

# "Clinical study of the various patterns of skin and soft tissue infections of lower extremities in peripheral vascular disease- management and outcome"

1 Dr. Hemraj bhardwaj<sup>1</sup>, 2 Dr. Vishal Kumar Neniwal<sup>1</sup>, 3 Dr. P.C. Mewara<sup>2</sup>, 4Dr. Kishan Lal Meena<sup>3</sup>

1 Assistant Prof. Surgery Dept. G.M.C. Kota

2 senior Resident Surgery Dept. G.M.C.Kota

3 Associate Professor & ex unit head, Dept. of surgery M B hospital Udaipur

4 senior medical officer govt hospital bundi

## Article Info

## Abstract

### Corresponding

#### Author:

**Dr.vishal kumar neniwal**

Senior Resident Surgery  
Dept. G.M.C.Kota

**Keywords:** Lumber  
Sympathectomy, PVD,  
Buerger' Diseases.

**Objective:** - Peripheral vascular diseases are a group of common degenerative and vasospastic disease processes that result in significant morbidity and are strong predictors of subsequent mortality.

**Material & Methods:** -A prospective study was conducted in the surgical wards of MBHospital Udaipur in the year 2001-2002. Those patients suffering from peripheral vascular disease of lower limb, admitted in this hospital. The purpose of the present study is to observe various patterns of skin and soft tissue infection in peripheral vascular diseases and to study their management modalities.

**Result:** - This is study 100 patients included those suffering from PVD of lower limb. Out of 100 patients 91 (91%) patients were males and only 9 patients (9%) were females. Majority of patients chronic smoker (96%, including 5 females), 4% were non-smoker females. The various patterns of skin and soft tissue present at the time of admission. 49 cases had ulcer at the time of admission and most common site was great toes. The management of lower limb PVD cases was done according to the lesion at the time of admission. 46 cases were treated by Lumber Sympathectomy.

**Conclusion:**-Thepresent study suggests that Lumber Sympathectomy for severe lower limb ischaemia is still a valuable treatment option and amputation will be required if conservative management of sympathectomy fails to heal ulcer, and gangrene lesion of digits develop.

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## Introduction:

Peripheral vascular diseases are group of common degenerative and vasospastic disease

processes that result in significant morbidity and are strong predictors of subsequent mortality. These disease processes are due to increased life expectancy and the normal ageing process,

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Laboratory tests are non-specific for TAO but may be useful to exclude other causes of extremity ischemia such as arteriosclerosis obliteran and immune arteries.

The Doppler ultrasound detector is most useful for measuring blood pressure in the ankle and foot. It can detect flow over arteries in which no pulse can be palpated. Arteriography shows multiple occluded segments in the small and medium sized arteries, localized predominantly in leg and foot.



**Fig 2- Ischemic ulcer on left great toe**

Abstinence from smoking is the only proved successful method for halting progression of the disease. Trauma and cold exposure to the extremities should be avoided. Meticulous wound care of small digital ulcerations and minor traumatic lesions is crucial to prevent bacterial infection and possible progression of gangrene.

**Vasodilators, calcium channel blockers, platelets aggregation inhibitors such as aspirin have little role in treatment of Buerger's disease, pentoxifylline has also been reported to be effective in TAO. Surgical modality of the treatment include wound debridement, lumbar Sympathectomy, Amputation, Omental Transfer, Reconstructive vascular surgery, Ilizarov bone widening technique and Newer modalities apart from amputations like- In microsurgical techniques, Vascular gene therapy.**

### **Material & methods:**

A prospective study was conducted in the surgical wards of MB Hospital Udaipur in the year 2001-2002. Those patients suffering from peripheral vascular disease of lower limb, admitted in this hospital. The purpose of the present study was observing various patterns of skin and soft tissue infection in peripheral vascular diseases and to study their management modalities.

All Patients evaluated by a detailed clinical history, including- the limbs affected, bilateral or unilateral, mode of onset, pain, intermittent claudication, colour changes, treatment history, history of smoking, detailed physical and local examination, palpation of blood vessels and various investigation including blood lipid, cholesterol, fundoscopy, histopathology of neurovascular bundles, color Doppler, Arteriography, various operative procedure like lumbar sympathectomy, amputation and reconstructive vascular surgery and their follow-up done.



**Fig 3- ischemic ulcer on left great toe and second toe**

### **Results and Discussion:**

The present study was conducted on 100 patients suffering from peripheral vascular disease of lower limb. Out of 100 patients 91 (91%) patients were males and only 9 patients (9%) were females.

