Aortic dissection secondary to giant cell arteritis

Connor Cotton[1]
Sarah Chatharoo[1]
Pankaj Chaturvedi[1]
Author details can be found at the end of this article
Correspondence to:
Connor Cotton;
connor.cotton@nhs.net

Introduction

Giant cell arteritis is characterised by the granulomatous inflammation of medium and large blood vessels. It typically involves the branches of the external carotid artery, leading to its well-reported visual symptoms (Mackie et al, 2020).

Aortic dissection has rarely been reported as a complication of giant cell arteritis, but studies have identified it as a cause of death. Type A dissections are more closely associated with giant cell arteritis (de Boysson et al, 2021). This article reports a patient presenting with aortic dissection just days after diagnosis of giant cell arteritis, which is unusual (Nayar et al, 2013). The dissection was type B, which is also atypical.

Discussion

This case highlights a rarely reported complication of giant cell arteritis. It is of interest given the short period between diagnosis of giant cell arteritis and aortic dissection. The median time from diagnosis of giant cell arteritis to detection of aortic dissection is estimated at 1.1 years (Nayar et al, 2013).

Case report

A 59-year-old female presented to the emergency department with sudden onset thoracic back pain. This was associated with shortness of breath and pain that was radiating to the abdomen. The patient had attended the emergency department 3 days earlier with a severe temporal headache. The temporal headaches started approximately 8 weeks earlier and were increasing in severity. There was tenderness over the temporal region when combing the hair. Erythrocyte sedimentation rate and C-reactive protein were significantly elevated (erythrocyte sedimentation rate 121 mm/hr (normal range 1–15 mm/hr), C-reactive protein 183 mg/litre (normal range 0–5 mg/litre)). She was started on high-dose steroids for giant cell arteritis and referred to rheumatology. Ophthalmology assessment showed no findings to suggest anterior ischaemic optic neuropathy. Her mother had a history of giant cell arteritis and experienced an intracranial haemorrhage at the age of 59 years. Her father had a myocardial infarction aged 48 years. She was taking prednisolone 60 mg and simple analgesia. She was a current smoker of 10 cigarettes a day and drank alcohol on occasion. Cardiovascular and respiratory examination were normal.

A computed tomography aortogram was performed in the emergency department, which showed a type B aortic dissection (Figure 1). There was a descending thoracic aortic aneurysm with a maximum anterior-posterior diameter of 3.3 cm. The case was discussed with the vascular and cardiothoracic teams who advised strict blood pressure control, aiming for a systolic blood pressure of less than 120 mmHg. They also advised rediscussion in the event of any deterioration and repeating the scan in 48 hours. She was given a stat dose of amlodipine and started on intravenous labetalol. Repeat computed tomography aortogram showed no progression of the dissection, with no retrograde extension or involvement of the aortic arch or its branches. The cardiothoracic team advised continuing blood pressure monitoring and said that they would discuss the patient in their multidisciplinary team meeting. Chest X-ray showed right lower lobe consolidation, so she was started on intravenous co-amoxiclav for hospital-acquired pneumonia as per trust protocol. Ultrasound Doppler of the temporal arteries was highly suspicious for giant cell arteritis (Figure 2). Rheumatology subsequently confirmed the diagnosis of giant cell arteritis and advised reduction of prednisolone by 5 mg weekly until a dose of 20 mg was reached. Zoledronic acid and Calci-D were given for bone protection.

Medication doses were titrated to achieve blood pressure targets. She was discharged with amlodipine, labetalol and ramipril. She will be followed up by the cardiothoracic and vascular teams, as well as rheumatology.

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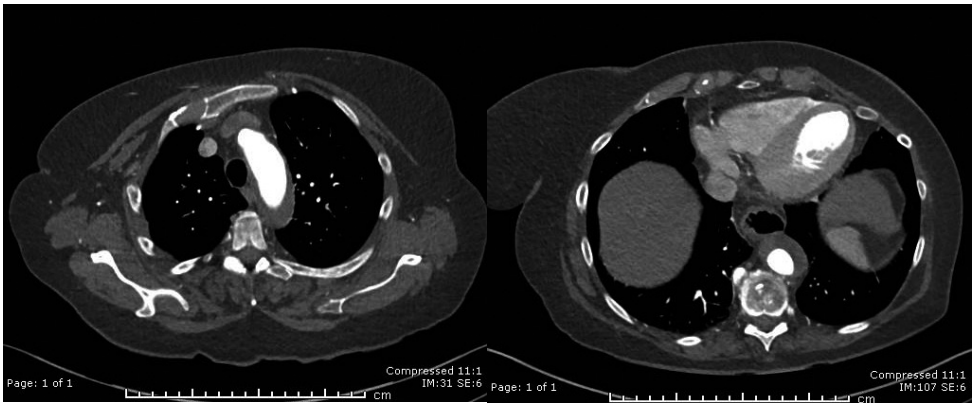

