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CE - MEDICAL ILLUSTRATION

Abdominal aortic occlusion due to acute thrombosis

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Aortic occlusion due to aortic thrombosis is a rare condition which is often life-threatening. It occurs most commonly in individuals who are predisposed to cardiovascular diseases. Rescue surgery is the only curative treatment whose prognosis essentially depends on the speed of diagnosis. We report a case of abdominal aorta occlusion and discuss its etiologies, clinical presentations, prognosis and treatment.

A 62-year-old man presented to our Emergency Department with bilateral severe leg pain. The pain had appeared abruptly the previous day whilst the patient was in a sitting position, with no history of trauma. The patient had a medical history of Fournier's gangrene, which had occurred 1 year earlier and had required skin grafting, closure of the anorectal stump and formation of an end colostomy. One month before presentation, the patient had undergone surgery to re-establish the continuity of his gastro-intestinal tract. There was no history of smoking or alcohol consumption and no chronic illness.

Vital signs were normal, except for tachycardia at 101 beats/min. The cardiopulmonary examination was unremarkable. The abdominal examination revealed a skin graft from beneath the umbilicus, covering the entire perineum and external genitalia. There were no signs of skin infection. Both legs were mottled, with no dorsalis pedis, posterior tibial pulses, as well as no appreciable popliteal or femoral pulses. There was a sensory loss of the toes, which were cold with a capillary refill time of more than 3 s.

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Laboratory tests showed a high white blood cell count (22,000/mm^3), thrombocytosis (platelet count 1099×10^9/L), an elevated C-reactive protein level (316 mg/L) and anemia (hemoglobin level 9.6 g/dL). Coagulation tests and lactate level were unremarkable. EKG was normal.

The patient received a morphine titration, and a computed tomography (CT) with contrast of the abdomen, pelvis and lower limbs was performed promptly. This found a thrombosis of the infrarenal aorta 25 mm above the iliac bifurcation, with minimal collateral circulation in both lower limbs (Fig. 1).

A treatment with full doses of heparin was introduced and the patient was transferred to the vascular surgery department. There, an aorto-bifemoral bypass was attempted but unfortunately, the patient did not survive.

This rare but life-threatening complication occurs mostly in older patients with a history of cardiac or vascular disease. The most frequent etiologies of aortic occlusion are an in-situ thrombosis of an atherosclerotic aorta (promoted by plaque rupture), a saddle embolus in the aortic bifurcation, or the thrombosis of an abdominal aortic aneurism [1]; in-situ thrombosis being the commonest cause according to a recent study [2]. Patients without atherosclerosis risk factors should be investigated for hypercoagulable disorders or for diseases with increased risk of thrombo-embolism such as cancer, Crohn's disease or nephrotic syndrome. Finally, aortic thrombosis has also been described in cases of abdominal trauma involving a direct injury of the aorta.

Clinical presentation and severity depend on the aortic level of the thrombosis which usually begins downstream of the renal arteries, leading to bilateral acute ischemia of the lower limbs and to the risk of perineal gangrene [1]. Thrombosis can, in some cases, progress upstream. Then, renal artery thrombosis may lead to acute renal failure, superior mesenteric thrombosis to mesenteric ischemia, celiac trunk thrombosis to gastric necrosis and hepatic failure, and medullary arteries thrombosis to paraplegia. In some cases, clinical presentation such as paraplegia or painful paraparesis may misguide the clinicians to a neurological etiology such as spinal cord compression.

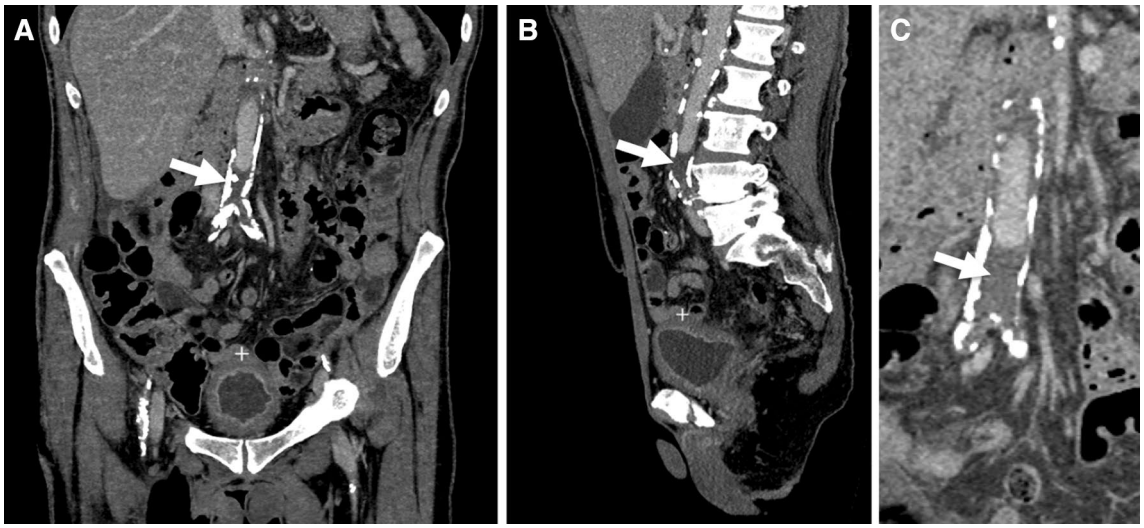

Fig. 1 Coronal plane (**a**), sagittal plane (**b**) and zoom (**c**) from a computed tomography angiography, showing an abdominal aortic occlusion due to thrombosis of the distal aorta (arrows)

Initial emergency assessment should assess severity such as sensory-motor deficits, metabolic acidosis, increased lactate level or acute renal failure. Imaging is essential and must be performed urgently. CT angiography is the gold standard [3]. Abdominal ultrasound remains a rapid examination and may allow a good visualization of the thrombosis [4].

Mortality is high and Grip et al. reported a mortality rate of 19.9% within 30 days of surgery in a recent nationwide Swedish study [2]. Treatment relies on heparin therapy, that should be started as soon as possible, and on urgent surgery such as Fogarty thrombectomy, aorto-bifemoral bypass, or axillo-bifemoral bypass [5]. Secondary complications include reperfusion injury, a phenomenon which occurs when the blood supply is re-established after prolonged ischemia, causing local inflammation which can lead to tissue injury [6].

In conclusion, aortic occlusion is a rare but life threatening condition in aged patients with atherosclerotic risk factors. Lower limbs ischemia is the most common clinical presentation and CT angiography should be performed without delay in order to transfer the patient to vascular surgery as soon as possible.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Statements on human and animal rights This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent None.

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