrium Medical Corporation) placed within the lumen of left subclavian artery covering both the edges of the neck. (d) The balloon expandable stent deployed in the artery. (e) The deployed stent can be visualised under fluoroscopy. (f) Post-deployment peripheral angiography showing exclusion of the pseudoaneurysm, and no extravasation of the dye.