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Case Report

Case Report of Stent Revascularization for Left Superficial Femoral Artery Occlusion

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Abstract

Patients with intermittent claudication may benefit from planned exercise therapy prior to revascularization, whereas those experiencing acute limb ischemia-a medical emergency-need revascularization within hours. The urgency of revascularization varies greatly depending on the patient's presentation.

Peripheral artery disease (PAD) can cause symptoms ranging from severe evidence of ischemia (tissue loss, pain during rest) to intermittent claudication, or pain during walking.

The author reports the case of a 72-year-old male patient who underwent a stent revascularization (angioplasty) for claudication due to left superficial femoral artery occlusion.

The aim of this article is to present the importance of south-south cooperation between Gabon where vascular surgery is not available and Morocco where it is available. Moreover, the author wanted to put the emphasis on the development of partnership with some private clinics in Gabon to develop such surgery.

Keywords: Stent revascularization; Peripheral artery disease; Ischemia; Claudication.

Introduction

Peripheral artery disease (PAD) can cause symptoms ranging from severe evidence of ischemia (tissue loss, pain during rest) to intermittent claudication, or pain during walking. Intermittent claudication, which is a reproducible discomfort of a specific group of muscles (buttock, thigh, calf) induced by

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exercise and relieved with rest, is due to atherosclerotic occlusive disease primarily located in the aorta, iliac, femoral, or popliteal arteries. The goals of treatment in patients with claudication are to improve functional abilities and control systemic atherosclerotic disease. Conservative medical therapies are the initial treatment of choice and include cardiovascular risk reduction, exercise therapy (supervised if available), and possibly pharmacologic therapy to improve walking distance. Once all available conservative treatments have been instituted and allowed to have an effect, the patient's symptoms are re-evaluated. If symptoms are controlled, no further action is required.

However, if symptoms persist and are lifestyle limiting and the patient has been responsive to adjusting the lifestyle, the risk-benefit ratio of intervention, either endovascular or open, should then be evaluated. The author reports the case of a patient who underwent a stent revascularization (angioplasty) for claudication due to left superficial femoral artery occlusion.

Case report

A 72-year-old man was referred to the clinic after that patient had been experiencing lifestyle-limiting claudication in his left leg for two years due to diabetes mellitus and hypertension.

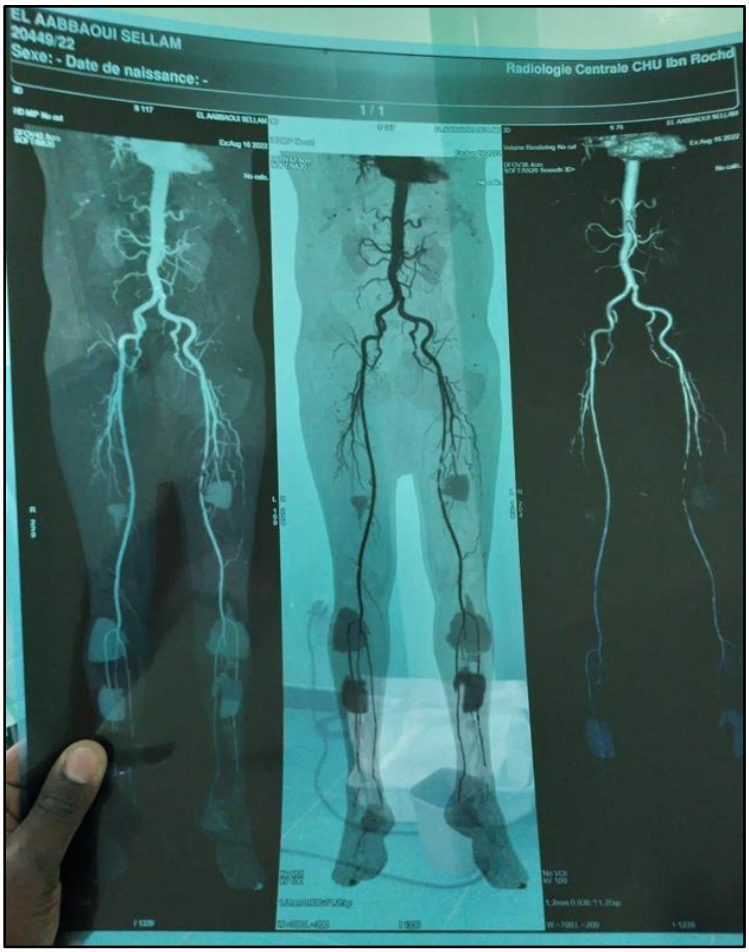

Figure 1: CT angiography.

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In the left leg, the ankle-brachial index was 0.35 (normal >0.9). The CT angiography of the aorta and lower limb arteries consistent of occlusion of the proximal and middle thirds of the left superficial femoral artery.

Upon admission to hospital, the patient was on his current medication for diabetes mellitus and hypertension. The patient had his preoperative cardiology and diabetology consultations prior to surgery.

