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Original Research Article

A Prospective Study of Peripheral Vascular Disease

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Abstract

Background: Peripheral vascular Disease is an important cause of morbidity and limb loss now a days. It is a blood circulation disorder that causes blood vessels outside the heart and brain to narrow or block. Currently the appropriate management of patients with chronic lower limb ischemia is a complex clinical issue.

Aim and Objectives: To study the clinical presentation and management of Peripheral vascular diseases.

Material and Methods: This was a prospective study conducted for period of one year, included 50 patients of Peripheral Vascular disease in Department of General surgery, Bhaskar Medical College and General Hospital Yenkapally Village after approved by ethical committee and followed exclusion and inclusion criteria.

Results: 88% of the participants were males and 12% were female, out of all maximum patients (72%) were from age group of 21 to 50 years of age also we have found that 22% of the patients were from age group of > 50 Years of age. 72% of the patients had varicose veins followed by 18% had Atherosclerosis and 10% were from TAO. Intermittent Claudication, Rest Pain, Gangrene were most common symptoms in Atherosclerosis and TAO and Prominent veins, edema, pain and pigmentation were the most common symptoms in varicose veins. All the patients were managed conservatively and surgically.

Conclusion: Age group between 21 to 50 years was the commonest for the disease and there was Male Predominance. Initially patients were managed conservatively which include vasodilators and anti-coagulants for limb salvage. Surgical interventions include amputations, disarticulations and lumbar sympathectomy were adopted according to the complications. Also Ray amputation was the most commonly performed amputation in this study.

Keywords: Peripheral vascular Disease, Atherosclerosis, TAO, Intermittent Claudication

Introduction

Peripheral vascular disease is a blood circulation disorder that causes blood vessels outside the heart and brain to narrow or block. The blood vessels that get affected include arteries, veins and lymphatics. Vascular disease is a leading cause of morbidity and mortality in people with diabetes. Diabetic foot problems are due to combination of ischemia and neuropathy often complicated by infection. [1] Thromboangiitis obliterans (TAO) was first described by Leo Buerger in the

beginning of 20th Century. The disease affects predominantly the males of low socio-economic status. The patients present with Intermittent Claudication, an insidious non healing indolent ulcer over the extremity, thrombophlebitis migrans and sometimes frank gangrene of the toes. Pain will be the most predominant symptom.

Dilated, tortuous and elongated veins are called varicose veins most commonly found over lower extremities. Varicose veins have been recognized as chronic disorder since ancient times. The lower limb is the most common site of venous disorders. More than 5% of the populations has varicose veins. [2] Varicose veins and their associated symptoms and complications constitute the most common chronic vascular disorders leading to surgical treatment. Varicose veins is a common disease in which a weakening of the vascular wall and incompetent malfunctioning valves allow venous reflux to occur. In this disease, the saphenous veins are dilated, tortuous, and intraluminal venous pressure is increased. Varicosity is the penalty for verticality against gravity. [3]

Atherosclerosis is a complex, chronic inflammatory process that affects the elastic and muscular layers of the arteries. The disease is both systemic and segmental, with clear predilections for certain locations within the arterial tree and relative sparing of others. The earliest lesions (i.e., fatty streaks) may be detected in childhood in susceptible individuals.

Recent advances in therapies for PVD have provided greater options for patients and clinicians. Several mechanical devices are now available for endovascular treatment of lower-extremity peripheral artery disease (PAD), [4, 5] extracranial and intracranial cerebrovascular disease, and aortic disease. [6]

Currently the appropriate management of patients with chronic lower limb ischemia is a complex clinical issue. Despite the advance in technical issues of revascularization, there remains much that can be done regarding education, risk factor modification and non-operative therapy for these patients. [7] Major amputation is eventually required in more than a third of patients once limb threatening symptoms and signs occur. Never the less, the cause of death in patients with Peripheral arterial disease is seldom direct result of lower limb ischemia, most patients die from complications of coronary artery or cerebrovascular disease.

Thus we have undertaken this study to study the clinical presentation and management of Peripheral vascular diseases.

Materials and Method

This was a prospective study conducted for period of one year, included 50 patients of Peripheral Vascular disease in Department of general sergery, Bhaskara Medical College and General Hospital Yenkapally Village, after approval by institutional ethical committee and after following exclusion and inclusion criteria given below.

Inclusion Criteria:

Patients presenting with clinical features of varicose veins, Buergers disease and atherosclerosis.

