



Aortic Saddle Embolism: A Common Complaint With Multifaceted Catastrophe Disease

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Non-traumatic lower back pain is a common complaint seen in all emergency department (ED) visits. For many individuals, episodes of back pain are self-limited, but rarely, back pain is a signal of serious medical illness. A 58-year-old male was admitted to our ED suffering from lower back pain with radiation to the lower legs. Examination found bilateral lower limbs weakness with numbness and weak dorsalis pedis pulse. This is the point which peripheral arterial disease was considered and contrast computed tomography scan of abdomen and pelvis was arranged. Enormous aortic bifurcation clots were seen. This patient was soon to recover from the illness after receiving transfemoral catheterization thrombolysis and stenting. Aortic saddle embolism is a rare case of spontaneous acute aortic occlusion which the embolus terminated and straddled at the aortic bifurcation, producing bilateral lower extremity arterial obstruction and led to serious hemodynamic and metabolic consequences. The objective in this report is to raise awareness about this potentially fatal condition. In addition, to emphasize the importance of a thorough assessment and expeditious treatment in order to prevent serious complications including limb loss and potential mortality.

Key words: *aortic occlusion, embolism, back pain*

Introduction

The acute onset of non-traumatic lower back pain is a common complaint seen in all emergency department (ED) visits and remains an emergent diagnostic challenge for the treating physician. The etiologies of lower back pain may include infection, inflammatory, vascular, space occupying lesions, spinal disorder, and other non-spinal disorders. In most cases, only conservative therapy is needed. Among all, acute aortic occlusion is an infrequent occurrence responsible for the non-traumatic low back pain. However, the consequence of either delay or misdiagnosis of such a condition may be catastrophic.

Case Report

A 58-year-old male presented at our ED with a complaint of the sudden onset of lower back pain with radiation to a bilateral lower extremity. The symptoms began shortly prior to arrival when the patient experienced the sudden onset of severe pain upon standing from a supine position while getting up from a bed. The patient described the pain was rated 10/10 associated with rapidly progressive numbness and weakness. On ED presentation, the patient was noted to be unable to ambulate due to severe pain over both lower extremities. His initial vital signs were as follows: blood pressure of 194/109 mmHg, heart rate of 104 bpm and regular, respiratory rate of 18 breaths per minute, and body temperature of 36.1°C. The patient was an obese male with the significant medical

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history of hypertension, hyperlipidemia, diabetic mellitus, atrial fibrillation, and cerebrovascular accident. Focused examination revealed diffuse tenderness over lumbar and inner surfaces of both thighs with mild numbness, and muscle power was rated 4/5 at a bilateral lower extremity. Posterior tibial and dorsalis pedis pulses were only barely palpable bilaterally. The presenting signs and symptoms had raised concern for a vascular etiology. Therefore, an emergent abdominal and pelvis computed tomography (CT) scan with contrast was performed. The scans revealed the near complete occlusion of the distal abdominal aorta with a large clot overriding the aortic bifurcation extending to both common iliac arteries. There's no evidence of plaques formation or narrowing of the abdominal aorta wall around the occlusion. Therefore, the image findings tend to favor the diagnosis of aortic saddle embolism (ASE) (Fig. 1). The patient was immediately taken to the cardiac catheterization room and underwent bilateral transfemoral catheterization thrombolysis and stenting of both right and left common iliac artery follow by urokinase therapy. The patient experienced rapid improvement in clinical symptoms and was successfully discharged on a postoperative day seven ambulating without any deficit.

