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RESEARCH ARTICLE

TO STUDY THE OUTCOME OF TREATMENT IN INFRARENAL MULTILEVEL OCCLUSIVE DISEASE.

Dr. Lakshmidharan.M¹, Dr. S. R. Subrammaniyan², Dr.Thulasikumar.G¹, Dr. Sritharan.N³ and Dr. K. Jeyachander¹.

1. Department of Vascular Surgery, Stanley Medical College, Chennai.
2. Department of Vascular Surgery, Saveetha Medical College, Chennai.
3. Institute of Vascular Surgery, Madras Medical College, Chennai.

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Key words:-

Multilevel occlusive disease, critical limb ischemia.

Abstract

Objective: The purpose of this study was to compare between the proximal and total revascularization in patients with infrarenal multilevel occlusive disease.

Materials and Methods: This is a study Prospective and comparative study analysis of proximal and total revascularization in infrarenal multilevel occlusive disease done in patients with critical limb ischemia attending vascular surgery department of Govt. Stanley Medical College and Hospital, Chennai during study period between October 2012 to December 2014.

Results: Totally 25 patients were enrolled in the study with patients having good profunda patency subjected to proximal bypass, those with poor profunda patency and two patients with forefoot gangrene undergone sequential bypass. Thus by above criteria ten underwent proximal bypass and 15 had sequential bypass. There was significant improvement in ulcer healing, pain reduction and ABI improvement in sequential bypass group than that of proximal bypass.

Conclusion: This study strongly reveals that single-stage multisegment reconstruction for multilevel arterial occlusive disease is a safe and effective method of treating critical limb ischemia.

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Introduction:-

Clinical manifestation of atherosclerosis involving the abdominal aorta and iliac arteries is one of the most common therapeutic challenges encountered by vascular surgeons. Treatment of chronic critical limb ischemia still remains one of the most serious problems of vascular surgery. Most often, chronic critical limb ischemia is caused by multi-segmental disease of arterial tree, involving both the aorto-femoral and infrainguinal vessels.^{8, 9} The optimal management of patients with multilevel occlusive disease is often difficult to determine. The question frequently arises whether or under what circumstances concomitant versus staged outflow procedures should be performed in association with an inflow operation.^{1, 2, 3, 9}

The optimal management of patients with multilevel occlusive disease is often difficult to determine. The question frequently arises whether or under what circumstances concomitant versus staged outflow procedures should be

Corresponding Author:- Dr. Lakshmidharan.M.

Address:- Department of Vascular Surgery, Stanley Medical College, Chennai.

performed in association with an inflow operation. Of relevance, the impact of synchronous Superficial Femoral Artery disease on the results of Aorto-iliac revascularization remains undefined in the current literature;

some reports have indicated similar patency rates between patients with and without Superficial Femoral Artery occlusion, whereas others have reported lower long-term patency rates in this setting.^{4,5}

If an atretic or prohibitively diseased profunda is present in addition to a severely diseased Superficial Femoral Artery, infrainguinal bypass grafting is likely to be necessary to ensure sufficient outflow for graft patency and perfusion of the foot. No single criterion mandates a combined procedure; however, the severity of distal ischemia is probably the most important factor to be considered.^{6,7}

If significant tissue loss is present, concurrent inflow and outflow procedures are probably warranted if limb salvage is to be achieved. In deciding whether a staged approach is appropriate, the patient's ability to tolerate a prolonged operative procedure must be weighed against the potential risk of wound and graft infection resulting from redissection in the groin and the risk of progressive tissue loss during the initial recuperative period. When it is performed with several teams operating simultaneously, concurrent inflow and outflow revascularization can be completed in a timely and safe manner. Indeed, several reports found no significant differences in preoperative mortality or morbidity in patients undergoing multilevel reconstruction and those having the major inflow procedure alone.

Multilevel arterial occlusive disease is often the main cause of critical ischemia of the lower limb. The aim of this study was to compare the results after simultaneous and two-stage surgery in select patients for sequential aortofemoropopliteal/ distal reconstruction.

