Operative management of multilevel iliofemoral occlusive disease

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BACKGROUND: The current trend is to treat both inflow and outflow occlusive disease using endovascular procedures either simultaneously or in a staged procedure. The long-term benefits of a combined one-stage approach are not available.

OBJECTIVES: The main objectives are to investigate the risks and long-term benefits of a combined one-stage approach using endovascular techniques for iliac occlusive disease and bypass for femoropopliteal occlusive disease.

METHODS AND RESULTS: Fifty-three patients with limb ischemia underwent combined ilial stenting and distal bypass. Complications

included minor wound problems in nine patients, atrial fibrillations in one patient, acute graft occlusion in one patient, toe amputation in two patients and one death. During a follow-up period of up to 96 months, eight patients required repeat distal bypass, five patients underwent revascularization on contralateral sides and four patients had repeat endovascular procedures.

CONCLUSION: These results suggest that there are few risks with a combined endovascular procedure for iliac occlusion and bypass for femoropopliteal occlusive disease. Long-term complications with the combined approach included repeat distal bypass, revascularization on contralateral sides and repeat endovascular procedure.

Key Words: Endovascular procedure; Femoropopliteal bypass; Ilio-femoral occlusive disease

Peripheral vascular disease is a manifestation of generalized atherosclerosis; it affects 10% to 30% of the adult population in the United States. Most patients with disabling symptoms have multilevel arterial occlusive disease. The management strategies for patients with multilevel arterial occlusive disease vary widely across the country. The decisions are influenced by the experience of the surgeon. Verhagen and van Vroonhoven (1) reported that most of these patients could be treated by correcting the inflow occlusive disease only. Porter et al (2) were the first to report a combined approach for lower limb revascularization, which involved iliac dilation and femorofemoral bypass for limb salvage. Since then, numerous investigators (3-6) have reported the advantages of this combined approach with short-term follow-up. The current trend is to treat both inflow and outflow occlusive disease by endovascular procedure either simultaneously or as a staged procedure. The long-term benefits of the combined approach are not available. The present study was undertaken to investigate the risks and long-term benefits of a combined one-stage approach by using endovascular techniques for iliac occlusive disease and bypass for femoropopliteal occlusive disease.

METHODS

Over a 76-month period, 53 consecutive patients who underwent combined iliac stenting and distal bypass were included in the present study. The demographic and clinical characteristics of the patients are shown in Table 1. These patients comprised 30 men and 23 women between 42 and 87 years of age. Thirty-nine patients presented with disabling claudication, nine with resting pain and five with tissue loss. Comorbidities in these patients included coronary artery disease (n=28),

TABLE 1
Demographics and clinical characteristics of patients with limb ischemia

Age, years, range	42-87
Men	30
Women	23
Coronary artery disease	28
Hypertension	36
Diabetes mellitus	12
Hyperlipidemia	25
Tobacco use	40
Disabling claudication	39
Resting pain	9
Ulceration/gangrene	5

Data presented as n unless otherwise indicated

hypertension (n=36), diabetes mellitus (n=12), hyperlipidemia (n=25) and tobacco use (n=40).

RESULTS

A total of 57 stents were implanted in 53 patients. Thirty-five patients had a femoropopliteal bypass, 16 had a femorofemoral bypass and two had a femoral distal bypass using an in situ technique. There was one death in the present series of studies. Complications included minor wound problems in nine patients, atrial fibrillation in one patient, acute graft occlusion in one patient and toe amputations in two patients. During a six- to 96-month follow-up period, eight patients underwent repeat distal bypass procedures, five patients underwent revascularization on the contralateral sides and four patients underwent repeat endovascular procedures.

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DISCUSSION

Data from the present investigation of a combined iliac stenting and distal bypass procedure show that this procedure had few complications (minor wound complications, n=9; atrial fibrillation, n=1; occluded graft, n=1; and toe amputation, n=2). There was one death. During the follow-up period (up to 96 months), there were four repeat endovascular procedures, eight repeat bypass procedures and five revascularizations on the contralateral sides.

Other investigators have used combined procedures. The study of Griffith et al (7) included 25 patients with critical limb ischemia. Eleven patients had combined procedures in the operating room and 14 patients had angioplasty in the radiology department followed by bypass in the operating room. This study reported 8% mortality, 50% graft patency at 24 months follow-up and a limb salvage rate of 75%.

Numerous studies (8-12) have reported combined procedures of angioplasty followed by stenting and bypass. Alimi et al (13) reported that iliac transluminal angioplasty and distal

surgical revascularization could be performed as a one-step technique in high-risk groups only. Melliere et al (14) reported a 91% limb salvage rate at five years, and indicated multiple advantages of single-step procedures, including low incidence of infection, reduced costs, and avoidance of alteration of anti-coagulant therapy.

Our results are consistent with those of other investigators (13-16). In selected groups of patients, this combined approach of stenting and bypass has a high rate of success, a lower complication rate, and very satisfactory short- and long-term results. The current trend is to perform endovascular procedures for both iliac and femoropopliteal occlusive disease. The results of this approach should be compared with the combined approach of iliac intervention and femoropopliteal bypass in a prospective study for multilevel iliofemoral occlusive disease.

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