



COMPARATIVE STUDY OF FEMORO-FEMORAL CROSSOVER BYPASS AND AORTO-UNIFEMORAL BYPASS

Dr.B.Deepan Kumar

Assistant professor, Department of vascular surgery, Coimbatore Medical College Hospital, Coimbatore, Tamilnadu-641018

Dr.P.Vadivelu*

Assistant professor, Department of vascular surgery, Coimbatore Medical College Hospital, Coimbatore, Tamilnad-641018. *Corresponding Author

ABSTRACT Iliac artery occlusions can produce Chronic limb-threatening ischemia and these patients need early revascularization procedures for their limb salvage which is usually established by Aorto-unifemoral bypass. But in patients with poor general conditions femoro-femoral crossover bypass is an alternate option. Ours is Comparative study of Femoro-femoral crossover bypass and Aorto-unifemoral bypass in patients with Iliac occlusion and Chronic limb-threatening ischemia. Total of 22 patients were included in which femorofemoral bypass performed in 10 patients and Aorto-unifemoral bypass in 12 patients. Indications for femorofemoral bypass were poor cardiac/respiratory functions and old age with poor performance. Stable patients were subjected to Aorto-unifemoral bypass. Patency rates and limb salvage rate were 100% with no perioperative mortality in both of these procedures. This shows femorofemoral bypass is an effective revascularization procedure in patients with Iliac occlusion and Chronic limb-threatening ischemia with associated poor general conditions.

KEYWORDS : Femoro-femoral crossover bypass, Aorto-unifemoral bypass

INTRODUCTION:

Peripheral arterial disease defined as chronic occlusive disease of the lower extremities, is a major and growing health problem, estimated to affect more than 200 million individuals around the globe¹. Aging of the world's population, combined with diabetes, smoking, dyslipidemia, and hypertension are the critical risk factors and significant socio-economic disparities exist. Long segment Iliac occlusions can produce Chronic limb-threatening ischemia which indicates advanced stage of Peripheral arterial disease in which pain at rest in the foot or tissue necrosis (gangrene or nonhealing ulceration) has occurred with associated limb threat. This term connote a severe impairment of limb perfusion insufficient to maintain baseline tissue requirements.^{2,3} These patients need early revascularization procedures in form of Aorto-unifemoral bypass or Femoro-femoral crossover bypass for their limb salvage where endovascular procedures not possible. Femorofemoral bypass is used in selected patients when aortobifemoral bypass is believed to be inappropriate because of high operative risk or predominantly unilateral iliac artery occlusive disease^{1,8}.

MATERIALS AND METHODS:

This is a Prospective study which analyzes outcomes of Femoro-femoral crossover bypass and Aorto-unifemoral bypass in patients with Iliac occlusion and chronic limb-threatening ischemia. Those patients with iliac occlusion with chronic limb-threatening ischemia admitted in vascular surgery department of Coimbatore Medical College and Hospital during 2018-2020 who underwent Femoro-femoral crossover bypass and Aorto-unifemoral bypasses were included in the study. Redo surgeries, intervention following endovascular procedures and sequential bypass cases were excluded from study. There were totally 22 patients included in the study. Average follow-up in our study was 9 months. Patients were regularly followed for wound healing, improvement in ankle-brachial index, graft patency and limb salvage.

RESULTS AND DISCUSSION:

There were totally 22 patients in our study, most of them were male patients 21/22 (95%). Various comparative features of femoro-femoral and aortofemoral bypasses are given below in table-1.

Table-1: femoro-femoral bypass versus aortofemoral bypass

S. No	Features	Femorofemoral bypass	Aortofemoral bypass
1	Total number	10	12
2	Gender	All males	11 male, 1 female
3	Mean Age	63 years (47 to 75 years)	58 years (34 to 73 years)
4	Side operated	Left – 8, Right - 2	Left – 7, right - 5
5	Patency	10/10 – 100%	12/12 – 100%
6	Limb salvage	10/10 – 100%	12/12 – 100%
7	Mortality	None	None

Patency and limb salvage were 100% in both femoro-femoral and Aorto-femoral bypass group.

There were no perioperative mortality in both groups.



Figure-1: Femoro-femoral And Aortofemoral Bypasses

Decision making in lower extremity peripheral artery disease represents one of the most challenging and nuanced algorithms in vascular surgery. Optimal management is highly individualized, tailored to patient-specific goals, factoring in clinical presentation, anatomic pattern of disease, conduit availability, functional status, perioperative risk, and long-term survival. Once revascularization is decided, open surgical lower extremity arterial bypass remains the most durable option for iliac artery occlusion revascularization for chronic atherosclerotic occlusive disease especially those with long segment iliac artery occlusions.^{1,4} Although increasingly many patients are well served by endovascular therapy, it is still important to be familiar with the available techniques of lower extremity bypass so that patients aren't denied viable options for limb salvage^{4,6}.

Of open revascularization methods, aortounifemoral anatomical bypass is known for durability and longer patency rates but with disadvantage of high morbidity procedure with higher mortality in patients with poor cardiac/respiratory risks and in old age patients with poor performance status. Above mentioned patients are benefitted by low morbidity procedure in form of extra-anatomical femoro-femoral bypass^{7,8}.

Patency rates and limb salvage rate were 100% with no perioperative mortality in both of these procedures. No perioperative complications were encountered except for serous collection in groin in two cases of femoro-femoral bypass patients who recovered with drainage and antibiotics. This shows femorofemoral bypass is an effective revascularization procedure in patients with Iliac occlusion and Chronic limb-threatening ischemia with associated poor general conditions. Although graft patency and limb salvage rates are very high, major limitation in our study is shorter follow-up period of 9 months. Continuous followup for longer period will give better idea.

CONCLUSION:

Our study shows femoro-femoral extraanatomical bypass is an effective option in patients with poor general conditions having comparative patency and limb salvage rates as those of aortofemoral bypass patients with low mortality rates.

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