Exclusion Criteria:

- Pregnant women with vascular disorders
- Patient on anti-coagulants

Methods: Detailed Clinical history of the patients was taken in a chronological order. A thorough clinical examination was carried out to find out and establish clinically the presence of vascular obstruction and incompetence of venous system. Detailed vascular system examination was done as per the proforma provided and blood pressure was measured

to rule out hypertension. The degree of vascular inadequacy and extent of the spread of the disease was assessed clinically by noting the colour change, extent and spread of gangrene and absence of peripheral pulses in the affected limbs. The site of incompetence was similarly assessed by tests of varicose veins. This together with history of the patient regarding the distribution and type of pain and site of varicosities gave in a fairly good number of cases studied, an idea of the state of patient's vascular condition and site of incompetence.

The treatment of each patient was individualized with the aim to achieve foot salvage wherever feasible and a specific type of surgery was done based on the site of venous incompetence. A record of patient's progress and response to various modalities of treatment was made to evaluate severity of disease.

Statistical Analysis: Collected data was entered in the Microsoft Excel 2016 for further analysis. Qualitative data was presented with the help of frequency, proportion and descriptive analysis of the patients were done with the help of statistical software SPSS version 25.

Observation and Results

Present study included 50 patients with PVD is conducted in the Department of General Surgery of our Institute.

Table 1: Distribution of demographic profile and peripheral vascular diseases.

Parameters	Frequency	Percentage
Gender		
Male	44	88
Female	6	12
Age Intervals		
< 20 Years	3	6
21 -30 Years	12	24
31 - 40 Years	15	30
41 - 50 years	9	18
51 - 60 Years	6	12
> 60 Years	5	10
Peripheral Arterial Disease		
Varicose Veins	36	72
Atherosclerosis	9	18
TAO	5	10
Affected Area		
Left Lower Limb	24	48
Right Lower Limb	26	52

Above table showed that, 88% of the participants were male and 12% were female, out of all maximum patients (72%) were in the age group of 21 to 50 years of age also we have found that 22% of the patients were in th age group of > 50 Years of age. Among all 72% of the patients were suffering from with varicose veins followed by 18% who had Atherosclerosis and 10% had TAO. 52% of the patients had Right lower limb ischemia compared to Left lower limb which was 48%.

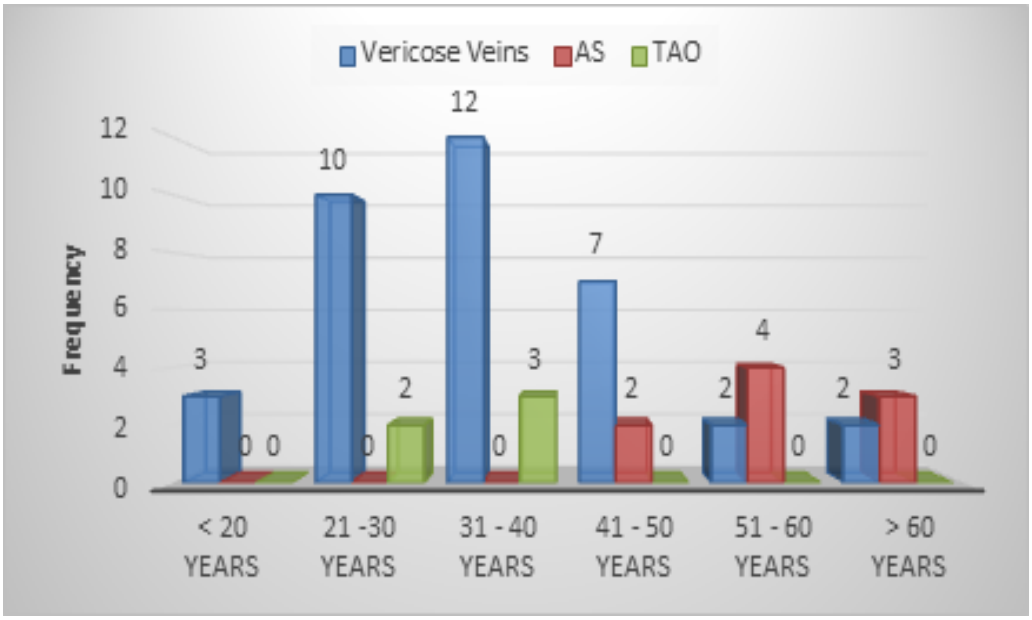

Figure 1: Age distribution among peripheral vascular disease.

