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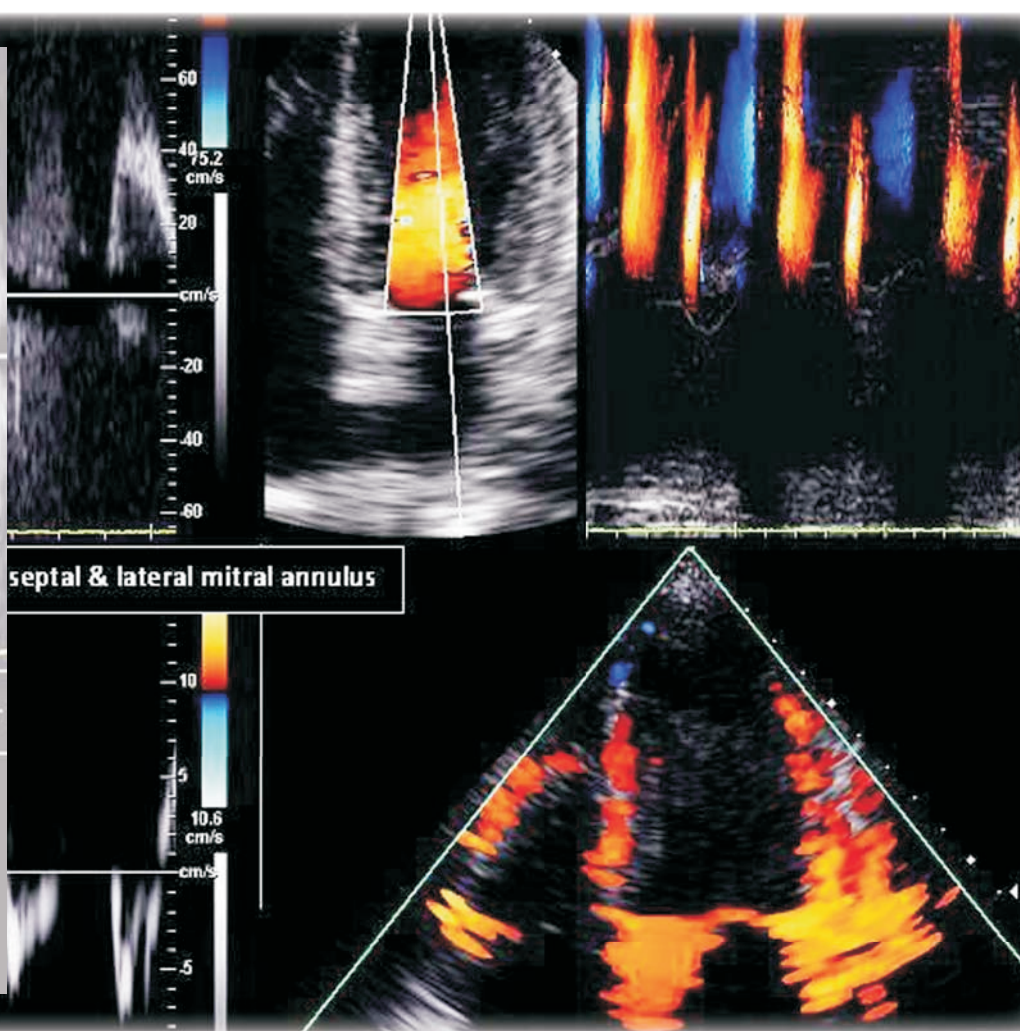
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Manuscript

Acute type B Aortic Dissection Complicated by Acute Limb Ischemia: Case Report

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ABSTRACT

Acute type B aortic dissection can lead to acute limb ischemia which is of poor prognosis. The emergency is the revascularization of the limb. Several revascularization therapies are proposed and are constantly changing. We report a case of an acute limb ischemia revealing an acute type B aortic dissection treated surgically.

Key words: Aortic dissection, Limb ischemia, Surgery.

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INTRODUCTION

Acute type B aortic dissection can lead to acute limb ischemia. Its management is a challenge. Although uncommon (5.7–30% of acute type B aortic dissection), acute limb ischemia is the most common presentation of malperfusion syndrome related to acute type B aortic dissection.¹ This syndrome includes limb ischemia, visceral ischemia and medullar ischemia.² When this syndrome occurs, it includes an exception for medical therapy in acute type B aortic dissection and requires an interventional treatment.² In cases of acute ischemia, the emergency is the revascularization of the limb. Several revascularization therapies are proposed and are constantly changing. We report a case of an acute limb ischemia revealing an acute type B aortic dissection treated surgically.

Case Report

A 65 years old woman, without significant past medical history, admitted in the emergency unit with clear signs of acute right lower limb ischemia lasting three hours prior to admission. Blood Pressure on admission was 100/64 mmHg. She complained of some chest and abdominal pain preceding symptoms on her right leg: cyanosis, pallor, coldness and abolition of all pulse. The rest of cardiovascular examination was normal. The laboratory tests revealed functional renal failure. After care of the patient in emergency and early rehydration, an aortic and lower limb CT-Scan was performed and showed an aortic dissection extending from the left subclavian artery to the femoral arteries (Figure 1, 2), with occlusion of the right iliac artery (Figure 3). The superior mesenteric artery and right renal artery arise from the false lumen but they are still permeable (Figure 4). Her condition prompted an urgent treatment for limb advanced ischemia, consisting on a femoro-femoral bypass with synthetic graft relieving her ischemia. After immediate surgery, she was transferred to intensive care unit and starting curative heparin treatment. She was clinically stable. Symptoms of ischemia have disappeared with reappearance of the pulse in right lower limb. A control CT-Scan showed good revascularization (Figure 5). Unfortunately, she died on day 7 post surgery, after presenting multiple organ failure due, probably, to mesenteric and renal malperfusion (severe aggravation of renal function and appearance of abdominal pain at day 6), which probably due



Figure 1: Aortic and lower limb CT-Scan showed an aortic dissection extending from the left subclavian artery. The red arrow showed the dissection beginning at descending thoracic aorta.

to thrombosis of superior mesenteric artery and right renal artery which arise from the false lumen.

