Endovascular therapy as a first line of treatment in patients with severe aortoiliac occlusive disease

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BACKGROUND

Aortobifemoral bypass grafting has been the traditional treatment for extensive aorto-iliac occlusive disease (AIOD). Less invasive alternative to open surgery was described for the treatment of severe AIOD (1)(2).

Endovascular procedures for AIOD seem to be associated with superior short-term clinical and economic outcomes compared with open surgery (3) and a lower risk for complications and mortality (4) allowing a primary endovascular approach to be considered as the first line of treatment for focal aortic lesions (5).

Covered stents performed better for TASC C and D lesions than bare stents in longer-term patency and clinical outcome (6).

Recently the Covered Endovascular Reconstruction of Aortic Bifurcation or CERAB-technique (7) appeared to be a safe and feasible alternative to open surgical reconstruction of the aortic bifurcation in complex occlusive disease (8).

Figure 1: *Male patient 58 y – Critical limb ischemia. Redo after kissing stenting of aortic bifurcation. Kissing stenting with covered stents, flairing with 12x20 mm, Nellix extension with Chimney graft for right renal artery*

OBJECTIVE

Feasibility and safety of an endovascular therapeutic approach was prospectively assessed in consecutive patients with severe AIOD.

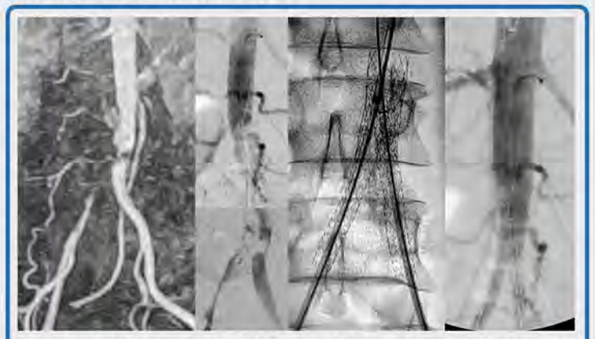

Figure 2: *Male patient 47 y – AOID – Severe bilateral claudication – CERAB technique*

MATERIAL AND METHODS

Between January 2013 and August 2015, 74 patients (46 male, 28 female) suffering from severe claudication (75.7%) or critical limb ischemia (24.3%) due to obstructive lesions at the level of the aortic bifurcation were treated with endovascular techniques. 11 patients also presented with an infrarenal aortic aneurysm (14.9%). The median age was 63 years (range 44-85 years). Lesion morphology was evaluated by CT angiography. 23 TASC-II C lesions, and 51 TASC-II D lesions were treated. Follow up was a median 7.4 months (range 23.9 months) and consisted of clinical examination and duplex ultrasound examination.

TECHNIQUE

Patients are prepared for open surgery. A bilateral femoral approach is performed in case of a combined hybrid procedure. In the other cases a percutaneous approach is the method of choice. A brachial or subclavian approach is routinely performed to allow an antegrade recanalization or chimney procedure.

RESULTS

Technical success was obtained in all patients. In three cases lesions could not be recanalized on one side and the patients were treated with an aorto-monoilical device and crossover bypass.

Primary patency was 95.9% at 1 year, while assisted primary patency was 100% at 1 year. 3 patients had an occlusion of one iliac artery treated in 2 cases with Rotarex and PTA. 1 patient had a crossover bypass during follow-up.

There was a 30 day mortality of 5/74 patients (6.8%) due to 1 myocardial infarction, 2 respiratory failures, 1 inhalation pneumonia and 1 mesenteric ischemia for a patient treated with an acute Leriche syndrome. Survival rate at 3 months was 93%, at 2 years 91.2%.

26 stentgrafts were used (1 fenestrated stentgraft and 7 chimney grafts).

201 stents (161 covered stents) were used (2.7 / patient).

Stents	Nb	Stentgrafts	Nb
V12 12-16 mm	22	AFX	10
V12 6-10 mm	136	Nellix	6
BX	18	Endurant	5
SX	22	F-Anaconda	1
Viabahn	3	AUI	4
	201		26

Table 1: *implant material*

Three patients had a minor amputation, no patient had a major amputation. 10 patients had a postoperative groin hematoma, one patient had an intraoperative disrupture of an iliac artery treated with a covered stent.

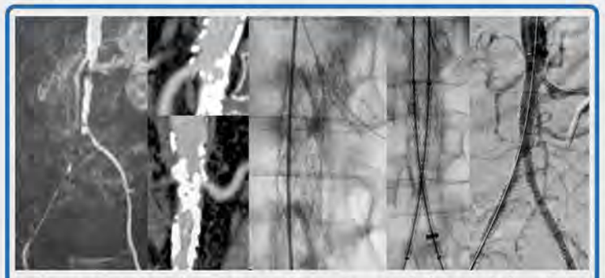

Figure 3: *Female patient 66 y - Severe bilateral claudication, occlusion right renal artery, severe stenosis left renal artery - CERAB with chimney for left renal artery*

CONCLUSION

Endovascular technique appears to be a safe and feasible alternative to open surgical reconstruction of the aortic bifurcation in complex occlusive disease. There is a need for dedicated stentgrafts for occlusive disease because the radial force of conventional stentgrafts does not allow to treat the lesions without the help of BX stents.

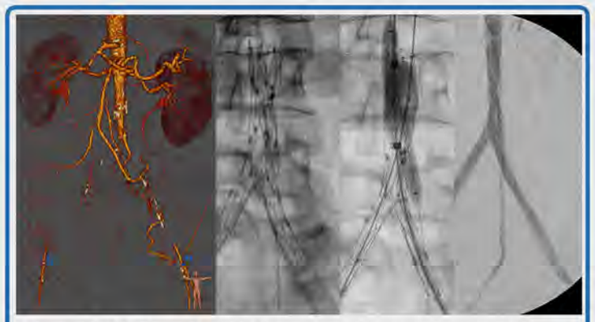

Figure 4: *Male patient 69 y - Leriche syndrome with occlusion of both internal iliac arteries - large diameter IMA - AFX stentgraft with Chimney for IMA*

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