Table 2: Distribution of risk factor among peripheral vascular diseases.

Risk Factors	Diagnosis			Total
	Varicose Veins	Atherosclerosis	TAO	
Smoking	8(16.30%)	8(16.30%)	5(10.20%)	21(42.90%)
Standing	3(6.10%)	0(0%)	0(0%)	3(6.10%)
Strenuous Work	2(4.10%)	0(0%)	0(0%)	2(4.10%)
Standing + Smoking	12(24.50%)	0(0%)	0(0%)	12(24.50%)
Standing + Smoking + Strenuous Work	3(6.10%)	0(0%)	0(0%)	3(6.10%)
Obesity	1(2%)	0(0%)	0(0%)	1(2%)
No Risk	6(12.50%)	1(2%)	0(0%)	7(14.30%)

Table showed that, 21(42.90%) of the patients were smokers out of which each of 8 patients suffered from varicose veins and Atherosclerosis and 5 patients were suffering from TAO. Among 12(24.50%) , standing and smoking were the risk factor and all the patients were suffered from varicose veins. 3(6.10%) of the patient who had varicose veins had risk factor standing. Only 1(2%) patient who was obese had varicose veins.

Out of all the males 31 were suffering from varicose veins, 8 were suffering from Atherosclerosis and 5 had TAO. Out of 6 females 5 had varicose veins and 1 had Atherosclerosis.

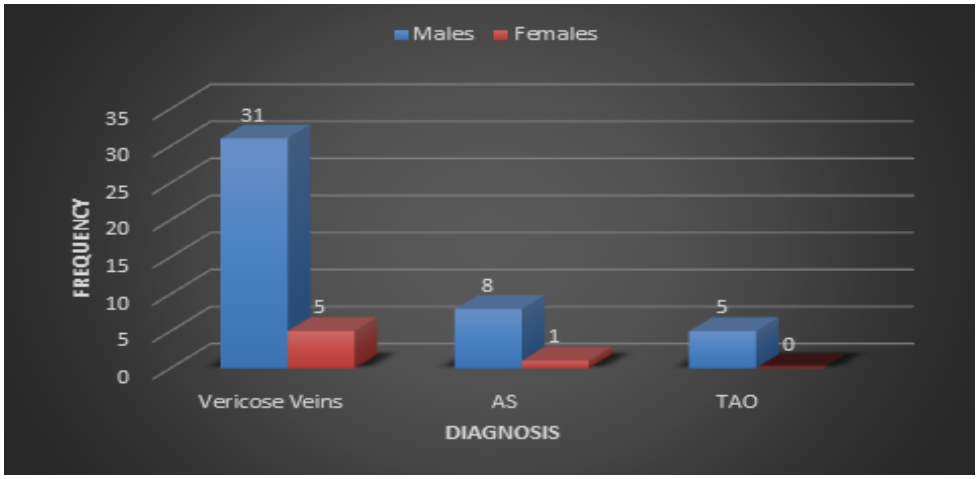

Figure 2: Gender distribution among peripheral vascular disease.

Table 2: Distribution of risk factor among peripheral vascular diseases.

Symptoms	Varicose Veins	AS	TAO
Intermittent Claudication	0(0%)	9(18%)	5(10%)
Rest Pain	0(0%)	9(18%)	5(10%)
Gangrene	0(0%)	7(14%)	5(10%)
Prominent veins	36(72%)	0(0%)	0(0%)
Pain	22(44%)	0(0%)	0(0%)
Edema	24(48%)	3(6%)	0(0%)
Pigmentation	16(32%)	0(0%)	0(0%)
Ulceration	1(2%)	2(4%)	0(0%)

Our study showed 9(18%) patients with symptoms of intermittent Claudication suffered from Atherosclerosis and 5(10%) with TAO, similar distribution was shown for rest pain. 36(72%), 22(44%), 24(48%) and 16(32%) were suffered with varicose veins showed Prominent veins, pain, Edema and Pigmentation respectively as symptoms. Also 7(14%) and 5(10%) patients who had Atherosclerosis and TAO showed symptoms of gangrene. 2(4%) of the patients with Atherosclerosis had ulcer(s) as a presentation.

Table 3: Distribution of surgical management of peripheral vascular diseases.