Figure 1. Initial computed tomography angiogram of aorta demonstrating type B aortic dissection.

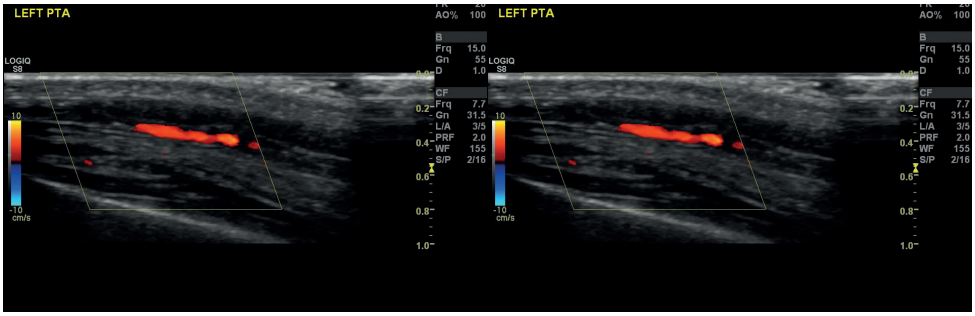

Figure 2. Ultrasound Doppler temporal artery showing halo sign confirming diagnosis of giant cell arteritis.

The largest review of the association between giant cell arteritis and aortic dissection is a multi-centre retrospective study (de Boysson et al, 2021) that identified 46 patients who had an aortic dissection following a proven diagnosis of giant cell arteritis or that lead to the diagnosis of giant cell arteritis. In those who had a dissection following diagnosis of giant cell arteritis, median time from diagnosis to aortic dissection was 53 months.

The majority of the few reported cases of aortic dissection associated with giant cell arteritis are type A (de Boysson et al, 2021). The mechanism by which dissection occurs in giant cell arteritis is described by Agard et al (2006) – they predominantly occur in the ascending aorta. Of the dissections reviewed by de Boysson et al (2021), 86% (n=18) inaugural dissections were classified as type A, with only 9% (n=2) being type B. In the follow-up group, 56% (n=14) were type A and 32% (n=8) were type B.

Aortic dissection carries a poor prognosis: 40% of patients die immediately and 5–20% die perioperatively (Hiratzka et al, 2010). Despite this, life expectancy for patients with giant cell arteritis is unaffected (Kermani et al, 2013). Dissections are more likely in areas of aneurysmal dilatation (Hiratzka et al, 2010). This is important for patients with giant cell arteritis who are 17.3 times more likely to have aneurysmal dilatation of the thoracic aorta and 2.4 times more likely to have an abdominal aortic aneurysm (Evans et al, 1995). It has been suggested that patients with giant cell arteritis should be screened for large-vessel manifestations. This is not common practice in the UK, but the authors would suggest considering it.

Author details

[1]Department of Diabetes and Endocrinology, Doncaster and Bassetlaw Teaching Hospitals NHS Trust, Worksop, UK

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Learning points

- Aortic dissection can occur very soon after the initial presentation of giant cell arteritis, with potentially devastating consequences. Clinicians should be aware of this association when assessing patients with suspected giant cell arteritis.
- While the literature suggests that type A dissections are more commonly associated with giant cell arteritis, the dissection can be isolated to the descending thoracic aorta making it a type B dissection.
- With increasing evidence highlighting the involvement of large vessels in giant cell arteritis, there is an argument for screening all patients with a new diagnosis of giant cell arteritis for large vessel involvement with baseline imaging. This could include abdominal ultrasound, transthoracic echocardiogram and computed tomography or magnetic resonance angiography of the aorta. Regular surveillance of these patients should also be considered.

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