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Symptomatic Total Aortic Occlusion

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Conflict of interest: None declared

Patient: Female, 62
Final Diagnosis: Total aortic occlusion
Symptoms: Infra-abdominal and lower limbs resting pain
Medication: —
Clinical Procedure: Recanalization
Specialty: Invasive Cardiology

Objective: Unusual clinical course
Background: Aortic occlusion, whether acute or subacute, is a rare but very serious entity with disastrous consequences if not treated in a timely fashion. Rapid diagnosis is crucial in this setting. In surgically treated patients there is a high degree of mortality and morbidity; therefore, percutaneous revascularization, whenever possible and independent of the available techniques, is much more desirable.
Case Report: A 62-year-old woman with a history of diabetes mellitus, dyslipidemia, hypertension, and peripheral vascular disease, with previous femoral-femoral bypass for right common iliac artery occlusion, and with recent conventional angiography showing near occlusion of the ostial left common iliac artery (the donor vessel for the previous bypass), was referred to our hospital for conventional angioplasty. We faced were surprised to find a total infrarenal aortic occlusion and decided to perform emergency and rescue recanalization. We successfully recanalized the aorta and left iliac artery by stent implantation and stabilized the patient, considering that surgical intervention has very high risk for morbidity and mortality in this particular setting.
Conclusions: Although revascularization is rarely performed in this life-threatening condition, endovascular recanalization of a subacute aortic occlusion in a patient with femoral-femoral bypass is feasible and can be life-saving.

MeSH Keywords: Aorta • Arterial Occlusive Diseases • Endovascular Procedures • Stents

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/907547>

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Background

Aortic occlusion, whether acute or subacute, is a very serious event with disastrous consequences if not treated in a timely fashion [1]. Usually, such patients are referred to hospitals with surgical and intensive care facilities, because of the emergency situation. Here, we report our experience with such a patient in our catheterization facility, without an on-site major surgical facility and no continuous intensive care unit (ICU) [2]. We had to adapt our management strategy to the emergent setting that we were confronting and to perform emergency angioplasty, believing that successful endovascular treatment is more desirable for complete and rapid recovery [3].

Case Report

A 62-year-old woman with a history of diabetes mellitus with insulin treatment, dyslipidemia, and hypertension, with peripheral vascular disease and femoral-femoral bypass (2008) for complete right iliac artery occlusion, recently invasively reevaluated, revealing patent distal aorta and chronically occluded right common iliac artery, but near occlusion of ostial left common iliac artery (the donor vessel for both limbs) (Figure 1), with patency of the bypass graft, was referred to our hospital 1 month later with signs and symptoms of aggravating bilateral lower limb ischemia, in order to perform elective endovascular recanalization, thus avoiding the high mortality and morbidity associated with performing a new surgical intervention.

On admission the patient had resting pain, bilateral limb cyanosis, cold extremities, anxiety, and tachycardia. She was pale, had difficulty walking due to ischemic neuropathy, and had a biologically rising blood urea nitrogen level (as part of incipient multiple organ failure). The angiogram performed through brachial approach (femoral approach was impossible due to bilateral scarring after the previous bypass) surprisingly revealed a complete abdominal aortic occlusion (Figure 2), with visualization of distal filling of the external left iliac artery.

After reevaluation of the case, we decided the patient required emergent revascularization treatment, as the lack of an aortic opening could be disastrous. The fact that the patient had bilateral inguinal scarring from a previous surgical intervention made a percutaneous approach impossible, and the only available vascular access was the left brachial. Technically, we changed from a 6- to a 7-French sheath diameter. We crossed the occlusion using a long hydrophilic wire (Poseidon 0035 wire) and a conventional 5F Judkins Right diagnostic catheter (for breakthrough, support, and steering). After crossing the occlusion, we performed conventional angioplasty with balloon predilatation (Admiral 5/60 mm) followed by 2-balloon expandable stent implantation (Visi-Pro 9/60 and

Figure 1. Conventional angiography showing right iliac artery occlusion and left iliac artery near occlusion, performed 1 month before referral to our unit, in order to perform elective angioplasty (red arrow).

Figure 2. Conventional angiography through brachial approach showing unexpected complete abdominal aortic total occlusion in a patient with bilateral inguinal scarring from previous femoral-femoral bypass (red arrow).

Figure 3. Conventional angiography showing distal aorta and left iliac artery stenting and recanalization (red arrows).

Figure 4. Conventional angiogram showing final result and patency of aorta and left iliac artery (red arrow).

Visi-Pro 9/40) (Figure 3), achieving a normal flow in the aorta (Figure 4), left iliac axis, and both superficial femoral arteries, with a high degree of pain alleviation and complete return to independent walking. After the procedure, the renal function parameters returned to normal. At clinical follow-up at 30 days, 3 months, and 6 months, the patient was clinically asymptomatic, with bilateral pulse present, and an almost normal ankle brachial index (0.9).

Discussion

In this case, we treated an unknown aortic occlusion in a patient with limited approaches for endovascular management. Percutaneous revascularization in a critical limb ischemia patient is the first choice, whenever possible, due to lower procedural risk and a rapid clinical recovery, supported by rapid progression technique. Unknown acute/subacute aortic occlusion is a surprising and negative finding in any catheterization lab. Endovascular treatment of extensive aortoiliac obstructive disease (AIOD) can be performed successfully by experienced interventionists in selected patients. Although primary patency rates are lower than those reported for surgical revascularization, reinterventions can often be performed percutaneously, with secondary patency comparable to surgical repair [4].

Acute aortic occlusion (AAO) is an infrequent but devastating event. The dominant etiology of AAOs is now thrombotic occlusion. Despite advances in vascular surgery and critical care over the past 2 decades, associated morbidity and mortality remain substantial, with high rates of limb loss, acute renal failure, rhabdomyolysis, and death [1].

Painful paraplegia is a frequently encountered clinical syndrome, with trauma and spinal cord compression as a common etiology. Although atherosclerosis is a complex degenerative and progressive disease with multiple risk factors, including hypertension, hyperlipidemia, hyperglycemia, and cigarette smoking, sudden critical limb ischemia due to atherosclerosis of aortic-iliac segments is a rare entity in which multiple arterial segments are involved and it carries a high risk of morbidity and mortality [2].

We considered our case as a vascular and life-threatening emergency situation due to new angiography aspects. We succeeded in reopening the aorta and stabilizing the patient, believing that a new surgical intervention carried a very high risk for morbidity and mortality in that particular setting. The patient had rapid stabilization and recovery. Although open aortofemoral or bilateral iliac bypass is viewed as the criterion standard for treatment of advanced aortoiliac disease, with primary patency rates higher than endovascular interventions, secondary patency rates are comparable between the 2 techniques

and endovascular procedures are associated with significantly decreased operative mortality and morbidity and shorter length of stay [5]. Percutaneous revascularization in critical limb ischemia patients is the first choice, whenever possible, due to lower procedural risk and a rapid clinical recovery, supported by rapid progression technique [3].

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Conclusions

Although percutaneous revascularization is rather exceptional in this life-threatening condition, endovascular recanalization of aortic occlusion in a patient with previous femoral-femoral bypass is feasible and can be life-saving. Use of this method can result in rapid clinical recovery and lower mortality and morbidity.