

## Creation of AV Fistula to Achieve Distal Foot Revascularization in Ischemia

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### Introduction

Ischemia of foot is not a rare problem and is found in diabetes, atherosclerosis and Buerger's disease. Many a times if ischemia is not treated properly it may progress to gangrene requiring amputation of foot [1]. There are various modalities of treatment which are effective like arterial bypass and angioplasty [2] and stem cell transplantation. Arterial bypass is effective if there is occlusion of short or long segments of vessels but terminal arterial tree is free of occlusion which is not the case in most of the patients of diabetes and atherosclerosis. Angioplasty is also effective in short segment occlusion and not very effective in terminal arterial tree blockage. There is no report of stem cell transplantation in such patients. There are reports of stem cell transplantation in muscles in leg ischemia but not in distal vessel disease. For such patients who have blockage of distal arterial tree we have developed the technique of creation of A V fistula between patent artery and venous system to increase the blood supply of distal foot We did the procedure in 21 patients over a period of five years and archived good results.

### Material and Method

21 patients were taken in study age varying from 36 to 65 years and 18 males and 3 females, the common condition are given in table 1.

Great toe L foot	5 patients
Great toe R foot	6 Patients
Dorsum foot	9 patients
Other sites	1 patient

**Table 1:** Different sites in diabetic foot.

### Technique

Patients were operated in supine position under spinal or general anesthesia. Painting and draping was done. Small incision was made just above medial malleolus and great saphenous vein was identified. Clamp was applied on both ends of vein and vein was divided. This vein was completely isolated by multiple incisions up to lower third of thigh or up to inguinal ligament depending upon whether the popliteal artery is patent or popliteal artery is blocked. The upper end of vein was ligated and the vein was isolated. Then the vein was reversed. Popliteal artery or femoral artery was isolated and reversed great saphenous vein was anastomosed end to side to patent artery. Proximal end of vein (now distal after reversal) was anastomosed to divided distal end of vein Clamps were removed and vein was seen filling with blood having pulsatile flow of blood.

### Results

The procedure was successful in all but one patient. All were relieved of pain immediately and their wounds started healing.

### Discussion

Ischemia in foot is found due to various problems like diabetes, atherosclerosis and Buerger's disease (Figure 1). Usual available treatments like arterial by pass and angioplasty are not effective treatment as in most of these cases distal vessels are blocked. Creation of alternative channels to supply the blood by creation of a v fistula is good method to relieve ischemia and subsequent gangrene. Creation of AV fistula has already been advocated in management of erectile problems when inferior epigastric artery is anastomosed with dorsal vein of penis successfully [3]. We have applied the same concept in ischemic legs and feet successfully

(Figure 2). There was immediate relief from ischemic pain and wounds starts healing.



**Figure 1:** Pre-operative showing diabetic toe.



**Figure 2:** Post-operative after fistula formation.

## Result

Creation of AV fistula in management of ischemic legs and feet is good method of management of distal leg and feet ischemia.

## Conclusion

In patients having distal leg and foot ischemia creation of AV fistula is good method.

## References

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