Our data demonstrate that single-stage multisegment reconstruction for multilevel arterial occlusive disease is a safe and effective method of treating critical limb ischemia.^{9,10}

Materials and Methods:-

Study Design: This study is a Prospective and comparative study analysis of proximal and total revascularisation in infrarenal multilevel occlusive disease

Period of study: October 2012 to December 2014.

Setting: All these patients with critical limb ischemia attending the Vascular Surgery OPD of Govt. Stanley Medical College and Hospital, Chennai were enrolled for study. All these patients were admitted and evaluated with proper clinical history, thorough clinical examination, ABI monitoring preoperatively and postoperatively, a follow up period of minimum three months and quality of life improvement after surgery. Based on inclusion and exclusion criteria patients were selected and treated accordingly.

Inclusion Criteria:-

1. All vascular patients with multilevel occlusive disease below the infrarenal aorta.
2. All patients with critical limb ischemia

Exclusion Criteria:-

1. Vascular trauma
2. Single level occlusive disease
3. Aortic aneurysm
4. Subacute bacterial endocarditis
5. Patients on treatment for malignancy
6. Combined interventional and surgical procedure.
7. Extranatomical bypasses

Results and Discussion:

Totally 25 patients were enrolled in the study, with patients having good profunda patency subjected to proximal bypass and those with poor profunda patency undergone sequential bypass. Thus by above criteria ten underwent proximal bypass and 15 had sequential bypass.

Table 1:- Characterisitics Features.

S.NO.	CHARACTERISITCS FEATURES	NUMBER/ PERCENTAGE
1.	ETIOLOGY: BEURGER'S DISEASE ATHEROSCLEROSIS	7(28%) 18(72%)
2	BYPASS TYPE: PROXIMAL SEQUENTIAL:	10(40%) 15(60%)
3	COMORDIBITIES: SMOKING HYPERTENSION DIABETES	18(73%) 3 (13%) 4 (14%)
4	PROFUNDA PATENCY: NORMAL ABNORMAL	12 (48%) 13(52%)

Table 2:- Proximal Bypass Vs Sequential Bypass

S.NO	CHARACTERISTICS	PROXIMAL BYPASS(N=10)	SEQUENTIAL BYPASS (N=15)
1	AGE : 40 – 50 YEARS 51-60 YEARS 61-70 YEARS	4 2 4	5 4 6
2	GENDER: MALE FEMALE	10 0	15 0
3	PALPABLE PULSE	0	13(86.67%)
4	MEAN ABI IMPROVEMENT	0.5	1
5	AVERAGE MONTHS FOR ULCER HEALING	5 MONTHS	1 MONTHS
6	CLAUDICATION PAIN IMPROVEMENT	3 (30%)	13 (86.67%)
7	COMPLICATIONS: PSEUDOANEURYSM GRAFT THROMBOSIS	2 (20%) 1 (10%)	0 2 (13%)