Discussion

ASE is a rare condition that occurs when a blood clot originating from the proximal arterial vasculature which stops at the aortic bifurcation and consequently disrupts blood flow to distant organs. In most cases, the clot originates from the left heart, notably from the left atrium.^{1,2} Despite the infrequent occurrence

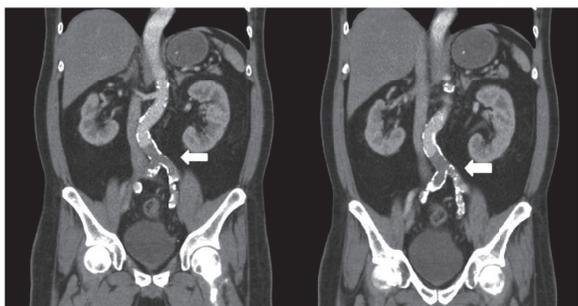


Fig. 1. Abdominal computed tomography (CT) with contrast. Abdominal CT demonstrates near complete occlusion of the distal abdominal aorta with a large saddle embolism (arrow) overriding the aortic bifurcation extending to both common iliac arteries.

of the condition, a significant number of ASE-related deaths have been described by postmortem diagnosis in the literature. The most commonly affected groups of people are middle-aged smokers with peripheral vascular disease and elderly individuals plagued with advanced cardiovascular disease. Recent studies have demonstrated an evolving trend of nonprocedurally associated abdominal aortic obstruction from predominantly embolic to predominantly thrombotic causes (76%) with an overall mortality of 34%.³

Symptoms other than ischemia at the time of presentation may mislead the treating physician resulting in delay or misdiagnosed the potentially fatal disease. As it is often the case, a thorough history and physical examination with a structured approach can significantly improve in patient care and help to arrive at an accurate diagnosis promptly. It should be noted that non-traumatic lower back pain patients with rapidly progressive symptoms over a few hours should be presumed to have an ischemic etiology of possible vascular origin. In the diagnosis of aortoiliac occlusive disease, the critical symptoms and signs to look for in ED include sudden onset of bilateral leg pain, pallor & paresthesia progressing to paralysis, associated with characteristic mottling. The ankle-brachial index (ABI) is easily performed and has been noted to be of diagnostic utility in the assessment of the acute vascular injury of the lower extremity.⁴ An ABI of < 0.9 is of prognostic utility in the assessment of cardiovascular risk and functional impairment.⁵

Although in a majority of cases the diagnosis is clinical, a simple readily available and noninvasive approach with duplex scanning of the aorta, iliac and common femoral arteries help in many cases. In addition, contrast enhanced abdominal CT angiography (CTA) help us to confirm the diagnosis and play a vital role in assessing and planning management. Both image study demonstrates the extension of the thrombus, status of the distal circulation and also delineates the status of the visceral circulation.^{6,7} CTA is a diagnostic modality of choice for patients with vascular emergencies that include acute aortic syndromes, vascular trauma, internal bleeding, thrombosis, and embolism. It is often used for visualization of the vascular tree as a part of the pre-procedural planning of surgical procedures. It provides for rapid and non-invasive assessment of vascular anatomy with high diagnostic accuracy.

Emergency revascularization should be based on sound clinical judgment supported by hemody-

dynamic parameters. The management spectrum ranges from medical therapy, simple thromboembolectomy, extra anatomic bypass, and aortic reconstruction to thrombolytic therapy. During surgical interventions, controlled limb reperfusion and fasciotomies seem lower the risk of reperfusion injuries. Medical therapy should be continued during follow up as these patients are at very risk of developing other manifestations of arterial occlusive and thrombotic disease.⁷

Conclusion

ASE is an infrequent occurrence but potentially fatal disease. Without prompt identification and correction of this multifaceted catastrophe condition, irreversible tissue injury and permanent organ dysfunction will occur. Altogether, these events put the patient in great danger of neurologic impairment and potential mortality.⁷ In general, lower extremity dysfunction is the most common sequelae of ASE, ranging from mild sensory and motor deficits to the loss of the limb.⁷ Therefore, early diagnosis remains the key factor for an optimum outcome. Emergency physicians must have a high index of suspicion in these cases.

Conflicts of Interest Statement

None of the authors have any conflicts of interest to disclose.

Financial Disclosure

None.

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