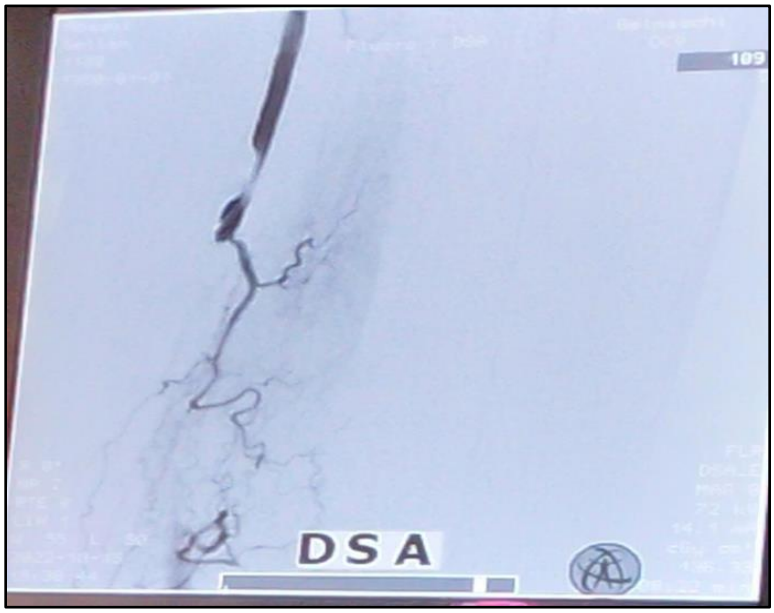

Figure 2: Left superficial femoral artery occlusion.

Figure 3: Revascularization of the left superficial femoral artery.

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During surgery, the patient was placed in a prone position. The revascularization was performed smoothly. The surgery duration was 2 hours. The doctors used one syringe of heparin 0.5mg/kg as an anticoagulant agent. The postoperative course was uneventful. The patient improved and was discharged on POD 1 with medical treatment and close follow-up.

Discussion

Patients with bulky common femoral artery disease with or without proximal or distal extension are treated with femoral endarterectomy with or without profundoplasty. Most patients tolerate this procedure well. However, for patients with very high risk such as the patient in this case, endovascular interventions for CFA have been reported. In small single-center studies, technical success has been >90 percent with one-year primary patency ranging from 73 to 81 percent [1].

In one randomized trial in patients with CFA stenoses (no occlusions) comparing open with endovascular treatment, 24-month patency and reintervention rates were similar, and the stented group had significantly less morbidity and mortality (12.5 versus 26 percent) [2].

Although endovascular interventions are minimally invasive, complications related to access site, during the intervention on the target vessel, and device- related complications can all occur in spite of appropriate planning. The consequences may result in significant morbidities or even fatality if not addressed in a timely fashion. Complications include systemic complications, such as acute kidney injury (contrast induced or other causes), and those directly related to the intervention, such as vessel rupture, dissections, loss of branch vessels, early and late occlusions, and distal embolization. The risk of complications parallels the increase of the complexity of the revascularizations.

Most procedure-related complications can be managed using endovascular techniques. Thus, a variety of covered stents, snares, wires and catheters, and reentry devices should be available.Although infrequent, surgical conversion is more likely in patients with complex aortoiliac occlusive disease, especially those with severe calcification, bulky common femoral artery disease, and those with subacute occlusions with organized clot content (prone to embolization). For instance, the complication rate for iliac artery lesions was reported to be higher in the TASC C/D group (9 versus 3 percent), with significantly longer procedure times in a large study [3].

During this case, the doctors had no intraoperative complication. And the immediate postoperative course was uneventful.

Postoperative medical management is crucial in patients who have undergone a peripheral intervention for symptomatic peripheral artery disease (PAD) with the main goal of reducing the risk for future cardiovascular events, including death. Management should include lifestyle modification and improvement of the functional status. Smoking cessation should be emphasized if the patient is actively smoking, and adjunctive therapies provided. Optimal management of hypertension, diabetes, and hyperlipidemia is crucial.

Antiplatelet therapy

There is some evidence to suggest that the rate of restenosis/reocclusion following peripheral endovascular treatment is reduced with the use of antiplatelet drugs compared with placebo [4], but the available trials are small and of variable quality [5-7]. Recommendations and prescribing practices vary widely [5,7,8]. In the absence of high-quality data, the authors suggest giving patients aspirin (<325 mg/day) plus clopidogrel (75 mg/day) for one to three months, followed by lifelong aspirin (for ongoing secondary prevention of future cardiovascular events) as the author did for the patient in this case. Based on data from the coronary literature, the doctors suggest that patients who receive a drug- eluting stent receive clopidogrel for a longer period (3 to 12 months).

