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Case Report

Extensive aortic dissection (Stanford Type A) presenting with confusion in a patient: a case report [☆]

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ABSTRACT

Spontaneous extensive aortic dissection is rarely documented in the literature with a misdiagnosis rate of up to 38% in previous studies. Vital signs and clinical manifestations vary and depend on the extent of the dissection and location. We present a rare case of extensive Stanford Type A dissection in a 60-year-old female patient who presented with confusion. Type A aortic dissection is a surgical emergency that is important for clinicians to have a low threshold of suspicion of the life-threatening condition due to the diverse and potentially atypical clinical presentation of aortic dissection.

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Introduction

Type A aortic dissection is a life-threatening condition with an incidence of only 2.5–3.5 per 100,000 patients [1]. Vital signs and clinical manifestations vary and depend on the extent of the dissection and location. A misdiagnosis rate of up to 38% was shown in previous studies. We report a rare case of extensive Stanford A dissection causing confusion and subsequent death of a patient.

Case report

A 60-year-old female attended a district general hospital as a stroke alert with a 5-hour history of sudden onset confusion, syncope, and headache. Her medical history included hypertension which was controlled with felodipine. She was normotensive and alert on admission. Abdominal tenderness was found on initial examination findings with no signs of peritonitis and significant agitation and confusion.

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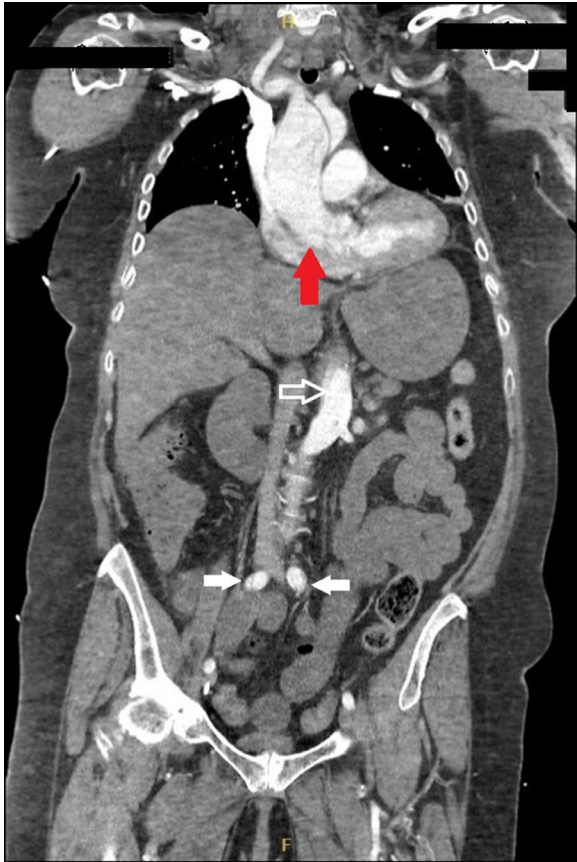


Fig. 1 – Coronal section of CT angiogram aorta showing Type A dissection from the aortic root (red arrow), extending throughout the aorta (empty arrow) and involving common iliac arteries bilaterally (solid arrows), with poor enhancement involving the liver, stomach, spleen, small bowel, part of the colon and the right kidney, highly suspicious of ischemia.

Initial hematology results revealed a highly elevated D-dimer of 24,000 and a raised lactate on venous blood gas. Computerized tomography (CT) head and abdomen-pelvis were performed. The CT head did not show any acute intracranial pathology but the CT abdomen-pelvis revealed no enhancement in the right kidney with a thrombus in both superior mesenteric artery and celiac artery. CT angiogram of aorta (Figs. 1-5) was later performed which showed a Stanford Type A aortic dissection extending throughout the aorta, extending into common carotid arteries, celiac trunk, superior mesenteric artery, right renal artery and common iliac arteries with associated with ischemia of liver, spleen, right kidney, small bowel and right colon. Due to the late presentation and poor prognosis, she was managed nonoperatively and unfortunately died on day 2 of admission.

