Age and Ageing 2002; **31:** 310–312

CASE REPORT

Aortic dissection and rupture presenting as suprasternal bruising and neck swelling

PATRICK ENGLISH, MUKUNDARAO KISHORE[1]

Diabetes and Endocrinology Research Group, 3rd Floor, Clinical Sciences Centre, University Hospital Aintree, Lower Lane, Liverpool L9 7AL, UK
[1]Addenbrooke's University Hospital NHS Trust, Cambridge, UK

Address correspondence to: P. English. Fax: (+ 44) 151 34 84649. Email: patrickenglish@doctors.org.uk

Abstract

Background: a 76-year-old man presented with transient loss of consciousness associated with swelling of the neck, bruising in the suprasternal notch and an absent left carotid pulse. Blood pressure was equal in both arms and chest x-ray was normal, but computed tomography of the neck and thorax showed dissection and rupture of the thoracic aorta with extensive intra-mediastinal bleeding.
Outcome: surgical intervention was inappropriate in this situation and the patient died within 4 hours of presentation.
Conclusion: syncope is a common presentation to hospital in older people and its cause may be difficult to elucidate, particularly if the patient is unable to provide a reliable history. Syncope without pain is a rare presentation of aortic dissection and the occurrence of anterior chest wall bruising has not been described previously. Pulse deficits and abnormal chest x-ray findings are often cited as indicative of aortic dissection but are rare manifestations and their absence should not be used to exclude this diagnosis.

Keywords: *aorta, dissection, clinical features, diagnosis*

Presentation

A 76-year-old man with a history of Parkinson's disease and Lewy body dementia was admitted to hospital from a nursing home with a history of transient loss of consciousness followed by the appearance of bruising in the suprasternal notch and neck swelling. On admission he had a further brief loss of consciousness lasting for a few seconds and associated with a fall in blood pressure from 154/86 to 88/64; this rapidly resolved with return of his blood pressure to its previous value. Detailed examination revealed blood pressure to be 152/84 in his left arm and 146/88 in his right arm, heart sounds were normal, but there was an absent left carotid pulse with no audible bruits. There were no lateralized neurological deficits. The swelling of the neck and bruising noted on admission were increasing (Figure 1). Chest radiograph and electrocardiogram were normal.

Carotid artery dissection or rupture of a carotid artery aneurysm were considered. Increasing neck swelling led to concerns regarding the patient's ability to maintain his airway. Urgent computed tomography of the neck and upper thorax was requested. This revealed a large mediastinal haematoma, causing some tracheal compression, and bilateral free fluid in the pleural cavities suggestive of haemothoraces (Figure 2). Although an intimal tear was not clearly seen, the most likely diagnosis to fit the clinical and radiological picture was rupture of the thoracic aorta following acute dissection. The patient's condition rapidly deteriorated, and he died peacefully within four hours of admission. Permission for post-mortem examination was not given.

Discussion

Aortic dissection presents acutely in two thirds of cases. Men outnumber women approximately 2 : 1 [1, 2], and pre-existing hypertension is noted in more than three-quarters of patients. A review of patients presenting

Figure 1. Bruising over the sternum which was expanding in size.

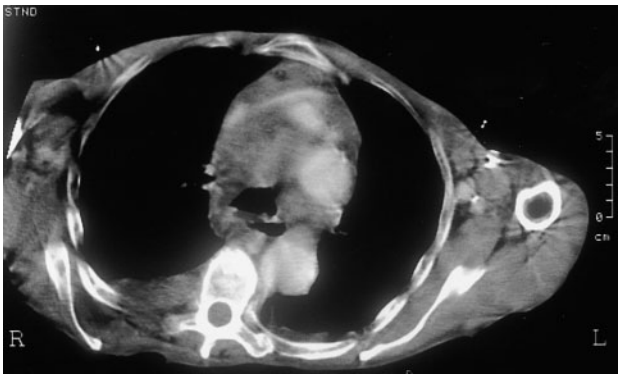

Figure 2. Haematoma in the superior mediastinum with deviation of the aorta to the left and bilateral haemothoraces.

with acute aortic dissection at the Mayo Clinic [2] was performed to aid in their more prompt recognition. Acute onset of severe pain is the most common initial symptom (74%) and most frequently occurs in the chest (anterior or posterior), neck, throat or jaw. Syncope is unusual as a presenting feature. It occurred in the presence of pain in only 11 out of 227 patients assessed (5%), and without pain in only 1 patient. Ten of these 12 patients had haemopericardium and tamponade. Although many series suggest them being present in more than 50% of cases [3], pulse deficits were rare in the Mayo Clinic group, being present in only 6.5%. Aortic regurgitant murmurs, another commonly quoted sign, were only present in 10%. It is worth noting that, although chest x-rays were reported as abnormal in 88% of cases, in only 9% of reports were aortic dissection considered a possibility. This is in keeping with other studies, which have shown that chest x-ray was not helpful in distinguishing between myocardial infarction and aortic dissection [4].