There is no known benefit of long-term anticoagulation with vitamin K antagonists on target lesion or limb outcomes following endovascular intervention [6]. It is typically reserved for patients with hypercoagulable states or other indications, such as atrial fibrillation.

There is an emerging interest in combining anticoagulants with antiplatelet therapy with the introduction of direct oral anticoagulants. In the COMPASS trial of 27,395 patients, 27 percent of whom had PAD [9], rivaroxaban 2.5 mg twice daily plus 100 mg aspirin daily was superior to aspirin alone with a 24 percent reduction (4.1 versus 5.9 percent) in cardiovascular death, stroke, or myocardial infarction. The trial was stopped early due to superiority of the rivaroxaban plus aspirin arm. Adding rivaroxaban twice daily to aspirin therapy (75 to 100 mg orally each day) is increasingly being prescribed after endovascular and open revascularization procedures, particularly among those patients with a high risk of ischemic events and low risk of bleeding.

Cilostazol, which is often prescribed to improve pain-free walking distance, may also be effective for improving outcomes of vascular intervention [6,10]. In a systematic review, a meta-analysis of two trials [11,12], cilostazol significantly reduced the rate of reocclusion compared with ticlopidine (odds ratio 0.32, 95% CI 0.13-0.76). Cilostazol is not currently in the daily practice. The authors have to work on that.

Statin therapy

Updated guidelines from the American College of Cardiology (ACC) and the American Heart Association (AHA) recommend that all patients with atherosclerotic cardiovascular events, including those with PAD, who are older than 75 years should receive moderate-intensity statin therapy, and patients younger than 75 years should be treated with high-intensity statin. While the impact of statins on improving survival and decreasing cardiovascular events is well known, the impact on patency and limb salvage rates is inconclusive. Statin medications were reported to decrease major adverse limb events and improve survival rates in patients who were compliant with the current 2013 AHA/ACC recommendations after revascularization for CLTI [13]. Also, in a subgroup analysis of a meta-analysis of 46 studies involving patients undergoing lower extremity revascularization, statins were associated with improved primary and secondary patency rates and significantly

decreased amputation rates [14]. Statin is used in the daily practice.

Surveillance after endovascular interventions

Ongoing clinical evaluation is recommended following lower extremity revascularization, but strategies for surveillance of the treated lesions following endovascular intervention are not well defined. Surveillance of endovascular treated arteries, ankle-brachial index (ABI), and duplex imaging is considered appropriate when obtained post procedurally and for recurrent or new symptoms [15].

Thus, the doctors obtained initial postoperative noninvasive vascular studies within a month to help assess the adequacy of revascularization and establish a baseline reference for future studies. While duplex ultrasonography is considered by many to be the best method for detecting problems following lower extremity revascularization, the clinical value of routine duplex surveillance following endovascular intervention and the interval for testing is debated, and intervening on detected lesions may increase the risk for complications [16-17].

Patients with failing endovascular interventions are typically not treated in the absence of symptoms, but many patients with recurrent symptoms (claudication, rest pain) or failure of ulcer or wound healing will have significant restenosis and may benefit from reintervention. For ongoing evaluation, the authors include duplex ultrasonography in the clinical surveillance schedule. In addition to clinical evaluation including wound assessment, the doctors repeat noninvasive vascular studies at three and six months and, if stable, annually thereafter. Arteriography and possible reintervention are indicated for restenosis as evidenced by a peak systolic velocity (PSV)>300 cm/second and velocity ratio (Vr)>2.0, or a decrease in ABI>0.15, if clinically indicated [18].

Conclusion

With good mid-term clinical results and patency rates, stent revascularization, also known as angioplasty of the superficial femoral artery, is a well-researched, practical, safer, and successful approach. The selection of various techniques is contingent upon anatomical and technological considerations in order to get optimal results. Reduced extremity revascularization has advanced further in an attempt to slow the rising rates of limb adverse events as the PAD population grows, especially among individuals with CLTI.

Although outcomes have improved because of advancements in risk assessment, procedural equipment and procedures, and post procedure care, there is still more work to be done. The main goals of the area are to ensure sufficient access to high-level care, overcome the major obstacles presented by calcification and microvascular illness, and address the more prevalent distal disease presentation. Within the vascular community, there are numerous avenues for research and discovery that could lead directly to better patient outcomes.

Improving quality of life and lowering cardiovascular morbidity and mortality are the ideal medical care objectives for claudication. Reducing smoking, using antiplatelet medication, statins, angiotensin-

converting enzyme inhibitors, and treating underlying hypertension and diabetes are all examples of aggressive risk factor reduction. One of the best ways to relieve claudication symptoms is to exercise. Exercise is one of the most effective strategies to reduce claudication symptoms. Instead of making drastic attempts to save a limb, revascularization in claudication aims to improve functional status and claudication symptoms. Moreover, through the cooperation between Gabon and Morocco, gabonese physicians should be trained to become vascular surgeons in order to implement and to develop vascular surgery which is not yet available.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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