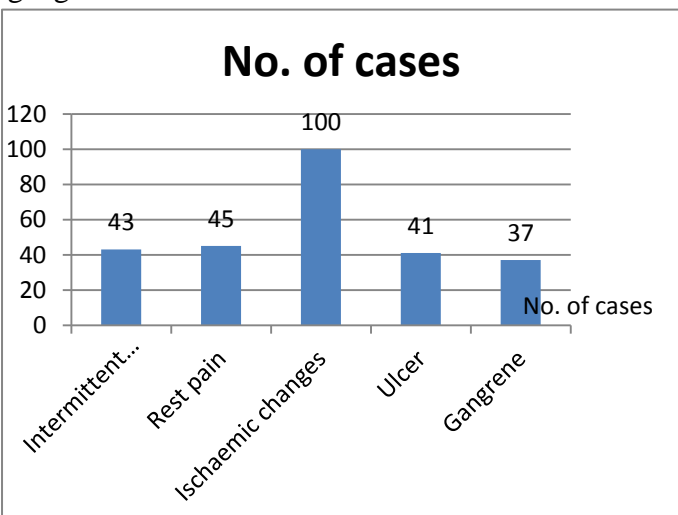
The age of patients under present study was ranging between 22-90 years. The youngest patient was male of 22 years who was chronic smoker and the eldest was 90-year-old male who developed gangrene of R-2<sup>nd</sup> & 3<sup>rd</sup> toe.

The majority of patient suffering from PVD was 26% in 31-40 years, 64% of patient were under 50 year of age and 36% of patient above 50 years of age. Buergers (1924) reported the maximum incidence of Buergers disease in second and third decades. Nigam (1980) studied 169 cases of peripheral occlusive vascular disease in Delhi he studied that age was ranging from 20-49 years.

**Age distribution**

S.No.	Age in years	No. of cases	Percentage
1.	21-30	15	15%
2.	31-40	26	26%
3.	41-50	23	23%
4.	51-60	19	19%
5.	61-70	10	10%
6.	71-80	2	2%
7.	>80	5	5%

The presenting (chief complaint) symptom of Ischemic changes in 100%, Rest pain in 45%, intermittent claudication in 43%, Ulcer in 41%, and Gangrene 37% of patients. Kinmoth (1948) has described similar symptom in high legs and foot according to site of vascular occlusion. Nigam (1980) reported that in TAO - commonest presenting symptom claudication followed by pain at rest with gangrene or ulcers.

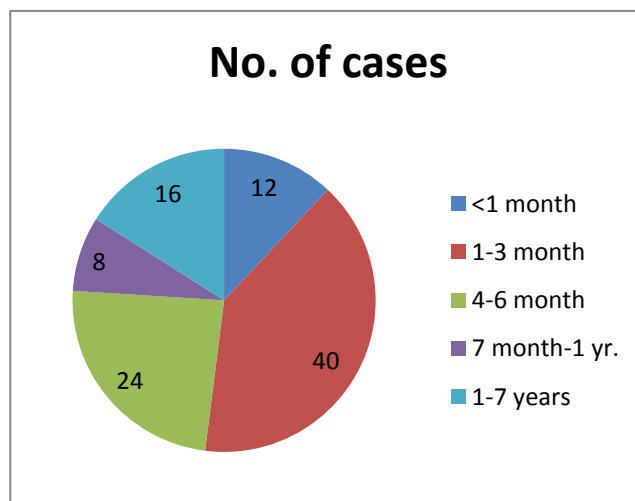


Majority of patients were having symptoms within 1-3 month duration (40%) followed by those who having symptom within 4-6 months was 24 patient (24%), 16% patients for 1-7yrs, 12% for < 1 month and 8% of patients had their complaint for 7 month to 1 year. Nigam (1980) observed the same duration ranging from a few days to 20 years in ASO and few days to 20 years in TAO.



**Fig 4- Ischemic ulcer on left great toe and gangrene of right great toe**

**Duration of Symptoms:**



Clinically in 73 patients there was unilateral involvement, out of those 34 patients having right lower limb and 39 patients having left lower limb involvement. In this series 24 patients having bilateral lower limb involvement and rest 3 patients having more than 2 two limbs involved. Majority of patients chronic smoker (96%, including 5 females), 4% were non-smoker females. According

to Kinmoth 98.5% patients of Buerger's disease were smokers and only 1.5% patients were non smokers who was female. Definite clinical improvement was noticed after discontinuation of smoking in patient of Buerger's disease. J. B. Oldham and Pemberton (1953) supported the same view. They reported uniform improvement among all patients who discontinued tobacco.