Discussion

Type A aortic dissections a life-threatening condition with an incidence of only 2.5-3.5 per 100,000 patients. A false lumen



Fig. 2 – Transverse section of CT angiogram aorta showing only enhancement of left kidney (red arrow) with occlusion of SMA (white arrow).

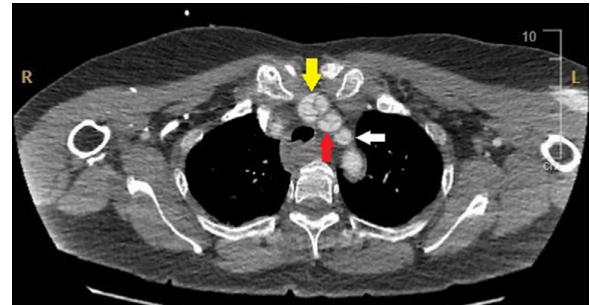


Fig. 3 – Transverse section of CT angiogram aorta showing the dissection extending into right brachiocephalic (red arrow), left common carotid (yellow arrow), and left subclavian artery (white arrow).

is formed by intimal-medial tear of the aortic wall in aortic dissection. Type A aortic dissection is a surgical emergency with a mortality rate of 2% per hour and 50% of the patients will die within 48 hours without surgical intervention [2]. The most common risk factor is chronic hypertension which can be found in 73% of the patients [3].

Spontaneous extensive aortic dissection is not documented in the existing literature. Vital signs and clinical manifestations vary and depend on the extent of the dissection and location. A misdiagnosis rate of up to 38% was shown in previous studies [4]. Chest or abdominal pain was mostly presented by patients with Stanford Type A dissection [5]. If the dissection extends into carotid arteries, patients can present with neurological symptoms such as syncope, confusion and focal neurological deficits as a result of general hypoperfusion or dissection to the branched arteries supplying to the brain. Other signs and symptoms can be manifested as ischemia and failure of the organs or tissues distal to the tear. It is often challenging to diagnose aortic dissection in up to one third of patients as they present with a pain-free dissection with predominant neurological symptoms [6].



Fig. 4 – Coronal section of CT angiogram aorta showing the dissection extending into right common iliac artery (arrow), showing the false and true lumen.

Aortic dissection can be misdiagnosed as acute ischemic stroke [7]. Thrombolysis for misdiagnosed acute ischemic stroke without consideration of aortic dissection can be disastrous [8]. Particular attention to physical examination findings with a chest radiograph as part of initial assessments of acute ischemic stroke could help to reduce the catastrophic consequences of thrombolysis in the case of an undiagnosed aortic dissection [7]. D-dimer may offer an additional support for the diagnostic workup of aortic dissection [9]. Due to the diverse and potentially atypical clinical presentation of aortic dissection, it is important for clinicians to have a low threshold of suspicion of the condition for patients with an unusual combination of cardiac and neurological symptoms and signs to improve prognosis and reduce mortality.

Conclusion

Type A aortic dissection with neurological symptoms is rare and suspicion should be raised in cases with an unusual combination of cardiac and neurological symptoms and signs. Vital signs and clinical manifestations of Type A aortic dissection can vary and depend on the extent of the dissection and location. Chest radiograph and D-dimer should be considered

