



Surgery

THORACIC AORTA-AN EFFECTIVE INFLOW SOURCE FOR LOWER LIMB REVASCULARISATION- A Case Series Study

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ABSTRACT

Revascularisation of the lower limb in a patient with occluded infrarenal aorta is a challenging problem especially when the patient requires concomitant coronary artery bypass. There are very few reports of using thoracic aorta as an inflow source for lower limb revascularization. With this method a clean aorta with good flow will be available as inflow and tissue dissection is minimum. All the patients who underwent lower limb revascularization in the department from September 2014 to September 2015 for infrarenal aortic occlusion were analysed. A retrospective analysis of hospital data was done and all the patients were summoned and reevaluated clinically. Our follow up period ranged from two months to one year. All patients were symptom free and had pedal pulses. Our study suggests thoracic aorta as an easy to approach and effective inflow source for lower limb revascularization. Longer follow up and studies are required for further conclusions.

KEYWORDS : lower limb revascularisation, aortic occlusion, aortobifemoral bypass

Introduction

Revascularisation of the lower limb in a patient with occluded infrarenal aorta is a challenging problem especially when the patient requires concomitant coronary artery bypass. There are very few reports of using thoracic aorta as an inflow source for lower limb revascularization. With this method a clean aorta with good flow will be available as inflow and tissue dissection is minimum.

Aorto bifemoral bypass is indicated in cases with severe atherosclerosis of abdominal aorta or iliac arteries with severe claudication symptoms, non healing ulcers in the extremities, aortic aneurysms and acute abdominal aortic occlusion

Methodology

Twelve cases between September 2014 and September 2015 were studied. All patients were evaluated with history physical examination, colour Doppler, coronary and peripheral angiography. About seven out of the 12 had critical limb ischaemia. All patients were in the age group between 45 and 65 yrs. Patients were classified into two sub groups, one group had undergone coronary revascularization along with aortobifemoral bypass, while the other group underwent thoracotomy and aortobifemoral bypass. In all patients bifurcated Dacron graft (VASCUTEK) was used. Patients with coronary revascularization were ventilated overnight while the others were extubated in the immediate post op period. Follow up period was between two months and one year.

Procedure

For those patients who underwent coronary revascularization, median sternotomy was done. All of them underwent off pump coronary bypass surgery. After completion of proximal vein anastomosis, the proximal end of prosthetic graft was anastomosed to dorsal aorta (Picture 4), graft was tunneled in the subcutaneous plane and anastomosis completed to both the femoral arteries (picture 2,3).

For all the patients who underwent revascularization of limb alone, left thoracotomy was done and proximal end anastomosed to descending thoracic aorta (picture 1). Distal ends were tunneled subcutaneously and anastomosed to both the common femoral arteries.

Results

The duration of our study was a period of one year. Patients were followed up for a period ranging from 2 months to 12 months. The mean age group of the group was 54.3. There were 11 males of the total 12 (91.6%). For the patients who underwent coronary revascularization, the average number of grafts were 2.83. All of them underwent off pump revascularization. Seven of the twelve had critical limb ischaemia. We lost one patient in the post op period with renal

failure. The main parameters looked upon during post op follow up were symptom relief and presence of distal pulses. All the patients in various stages of follow up had good symptom relief and palpable distal pulses.

Table 1- Analysis of data

Age (in years)	45-65	54.3(mean)
Male:Female	11:1	91.6%males
CABG	6	50% of patients
Critical limb ischaemia	7	58.33%
Duration of surgery(in hours)	2(isolated vascular) 5(with CABG)	
Duration of hospital stay	5-8 days	Mean-7 days
Mortality	1	8.33%

Discussion

Aortobifemoral bypass is indicated in cases with severe atherosclerosis of abdominal aorta or iliac arteries with severe claudication symptoms, non healing ulcers in the extremities, aortic aneurysms and acute abdominal aortic occlusion. (1) Contraindications include recent stroke, myocardial infarction, old frail patients, post operative Complications include myocardial ischaemia, respiratory dysfunction, renal dysfunction, bleeding and coagulopathy, trash foot, graft occlusion, anastomotic pseudoaneurysm. Meta analysis of multiple studies (2,3) reveals that the long term patency of aortobifemoral bypass grafts ranges from 91% at 5 years to 80% at 10 years. Patency rates are lower if the procedure is performed in patients with ischaemic rest pain, ulcerated toes or coexisting distal disease. The advantages of thoracic aorta as inflow source has been documented in other studies in terms of patency, limb salvage and survival.

The main advantages of our group were a high pressure proximal inflow source, easy access, avoidance of a laprotomy and its various complications, faster procedure time, but we do have concerns as our duration of followup was short, also the graft had to pass through anterior abdominal wall which may interfere with future laprotomy.

Conclusion

Thoracic aorta is an effective inflow source for lower limb revascularization with an easier technique, good outcome and minimum morbidity.

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