Radial artery pseudoaneurysm following coronary angiogram

Andrew Swanton,¹ Fionn Coughlan,² Hasan Hasan³

¹Royal Perth Hospital, Perth, Western Australia, Australia

²Radiology, Fiona Stanley Hospital, Perth, Western Australia, Australia

³Fiona Stanley Hospital, Murdoch, Western Australia, Australia

Correspondence to
Dr Andrew Swanton,
andyswanton@gmail.com

Accepted 19 July 2019

DESCRIPTION

This case demonstrates the classic yin-yang radiological sign associated with pseudoaneurysm, a potential complication of an extremely common invasive procedure—coronary angiogram (CAG).

An 85-year-old woman presented to our hospital for an elective transcatheter aortic valve implantation (TAVI). Preprocedure, a palpable, pulsatile lump with an associated bruit was noted on the volar aspect of the patient's right wrist. The lump was not focally tender, and there were no signs of infection or erythema. A CAG had been performed 1 month prior to this as part of the workup for the TAVI. Access for the CAG had been gained via the right radial artery. An ultrasound of the area revealed a textbook appearance of an 18×13×15 mm pseudoaneurysm on Doppler ultrasound (figure 1). This is a great example of the 'yin-yang sign' which is associated with pseudoaneurysm formation.

Pseudoaneurysms are a rare but recognised complication of invasive procedures such as CAG or arterial line insertion.¹ A pseudoaneurysm is a collection of blood that has formed outside a vessel, within the surrounding soft tissues. It usually occurs after an injury or, as in this case, an invasive procedure. They are formed due to a connection or channel between the collection of blood and the damaged blood vessel. It differs from a true aneurysm where the collection of blood is contained within all three layers of the artery itself.

Treatment approaches include observation, percutaneous thrombin injection and therapeutic compression of the aneurysm.² Compression has been associated with pain during and post-treatment, whereas thrombin injection has in rare cases led to arterial occlusion requiring thrombectomy as well as pseudoaneurysm rupture. Currently, there is no consensus on the optimal choice between

Figure 2 Persistent flow in neck of aneurysm day 2 postcompression.

Figure 3 Complete thrombosis and resolution day 3 postcompression.

thrombin injection and compression in the case of radial artery pseudoaneurysms.

In our patient's case, therapeutic compression was the chosen approach because there was no focal tenderness and because of the short neck of the pseudoaneurysm. Pressure was applied consistently for 30 min using the ultrasound probe. A radial artery compression device was used following the scan. Repeat ultrasounds postcompression treatment initially demonstrated persistent flow in the neck of the pseudoaneurysm on day 2 (figure 2), which was then followed by complete thrombosis and resolution (figure 3).

Figure 1 Textbook 'yin-yang' appearance of aneurysm.

Learning points

- ▶ Awareness of risk of pseudoaneurysm complication following common invasive vascular procedures such as coronary angiogram.
- ▶ Characteristic yin-yang appearance of pseudoaneurysm on ultrasound.
- ▶ Approaches to treatment of pseudoaneurysm including compression and thrombin injection.

© BMJ Publishing Group Limited 2019. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Swanton A, Coughlan F, Hasan H. *BMJ Case Rep* 2019;**12**:e228723. doi:10.1136/bcr-2018-228723

Contributors AS: writing and researching article. FC: identifying case, editing and technical advice on images and article content. HH: review and advice on article content.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Oweida SW, Roubin GS, Smith RB, *et al.* Postcatheterization vascular complications associated with percutaneous transluminal coronary angioplasty. *J Vasc Surg* 1990;12:310–5.
- 2 Morgan R, Belli AM. Current treatment methods for postcatheterization pseudoaneurysms. *J Vasc Interv Radiol* 2003;14:697–710.

Copyright 2019 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <https://www.bmj.com/company/products-services/rights-and-licensing/permissions/>
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

Customer Service

If you have any further queries about your subscription, please contact our customer services team on +44 (0) 207111 1105 or via email at support@bmj.com.

Visit casereports.bmj.com for more articles like this and to become a Fellow