'Spontaneous graft pseudoaneurysm presenting a decade after carotid-subclavian bypass': an extremely rare complication detected on CT

Vineeta Ojha ¹, Mansi Verma ¹,
Sheragaru Hanumanthappa Chandrashekhara ², Sanjeev Kumar²

¹Department of Cardiovascular Radiology and Endovascular Interventions, All India Institute of Medical Sciences, New Delhi, India

²Radiodiagnosis, All India Institute of Medical Sciences, New Delhi, Delhi, India

Correspondence to

Dr Sanjeev Kumar;
sanjeevradio@gmail.com

Accepted 29 October 2020

DESCRIPTION

A 61-year-old man who had undergone a right carotid-subclavian bypass with saphenous vein homograft for symptomatic right ostio-proximal subclavian artery (SCA) occlusion 10 years ago, presented with gradually progressive pulsatile swelling in the right lower neck. Ultrasonography revealed a pseudoaneurysm, the exact origin of which could not be defined. CT angiography (CTA), done for better delineation of the anatomy, revealed lobulated fusiform partially thrombosed pseudoaneurysm, measuring 3.5×4 cm, arising from the bypass graft connecting the right common carotid artery (CCA) and the right SCA. The aneurysm (thrombosed portion) was causing significant extrinsic compression of right internal jugular vein and the right CCA. In addition, there was significant stenosis of the graft distal to the aneurysm as well as the right SCA distal to the anastomosis (figure 1). However, the run off distal to the SCA was good. There was no history of trauma or any infection and there was no manifest pain in the right arm.

Revascularisation by arterial transposition or bypass is considered the treatment of choice in symptomatic subclavian occlusive disease. The various late complications described after carotid

subclavian bypass graft include graft infection, thrombosis and occlusion.¹ The occurrence of graft pseudoaneurysm as a complication after bypass is extremely rare. A recent case series described late anastomotic pseudoaneurysm in two patients who underwent bypass in the setting of thoracic endovascular aortic repair, occurring at proximal and distal anastomotic sites, at 1 and 35 months, respectively.² To the best of our knowledge, detection of a spontaneous pseudoaneurysm a decade after surgery has not been reported. The postulated mechanisms could be an unnoticed trauma or a subclinical infection. Graft pseudoaneurysm can be managed by open repair or endovascular placement of stent on case to case basis. Since there was no arm claudication, our patient refused open repair and is currently on regular follow-up.

Learning points

- ▶ The occurrence of graft pseudoaneurysm as a complication after bypass is extremely rare.
- ▶ CT angiography plays an important role in detecting various complications after carotid subclavian bypass graft.
- ▶ Graft pseudoaneurysm can be managed by open repair or endovascular stent placement on case-to-case basis.

Figure 1 Volume rendered image (A) demonstrates a lobulated fusiform pseudoaneurysm (black asterisk) of the right carotid-subclavian bypass graft with significant stenosis of the graft distal to it (white block arrow). White surgical clips are seen adjacent to the graft in (A), near its distal anastomosis. There is occlusion of the ostioproximal right subclavian artery (occluded segment denoted by white asterisks) with reformation of a short segment which gives rise to the right vertebral artery (VA). Maximum intensity projection (B) image reveals the pseudoaneurysm (black asterisk) with peripheral thrombus (thick yellow arrowheads) causing significant extrinsic compression of the right internal jugular vein (IJV) and the right common carotid artery (CCA). IA, innominate artery; SCA, subclavian artery.

Contributors VO: wrote the manuscript. MV: made the images. SHC: revised the manuscript and edited the text. SK: proof read the manuscript.

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.

ORCID iDs

Vineeta Ojha <http://orcid.org/0000-0003-4371-5615>

Mansi Verma <http://orcid.org/0000-0002-3313-4350>

Sheragaru Hanumanthappa Chandrashekhara <http://orcid.org/0000-0001-9924-853X>

REFERENCES

- 1 Law MM, Colburn MD, Moore WS, *et al.* Carotid-subclavian bypass for brachiocephalic occlusive disease. choice of conduit and long-term follow-up. *Stroke* 1995;26:1565–71.
- 2 Voigt SL, Bishawi M, Ranney D, *et al.* Outcomes of carotid-subclavian bypass performed in the setting of thoracic endovascular aortic repair. *J Vasc Surg* 2019;69:701–9.

© BMJ Publishing Group Limited 2020. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Ojha V, Verma M, Chandrashekhara SH, *et al.* *BMJ Case Rep* 2020;**13**:e240157. doi:10.1136/bcr-2020-240157

Copyright 2020 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