CASE REPORT

Spontaneous subclavian artery dissection: a pain in the neck diagnosis

Paul Ellis Marik,¹ Matthew T McLaughlin²¹Division of Pulmonary and Critical Care Medicine, Eastern Virginia Medical School, Norfolk, Virginia, USA²Department of Internal Medicine, Eastern Virginia Medical School, Norfolk, Virginia, USA**Correspondence to**
Dr Paul Ellis Marik,
marikpe@evms.edu**SUMMARY**

Isolated subclavian artery dissection is a very rare condition in the absence of trauma or procedures. A 36-year-old woman with a history significant for uncontrolled hypertension presented with a sudden onset of left shoulder and neck pain that woke the patient from sleep. A CT angiogram of the chest revealed a left subclavian artery dissection. The patient was admitted to the hospital for blood pressure control.

BACKGROUND

Subclavian artery dissection is a rare condition in the absence of trauma, aortic anomalies or procedural intervention. Aggressive blood pressure control is important to prevent the expansion of the dissection.

CASE PRESENTATION

The patient is a 36-year-old African-American woman with a medical history of hypertension who presented to the emergency department with severe left shoulder and neck pain. The patient had previously been treated with nifedipine and metoprolol for hypertension but had not taken her blood pressure medications in over 3 months and had been lost to follow-up. She characterised the pain as sharp and stabbing and that it awoke her from sleep. On presentation, the patient was noted to be severely hypertensive with a systolic pressure greater than 200 mm Hg in both arms. Cardiac examination revealed a regular rate and rhythm with no murmurs appreciated. A urine pregnancy test was negative. ECG displayed normal sinus rhythm with no signs of ischaemia. In the emergency department, a CT angiogram of the chest and neck revealed a left subclavian artery dissection that originated at the left vertebral artery with no evidence of dissection involving the aorta or other branch vessels. She was admitted to the intensive care unit and started on intravenous infusions of esmolol and nicardipine for blood pressure control. The patient's pain improved with blood pressure control. A vascular surgeon was consulted and it was recommended that the patient be managed with blood pressure control and a follow-up CT angiogram to assess for the extension of the dissection. Once the blood pressure was controlled with intravenous agents she was transitioned to oral amlodipine and metoprolol. On this regimen, the blood pressure remained elevated and lisinopril was added (she was mildly hypokalaemic). Diagnostic work up for vasculitis, including antinuclear antibody, rheumatoid factor and rapid plasma reagin

were negative. Additionally, urine metanephrine and normetanephrine were not elevated. Renal artery duplex ultrasound revealed no evidence of renal artery stenosis. Follow-up CT angiogram 2 days after admission did not demonstrate a progression of the dissection, and the patient was discharged home with outpatient follow-up for blood pressure management.

INVESTIGATIONS

CT angiogram of the chest and neck showed left subclavian artery dissection originating at the origin of the left vertebral artery with no evidence of dissection involving the aorta or other branch vessels (figure 1).

Repeat CT angiogram of the neck 2 days later showed no change in the left subclavian artery dissection with no proximal or vertebral artery extension.

DIFFERENTIAL DIAGNOSIS

- ▶ Aortic aneurysm
- ▶ Acute coronary syndrome
- ▶ Pulmonary embolism

TREATMENT

The patient was admitted to the intensive care unit to facilitate the control of her blood pressure with intravenous esmolol and nicardipine. The patient

Figure 1 CT angiogram demonstrating dissection of the left subclavian artery.

CrossMark

To cite: Marik PE, McLaughlin MT. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-201223

was then transitioned to oral amlodipine, metoprolol and lisinopril. Follow-up CT angiogram 2 days after admission displayed no extension of the dissection.

OUTCOME AND FOLLOW-UP

The patient's blood pressure was controlled with transition to oral blood pressure medications with follow-up CT angiogram 2 days after admission that showed no extension of the dissection. The patient had outpatient follow-up for further blood pressure management. At her initial follow-up visit, the patient had no symptoms and reported that she had been compliant with her blood pressure medication regimen. However, as her blood pressure remained mildly elevated, hydrochlorothiazide was added. Additionally, plans were made for close follow-up of her blood pressure. She was scheduled to undergo repeat CT angiogram approximately 8 weeks after discharge.

DISCUSSION

Spontaneous subclavian artery dissection or dissection following minimal trauma is a rare entity, with less than 10 cases having been reported in the literature.¹ Subclavian artery dissection is more commonly reported following accidental subclavian artery catheterisation.² It has also been described as occurring with other anomalies of the aortic arch or following trauma.³ Subclavian artery dissection has been associated with hypertension, trauma, vasculitis, pregnancy, migraine and drug abuse.¹

The clinical presentation of subclavian artery dissection has included back pain, thoracic pain, dizziness and arm paresthesias or other neurological symptoms mimicking that of a stroke.¹ It is therefore important to consider imaging of the subclavian artery when unexplained neck and back pain occur or when there is suspicion of vertebral artery dissection.⁴

The prognosis of subclavian artery dissection appears to be good. Good outcomes have been achieved with conservative management alone. Intramural haemorrhage, false aneurysm, thrombosis or emboli to the head, neck or upper extremity are complications that have been reported.¹ In cases where ischaemia occurs as a result of subclavian artery dissection, endovascular treatment has resulted in good outcomes.⁵ Conservative management should be considered in patients with intact pulses

and no symptoms of ischaemia.⁶ However, isolated cases have been reported where surgical grafting was used to treat this condition.⁷

Learning points

- ▶ Spontaneous subclavian artery dissection is rare cause of shoulder, neck or chest pain that may mimic acute coronary syndrome or pulmonary embolism.
- ▶ Clinical suspicion in patients with unexplained shoulder or neck pain is important to establish the diagnosis.
- ▶ Treatment may involve endovascular repair if ischaemic symptoms are present, however in patients with limited symptoms close follow-up and conservative management has resulted in good outcomes.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Winblad J, Grolie T, Ali K. Subclavian artery dissection. *Radiol Case Rep* 2012;7:4.
- 2 Frohwein S, Ververis JJ, Marshall JJ. Subclavian artery dissection during diagnostic cardiac catheterization: the role of conservative management. *Cathet Cardiovasc Diagn* 1995;34:313–17.
- 3 Henderson R, Ward C, Campbell C. Dissecting left subclavian artery aneurysm: an unusual presentation of coarctation of the aorta. *Int J Cardiol* 1993;40:69–70.
- 4 Garewal M, Selhorst J. Subclavian artery dissection and triple infarction of the nervous system. *Arch Neurol* 2005;62:1917–19.
- 5 Ananthakrishnan G, Bhat R, Zealley I. Spontaneous subclavian artery dissection causing ischemia of the arm: diagnosis and endovascular management. *Cardiovasc Intervent Radiol* 2009;32:326–8.
- 6 Funada A, Ino H, Fujino N, et al. Idiopathic dissection from left subclavian artery to brachial artery: spontaneous repair with conservative management. *J Cardiol Cases* 2010;1:e49–51.
- 7 Guhathakurta S, Agarwal R, Borker S, et al. Chronic dissection of the left subclavian artery with pseudocoarctation. *Tex Heart Inst J* 2003;30:221–4.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-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

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

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