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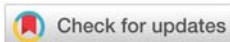
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Research Article

Recanalization of long iliac occlusions by humeral and radial approach- About 30 cases

Summary

Background: Complex stenosis and iliac occlusions (TASC C-D) often require surgical revascularization. Since 2007, several studies have studied the performance of endovascular revascularizations via brachial or radial antegrade approach with a good success rate.

Material and methods: We performed a retrospective and analytical study, comprising a series of 30 patients who underwent an endovascular treatment within the vascular surgery department of the Military Hospital Avicenna of Marrakech Morocco between January 2014 and February 2016

Results: During the study period, 30 patients were included. The average age of our patients was 61.8 years (42 to 83 years). We noted a male predominance with a sex-ratio M / W of 2.7. All having as risk factors cardiovascular: age, sex and smoking. The distribution of iliac lesions was dominated by primary iliac occlusions and the right iliac axis (70%) according to the TASC 2 classification; occlusions were classified as TASC C in 10 patients (33.3%) and TASC D in 20 patients (66.6%). We haddilated the occlusion by angioplasty introduced by the humeral way in 20 patients and radial in 10 patients, with placement of a stent. The success of the technique was obtained in 100% of the cases.

Conclusions: Brachial and radial access for TASC C-D aortoiliac chronic occlusion improves the technical success rate without the need for reentry devices and remains a better option for patients at risk treatment.

Introduction

Occlusions of the iliac arteries are often symptomatic and lead to serious complications. They require surgical or endovascular revascularization.

The choice of the revascularization technique is dictated by the TASC 2 consensus, thus the TASC C and D lesions which constitute occlusions or long stenosis require surgical treatment.

Since 2007, several studies have studied the performance of endovascular revascularizations via brachial or radial antegrade approach with a good success rate [1-3].

The purpose of our study is to evaluate the recanalization of long iliac occlusions by the humeral or radial approach in a single arm study.

Material and Methods

We performed a retrospective and analytical study,

comprising a series of 30 patients who underwent an endovascular treatment within the vascular surgery department of the Military Hospital Avicenna of Marrakech Morocco between January 2014 and February 2016.

All patients' data were collected from patients' medical records, as well as short- and medium-term trends and their prognostic factors.

In our study we included all the patients who had a long iliac occlusion and who received a recanalization by humeral or radial way between January 2014 and February 2016. Were excluded from the study all the patients having a surgical treatment, history of aorto-bifemoral or axillo-femoral bypass.

During the period of our study, 30 patients with long iliac occlusion were treated, twenty of whom had iliac recanalization with iliac approach and ten with radial approach.

Results

The average age of our patients was 61, 83 years with

extremes ranging from (42-83 years). We noted a clear male predominance with a sex ratio of 2.7.

The main cardiovascular risk factor was smoking, found in the majority of our patients. We also noted that 60% of patients had at least three cardiovascular risk factors.

The surgical risk was calculated with ACS NSQIP (American College of Surgeons National Surgical Quality Improvement Program) surgical risk calculator, and all our patients were with high surgical risk.

Clinically 63.4% of our patients were in stage 2 of the classification of LERICHE and FONTAINE, 20% in stage 3 and 16.6% in stage 4.

The measurements of the systolic pressure index found 50% of our patients with values between 0.5 and 0.75 (Table 1). All our patients underwent adoppler ultrasound of lower limbs arteries.

A morphological exploration was also performed either by CT or (70%), Arteriography (26.6%) and Angio MRI (3.40%).

The distribution of iliac lesions was dominated by primary iliac occlusions (Table 2) and the right iliac axis (70%) according to the TASC 2 classification; occlusions were classified as TASC C in 10 patients or (33.3%) and TASC D in 20 patients (66.6%).

The assessment of atheromatous extension was performed for all our patients, 8 patients (26.6%) had ischemic heart disease and 4 patients (13.3%) had significant carotid stenosis.

The treatment of our patients began with the diet and hygienic measures such as smoking cessation for all smoking subjects. All our patients were put on acetylsalicylic acid and statin. For unbalanced diabetic patients with oral agents were put on insulin.

Iliac recanalization was performed under local anesthesia in 27 patients (90%) and under spinal anesthesia for the remaining three (10%) who received additional surgical treatment.

The arterial approach was performed by retrograde puncture of the right humeral artery in 20 patients (66.6%) and the right radial artery in ten patients (33.3%).

Intravenous heparinization at the dose of 1 mg / kg was administered as soon as the introducer was placed, and then a 0.035 hydrophilic guide mounted on a vertebral catheter was placed up to the center of the lesion to be treated. After crossing the lesion, an 8 mm balloon angioplasty of different lengths was first performed, then a self-expanding stent was put onto place. The type of stent was chosen according to the lesion to be treated. Patients were put under CLOPIDOGREL 75 mg / day immediately after angioplasty for three months. Acetylsalicylic acid was maintained for life.