DISCUSSION

Lower limb malperfusion constitutes 19–48% of complicated aortic dissections, and 50–73% of malperfusion syndrome. They manifest in 87% as acute ischemia, which may be bilateral in 56% of cases. They are more common in acute cases of aortic dissection.¹

Aortic dissection can present in multiple ways and many aspects remain unclear. Literature review has not always reported aetiologies of aortic dissection (1); specifying aetiology could show a statistical association with this complication.



Figure 2: Reconstruction of Aortic CT-Scan showed the dissection.

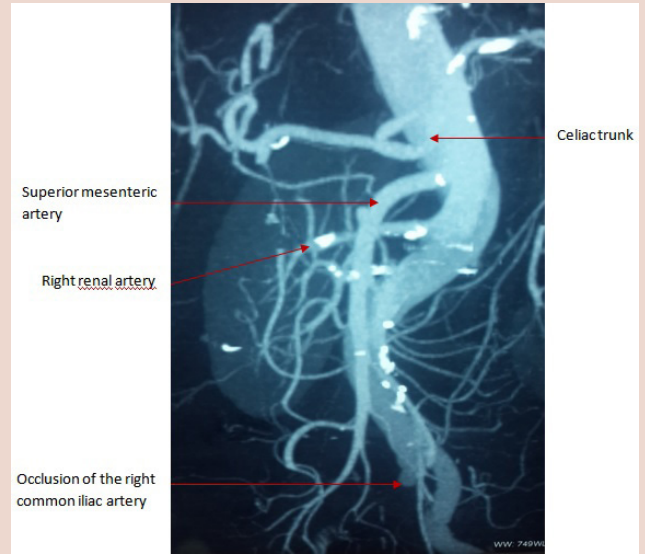


Figure 4: Reconstruction of Aortic CT-scan showed different branches of the aorta.



Figure 3: Aortic and lower limb CT-Scan showed occlusion of the right iliac artery (red arrow) with dissection of the left iliac artery (yellow arrow).

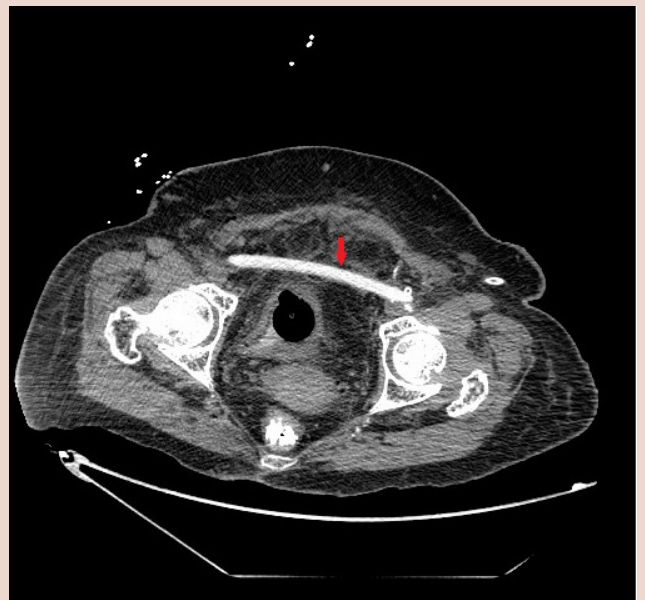


Figure 5: Control Aortic CT-scan showed good permeability of femoro-femoral bypass.

If the benefit of medical management of uncomplicated acute type B aortic dissection is no longer a controversy, details of interventional treatment in complicated aortic dissection of acute ischemia remains unclear. Better understanding of the pathophysiology has permitted surgical fenestration to re-establish flow within the true lumen and restore flow to the lower limb extremities.² The crossover femoro-femoral graft is another surgical alternative.³ The increased mortality after surgery (first thirty days) has rendered endovascular techniques preferable.¹ Endovascular techniques also permits to restore flow in the true lumen by stent placement over the orifice; and it also determines other associated lesions.⁴ With this technique, the 30-day mortality is lower than in surgery.

Henke and al. showed that patients with acute ischemia related to acute type B aortic dissection presented an associated renal failure (Odd Ratio OR: 2.7), acute mesenteric ischemia (OR: 6.9), and death (OR: 3.5).⁴ When present, these associated lesions are of poor prognosis. Our patient died on day 7 post surgery because of multiple organ dysfunctions.

From 1996 to 2013, the hospital mortality of 1034 type B aortic dissection enrolled in IRAD (International Registry of Acute Aortic Dissection) was 10.6%.⁵ This hospital mortality is associated with certain factors such as: female gender, advanced age, hypotension, peri-aortic haematoma, aortic descending diameter greater than 5.5 cm, mesenteric ischemia, acute renal failure and limb ischemia. This motivated Tolenaar and al. to propose a prediction tool of in-hospital mortality risk. According to this tool, the score to the admission of our patient was 5.1 with a risk of in-hospital mortality of 30%.⁵

CONCLUSION

Limb ischemia related acute type B aortic dissection is of poor prognosis. This is even more serious when certain factors are associated. Better understanding of these factors is necessary for clinicians to estimate the risk of in-hospital death. This could permit an intense monitoring of these patients, good timing intervention and possible prognosis improvement of the patients.

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Nil

CONFLICT OF INTEREST

Nil

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