92 patients were from low socioeconomic group and only 8 patients were from average socioeconomic group, none of patient was from upper socioeconomic group. The same statement has been given by Sharma G. C. et al (1980) prevalence of diabetic foot were more in lower socio economic group. He observed it may be due use of cheap quality of tobacco from smoking and poor nutritional status.

Majority of patients (82%) were having normal fasting blood sugar in range of 80-110mg/dl and 18 patients having above fasting blood sugar. Out of 18 cases 17 cases were diagnosis of diabetic foot.

Only 4 patients were found to have serum cholesterol >240mg/dl, rest all patients having cholesterol level within normal range. Mathur SN et al (1997) studied serum lipid profile in PVD and shows that there was marked decrease in the mean HDL concentration in PVD patients compared to normal subject favour our study.

Arterial pulsations were absent at different levels in patients of peripheral vascular disease. Bilateral femoral pulsation absent in 2 cases and in 4 cases unilateral femoral pulsation absent.

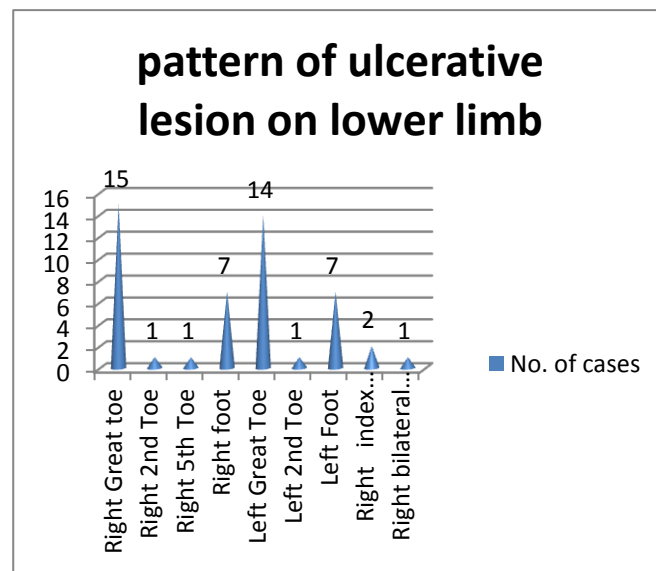
**Involvement of Arteries in Pvd Cases**

S.No.	Arterial pulsation	Absent on both sides	Absent on	
			Right	Left
1.	Femoral	2	3	1
2.	Popliteal	7	10	21
3.	Post, tibial	27	25	33
4.	Ant. tibial	27	20	32
5.	Dorsalis pedis	30	31	35
6.	Radial pulsation with absent lower limb pulsation	1	1	1

Bilateral popliteal pulsation absent in 7 cases and 31 cases were unilateral popliteal pulsation absent. Bilateral posterior tibial pulsation absent in 27 cases and 58 cases were absent of unilateral posterior tibial pulsations. Bilateral anterior tibial pulsation absent in 22 cases and 52 cases had absent unilateral anterior tibial pulsation.

Bilateral dorsalis pedis pulsations were absent in 30 cases and 66 cases had absent of unilateral dorsal pedis pulsations. One case of PVD found in which bilateral radial pulsation with bilateral popliteal pulsation absent. And 2 cases had bilateral popliteal pulsation absent with either unilateral radial pulsation absent. Kinmoth gave same statement after his study in 77 patients suffering from thromboangitis obliterans. Gore and Burrow (1958) reported similarly that in Buerger's and Diabetes, reactive peri-arterial fibrosis started in vessels of lower limb distally then proximally.

The various patterns of skin and soft tissue present at the time of admission. 49 cases had ulcer at the time of admission and most common site was great toes. Kinmoth (1948) studied on 77 patients and observed that ulceration gangrene of toes were main features.