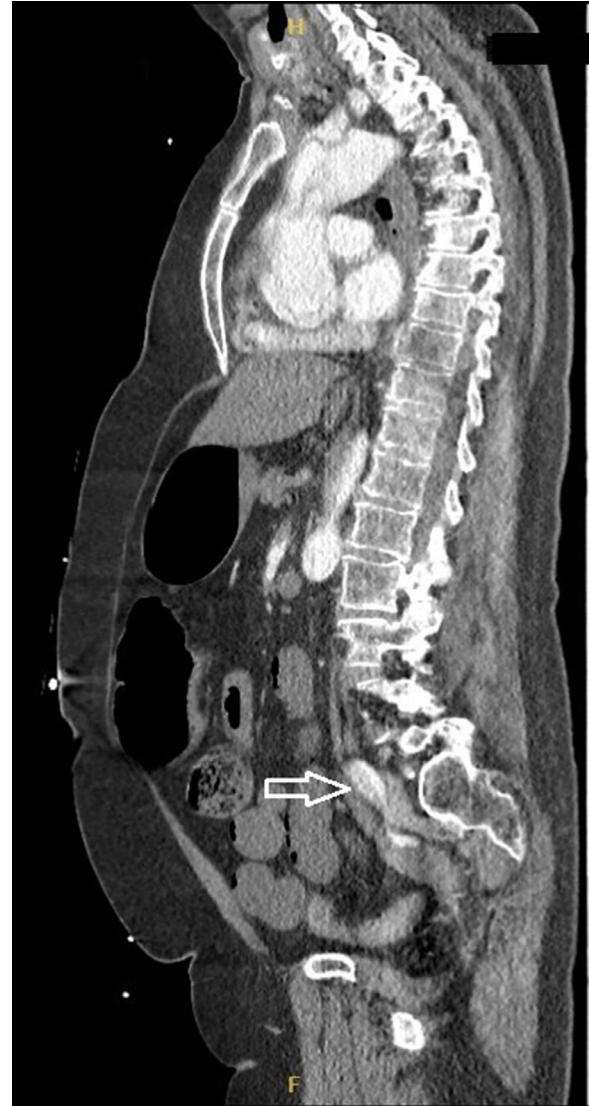


Fig. 5 – Sagittal section of CT angiogram showing the dissection extending into left common iliac artery (arrow), showing the false and true lumen.

in the diagnostic workup of Type A aortic dissection in the context of acute ischemic stroke.

Consent statement

Informed consent for publication has been obtained for the article “Case report of an extensive Stanford Type A aortic dissection causing confusion of a patient.”

Patient consent

Written, informed consent for publication of case was obtained from the patient.

REFERENCES

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- [1] Bhogal S, Khalid M, Murtaza G, Bhandari T, Summers J. Nearly missed: painless aortic dissection masquerading as infective endocarditis. *Cureus* 2018;10(5) e2587.
 - [2] McClure R, Ouzounian M, Boodhwani M, El-Hamamsy I, Chu M, Pozeg Z, et al. Cause of death following surgery for acute type A dissection. *AORTA* 2017;05(02):33–41.
 - [3] Lee E, Jourabchi N, Sauk S, Lanum D. An extensive Stanford Type A aortic dissection involving bilateral carotid and iliac arteries. *Case Rep Radiol* 2013;2013:1–5.
 - [4] Wong H, Bevis P. Acute aortic dissection: a missed diagnosis. *BMJ Case Rep* 2018 bcr-2018-226616.
 - [5] Taylor G, Barney M, McDowell E. Chest pain while gardening: a Stanford Type A dissection involving the aortic root extending into the iliac arteries—an uncommon and potentially catastrophic disease process. *Int J Emerg Med* 2019;12(1):25.
 - [6] Gaul C, Dietrich W, Erbguth F. Neurological symptoms in aortic dissection: a challenge for neurologists. *Cerebrovasc Dis* 2008;26(1):1–8.
 - [7] Guglielmi V, Groeneveld N, Posthuma L, Groot A, Majoie C, Talacua H, et al. Aortic dissection masquerading as a code stroke: a single-centre cohort study. *Eur Stroke J* 2019;5(1):56–62.
 - [8] Fessler A, Alberts M. Stroke treatment with tissue plasminogen activator in the setting of aortic dissection. *Neurology* 2000;54(4):1010.
 - [9] Yao J, Bai T, Yang B, Sun L. The diagnostic value of D-dimer in acute aortic dissection: a meta-analysis. *J Cardiothorac Surg* 2021;16(1):343.