Our success rate was 100%. The early operative follow-up was with no incidents in twenty-six patients and complicated in four patients, three of whom had a hematoma of the humeral artery and only one patient presented a significant restenosis

below the right primitive iliac artery PIA stent after one month, there were no death and cardiac complications.

In the mid-term follow up all our patients showed a clinical improvement of at least one stage of LERICHE and FONTAINE classification.

A clinical checkup at 1 month, 3 months, 6 months, 12 months and 24 months post angioplasty were performed. Our primary permeability rates at 12 months were 96.6% and at 24 months were 80% (Figure 1).

Discussion

Several studies have demonstrated the strong association of lower limb atheromatous disease with coronary and

Table 1: Patients risk factors and clinical.

Variable	n%
Age, year, mean ± SD	61,83 ± 11,7
Gender, male	73.3 / 22M-8W
Hypertension	40
Hyperlipidemia	23
Diabetes mellitus	20
Current smoker	83.3
Coronary vascular disease	26.6
Corotid stenosis	13.3
Severe claudication	63.4
Rest pain	20
Ulceration/gangrene	16.6
Ankle-brachial index, mean ± SD	0.62±0.2

SD: Standard Division

Table 2: Allocation of iliac artery occlusions in angio scan.

Location	Patient numbers
Right iliac artery	21(70%)
Common	11
External	10
Left iliac artery	9(30%)
Common	2
External	7

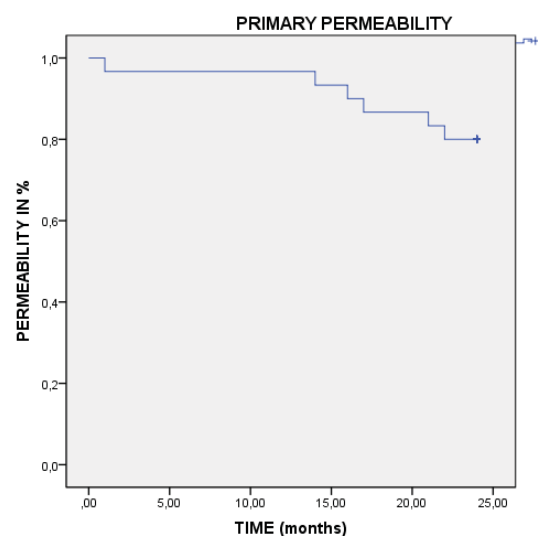


Figure 1: Primary permeability in our series.

cerebrovascular arterial disease [4–8], which increases the mortality and the incidence of major cardiovascular events in this group of patients. The five-year mortality of a patient with lower limb atheromatous disease is approximately 30%, mostly due to cardiovascular cause [9].

TACS C and D iliac occlusions are very complex lesions where surgical treatment has been shown to be effective. Few studies, such as ours, have focused on the endovascular treatment of these lesions by the humeral and radial approach; this requires preoperative planning and numerous endovascular devices.

Crossing the lesions by the hydrophilic guide with sub-marginal approach was performed for 70% of cases, the intimal approach for 30% of cases. In the Millon study, the intra-luminal lesion crossing rate was 25% [10] there is no anatomical factor capable of predicting the type of lesion crossing.

We report a technical success rate of 100%. In other similar studies this rate varied between 73% and 93% [10, 11, 12]. This success rate is due to the antegrade approach of the iliac occlusions by the humeral and radial approach, which offers a better support and facilitates the endoluminal crossing [10].

Humeral and radial access predisposes to certain complications such as stenosis, or pseudo-aneurysm at the point of introduction. In our series we report 03 cases (10%) of humeral hematoma. While the rate of these complications found in the literature was lower 2.7% [10] and 6.5% by [13].

These data from the literature confirm that humeral and radial access can be used safely in most patients.

The rupture of the iliac artery preoperatively is of the order of 2 to 6% [10, 14, 15] and remains a serious complication exposing to the risk of death by haemorrhagic shock. This rupture can be treated by covered stenting.

In our study we had no hospital mortality, whereas in the Millon study, it was 2.7%.

The usual treatment of TASC C–D iliac occlusions was surgical with a 5-year permeability rate of 80 to 85% [16].

However, it is associated with a high peri and post-operative mortality [16,17], compared to endovascular techniques [18].

Few studies compared mid and long-term results between surgical and endovascular treatment. They all demonstrated slightly higher permeability rates in favor of surgery [19,20]. Endovascular treatment remains a better option for patients at risk treatment.

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