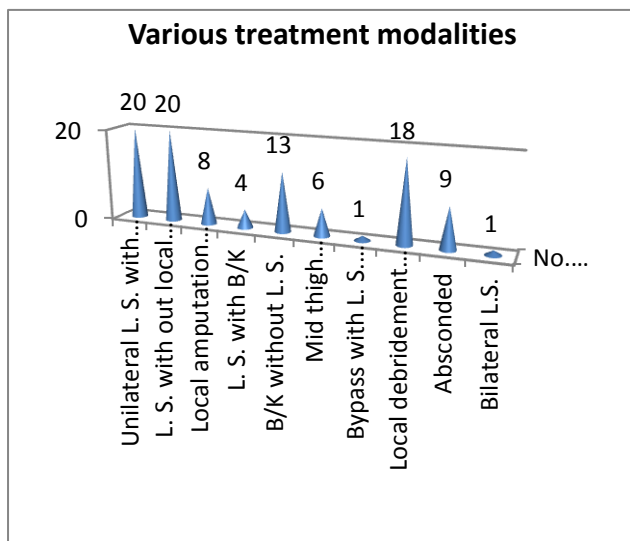
Out of 100 patients of present series of PVD of lower limb 46 patients had undergone lumbar sympathectomy with or without other associated procedure.

Berardi (1975) studied the level and number of amputation performed in these patients find out the cause of amputation after lumbar sympathectomy are gangrenous, ulcers, pre-

gangrenous changes cellulites and persistent pain. All patients in this study who required amputation had complicated vascular insufficiency with majority of amputation being performed within 3 months. Gupta RL (1987) stated that lumbar sympathectomy is usually the first line of surgical treatment and is a time honoured procedure and postoperative increase in the warmth of the limb and decrease in rest pain denote effective sympathectomy. He stated that is needed a valuable initial surgery and does control rest pain quiet well but it does not have good effect on claudication distance and claudication pain.

**Results of lumbar sympathectomy:**

S.No.	Symptom	Relief of symptom	Symptom not relieved
1.	Relief of pain	40	8
2.	Relief of burning sensation	36	12
3.	Local temp increased	48	0
4.	Local edema decreased	30	18
5.	Healing of ulcer	30	Rest cases were locally amputated



In this study 14 cases of peripheral vascular disease of lower limb had past history of surgical intervention. Out of 14 cases 9 cases had previously lumbar sympathectomy done. The average duration of L.S. was 1-6 month and they were treated by local amputation, repeat lumbar sympathectomy or major amputation after admission.

No patient was having postoperative gangrene in follow-up. 17 cases were having slough in lower wound. 4% patient were having delayed healing of ulcer for >1 month. 79 cases were having no complication in postoperative period.

All patient were examined for other associated disease out of 100 patients 17 patient (17%) were having DM, 7 patients had CVS involvement and 2% noted T.B. and one case had multiple myeloma. While Nigam (1980) observed that only 1% TAO cases had a history of CVS disease while 20% cases of ASO had CVS disease. He did not report any cases of T. B. and multiple myeloma with PVD.

S.N o.	Complications	Surgical/ Medical intervention	No. of Cases
1.	Sloughing	Debridement	17
2.	Gangrene	Amputation	0
3.	Ulcer healing delayed for >1 month	Medical treatment & dressing	4
4.	No complication	No intervention	79

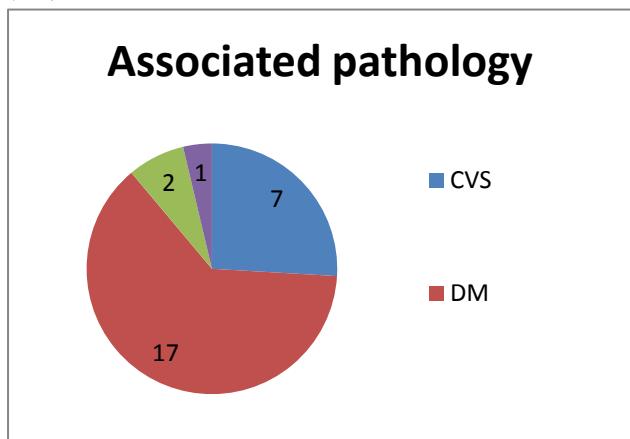


Fig 5- Ulcer on right foot (diabetic foot)

**conclusion:**So in our opinion and result of present study suggest that Lumbar Sympathectomy for severe lower limb ischaemia is still a valuable treatment option (Baker D.M.)and amputation will be required if conservative management of sympathectomy fails to heal ulcer, gangrene lesion of digits and it is better to allow digits that partially or totally gangrenous to slough spontaneously without amputation. The leg may need t be amputated if gangrene of toe or toes has extended well into foot. The most distal level of amputation should be selected in patients with end stage arterial disease. The presence of palpable pulse immediately above the selected level correlated well with primary wound healing.



**Fig 6-Showing involvement of all four limbs**

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