Figure 1:- Ct Angiograms Showing Multilevel Occlusions

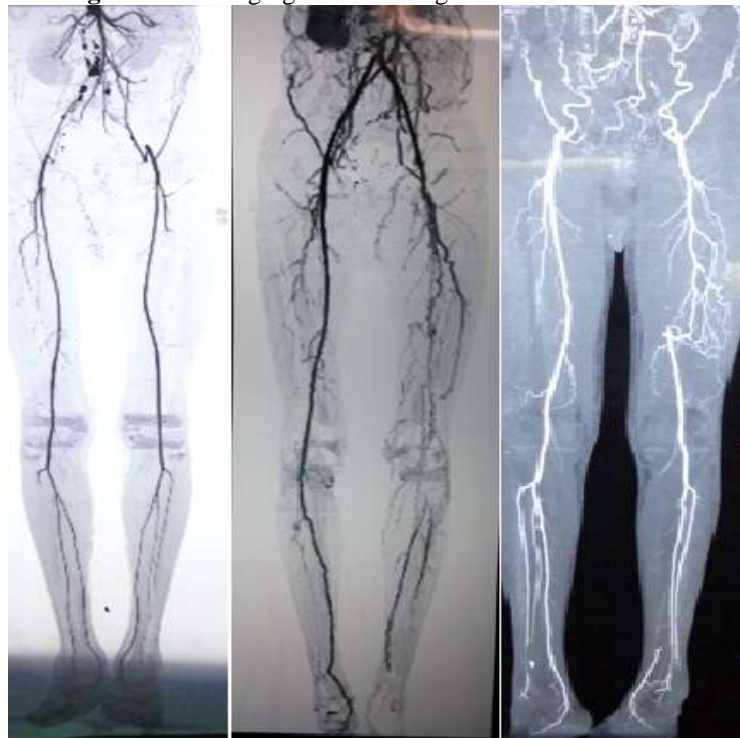
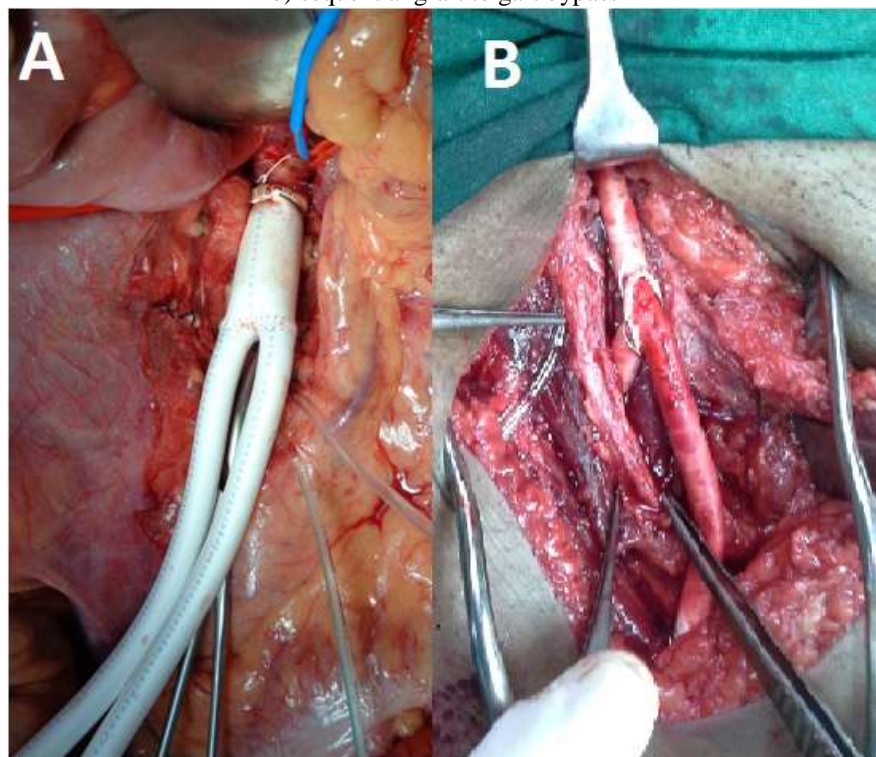


Figure 2:- a) proximal aorta to ptfe graft bypass
b) sequential graft to graft bypass



Thus from above table features such as ulcer healing, improvement in claudication pain, palpable pulse and ABI improvement were statistically better in sequential bypass group than proximal bypass group. Graft patency was nearly similar 10% vs. 13% without any statistical significance. One patient in sequential bypass group underwent major amputation (below knee amputation) and there were no perioperative mortality in both groups.

Conclusion:-

All patients presented with critical limb ischemia. Marked ABI improvement in patients with sequential bypass category. The ulcer healing rate is very fast in patients who underwent sequential bypass. Even though the ulcer heals in patients who underwent proximal lesion correction they have claudication. This study strongly reveals that sequential bypass gives the best result in critical limb ischaemia. Hence single-stage multisegment reconstruction for multilevel arterial occlusive disease is a safe and effective method of treating critical limb ischemia.

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