What then may help us make this diagnosis swiftly? Computed tomography [5, 6], magnetic resonance imaging [7] and transoesophageal echocardiography [8, 9] are all validated and sensitive non-invasive procedures capable of confirming the diagnosis in over 90% of cases in the right hands. They are used in preference to the gold standard of aortography because of their speed and ease of use. The most important thing is to maintain a high index of clinical suspicion. If a patient, especially one with a history of hypertension, presents with an acute and severe illness and symptoms or signs suggest that this might be of vascular origin, particularly if they include chest pain, then aortic dissection should be considered and appropriate investigation and management pursued. Treatment is, of course, determined by the condition of the patient, the history and the location of the dissection. Acute dissections (less than 2 weeks of symptoms) originating in the ascending aorta (Stanford type A) are best treated surgically unless the condition of the patient prohibits this [3, 10, 11]. The pre-operative mortality varies between 2–20% depending on the delay to surgery, and operative survival to discharge is between 80–90% [3]. Acute dissections originating in the descending aorta (Stanford type B) are generally treated medically if uncomplicated (outcome being unaltered whether medical or surgical intervention employed [12, 13]), with control of symptoms and blood pressure (target systolic pressure between 100–120 mmHg), though surgical treatment is indicated in the presence of complications. 90% of distal dissections survive to discharge. Chronic dissections represent a self-selected group that have already survived. Medical treatment is recommended for all in the absence of complications and 90% survive to discharge [3]. Survival rates post-discharge in all groups runs between 75–82% [12, 14, 15] with blood pressure control being the most important factor in prevention of recurrence. In this case rupture of the thoracic aorta had already occurred and conservative treatment was pursued as the most appropriate option in view of the patient's marked frailty and the likely poor prognosis of surgical intervention.

Key points

- Syncope is a common presentation to hospital in older people.
- Aortic dissection should be considered if a patient, especially one with a history of hypertension, presents with an acute and severe illness and symptoms or signs suggest that this might be of vascular origin, particularly if they include chest pain.
- Aortic dissection is only considered at initial presentation in 15–62% of confirmed cases. It is a post-mortem diagnosis in at least one third.
- The commonly sought signs, pulse deficits, aortic regurgitant murmurs, and blood pressure differences are rare.
- Chest x-ray, although appropriate, is rarely helpful in the differential diagnosis.

- Depending on the expertise available in your hospital, CT, MRI or transoesophageal echocardiography are the most appropriate first line investigations.
- The early use of CT, MRI or transoesophageal echocardiography not only permit improved and earlier diagnosis of this condition, but also allow a realistic assessment of the management options, and are necessary if we are to improve on its current prognosis.

References

1. Meszaros I, Morocz J, Szlavi J *et al.* Epidemiology and clinicopathology of aortic dissection. Chest 2000; 117: 1271–8.

2. Spittell PC, Spittell JA Jr, Joyce JW *et al.* Clinical features and differential diagnosis of aortic dissection: experience with 236 cases (1980 through 1990). Mayo Clin Proc 1993; 68: 642–51.

3. Isselbacher EM, Eagle KA, DeSanctis RW. Diseases of the aorta. In Braunwald E ed. Heart Disease. A Textbook of Cardiovascular Medicine, 5th edn. Philadelphia: W. B. Saunders Company, 1997; 1546–81.

4. Hartnell GG, Wakeley CJ, Tottle A, Papouchado M, Wilde RP. Limitations of chest radiography in discriminating between aortic dissection and myocardial infarction: implications for thrombolysis. J Thorac Imaging 1993; 8: 152–5.

5. Vasile N, Mathieu D, Keita K, Lellouche D, Bloch G, Cachera JP. Computed tomography of thoracic aortic dissection: accuracy and pitfalls. J Comput Assist Tomogr 1986; 10: 211–5.

6. Thorsen MK, San Dretto MA, Lawson TL, Foley WD, Smith DF, Berland LL. Dissecting aortic aneurysms: accuracy of computed tomographic diagnosis. Radiology 1983; 148: 773–7.

7. Dinsmore RE, Liberthson RR, Wismer GL *et al.* Magnetic resonance imaging of thoracic aortic aneurysms: comparison with other imaging methods. Am J Roentgenol 1986; 146: 309–14.

8. Penco M, Paparoni S, Dagianti A *et al.* Usefulness of transesophageal echocardiography in the assessment of aortic dissection. Am J Cardiol 2000; 86: 53G–56G.

9. Adachi H, Kyo S, Takamoto S, Kimura S, Yokote Y, Omoto R. Early diagnosis and surgical intervention of acute aortic dissection by transesophageal color flow mapping. Circulation 1990; 82 (suppl. 5): IV19–23.

10. Miller DC, Stinson EB, Oyer PE *et al.* Operative treatment of aortic dissections. Experience with 125 patients over a sixteen-year period. J Thorac Cardiovasc Surg 1979; 78: 365–82.

11. Masuda Y, Yamada Z, Morooka N, Watanabe S, Inagaki Y. Prognosis of patients with medically treated aortic dissections. Circulation 1991; 84 (suppl. 5): III7–13.

12. Doroghazi RM, Slater EE, DeSanctis RW, Buckley MJ, Austen WG, Rosenthal S. Long-term survival of patients with treated aortic dissection. J Am Coll Cardiol 1984; 3: 1026–34.

13. Glower DD, Fann JI, Speier RH *et al.* Comparison of medical and surgical therapy for uncomplicated descending aortic dissection. Circulation 1990; 82 (suppl. 5): IV39–46.

14. Haverich A, Miller DC, Scott WC *et al.* Acute and chronic aortic dissections–determinants of long-term outcome for operative survivors. Circulation 1985; 72: II22–34.

15. Miller DC, Mitchell RS, Oyer PE, Stinson EB, Jamieson SW, Shumway NE. Independent determinants of operative mortality for patients with aortic dissections. Circulation 1984; 70: I153–64.