Surgical Management	Diagnosis			Total
	Varicose Veins	AS	TAO	
SFFL + STR	17(34%)	0(0%)	0(0%)	17(34%)
RFA	7(14%)	0(0%)	0(0%)	7(14%)
AK	0(0%)	6(12%)	0(0%)	6(12%)
EVLT	5(10%)	0(0%)	0(0%)	5(10%)
FSC	3(6%)	0(0%)	0(0%)	3(6%)
BK	0(0%)	2(4%)	1(2%)	3(6%)
EVLT + STR	2(4%)	0(0%)	0(0%)	2(4%)
LS	0(0%)	0(0%)	2(4%)	2(4%)
SEPS	2(4%)	0(0%)	0(0%)	2(4%)
None	0(0%)	1(2%)	2(4%)	3(6%)

Among all patients maximum patients 17(34%) with varicose veins were managed by Saphenofemoral Flush ligation and Stripping, followed by 7(14%) patients managed by Radio Frequency Ablation. For 5(10%) patients we have used Endo venous Laser Therapy shown in th above table.

Table 4: Distribution of Treatment for Arterial Diseases.

Treatment Modality	Atherosclerosis	TAO	Total
Amputation	9	5	14
Conservative	20	2	22
Lumbar sympathectomy	0	2	2

In this study, 64.28% of patients with atherosclerosis underwent amputation and all two patients with TAO underwent lumbar sympathectomy and 35.71% of patients with TAO underwent amputation.

Discussion

In present study we have included 50 samples of peripheral vascular disease, conducted in Department of Surgery, of our Institute. Present study showed that among the patients with varicose veins, 80.55% of the patients were lying in the age group of 21 to 50 years, also all the patients with Atherosclerosis were of age more than 50 years and all patients with Thromboangiitis obliterans had their age between 21 to 40 years. The study done by Nigam R., reported that 50% of the atherosclerosis cases belonged to the age group 60-70 yrs, oldest being 78 yrs. The age distribution pattern is similar to our study, also same study observed that 88% of the TAO cases were aged between 31-50 yrs, similar to the findings in this study. [8] Study conducted by Wright et al had an age range 20 – 75 yrs [9].

Our study observed that among all the patients, maximum number of the patients were male compared to females for varicose veins, atherosclerosis and TAO. Study done by Selvin E and Erlinger TP, found that although there was a slightly higher prevalence in men than in women, the prevalence dramatically increased with age, rising from 0.9% in those younger than 50 years to 14.5% in those 70 years or older. [10] Less female patient in present study can be due to the fact that Indian woman are less conscious about the cosmetic appearance probably due to traditional way of Indian dressing. Among maximum studies observed that there was female dominance over male [11, 12]. Women may be resistant to varicosities and their complication due to hormonal influence.

Our study observed that smoking was the risk factors for all varicosities, atherosclerosis and TAO followed by prolonged Standing and smoking. Study by Nigam R, the incidence of smoking in TAO and atherosclerosis was reported to be 98% and 72% respectively. [8] Hill et al. found that all the TAO patients in their study were cigarette smokers and patients who smoked more than 10 cigarettes per day had a much weak prognosis computed those who smoked less than that. [13]

Among the patients with varicose veins maximum patients showed symptoms of prominent veins, pain, edema and pigmentation, W.B. Campbell et al. found similar finding with our study. A study on the clinical profile of TAO and Arteriosclerosis obliterans done by Nigam R reported that claudication was the commonest presentation in TAO and ulcer or gangrene with claudication was common mode of presentation in Atherosclerosis. [8] Nigam R reported that claudication was the commonest presentation in TAO and ulcer or gangrene with claudication was common mode of presentation in Atherosclerosis. [8]

All the patients with clinical class 4 and above were initially treated conservatively

with the idea to decrease the edema and to allow any venous ulcers to heal and making the limb fit for surgery. Among the patients, with varicose veins 34% of the patients were manged by SFFL + STR (Saphenofemoral Flush ligation and Stripping) followed by Radio Frequency Ablation, Endo Venous Laser Therapy Subfascial Endoscopic Perforator Ligation Surgery, while among patients with Atherosclerosis and TAO were manged by using conservative approach like vasodilators, anticoagulants, analgesics and antibiotics. [14] These drugs are used individually or in combination according to patients symptoms. Those who required surgical management included Lumbar sympathectomy, disarticulation, amputations or lumbar sympathectomy with disarticulation in our study. Janson T and Bergstrom R reported in their study that smokers have poor survival rates, a greater likelihood of progression to critical limb ischemia and amputation, and decreased artery bypass graft patency rates when compared non-smokers. However, patients who are able to stop smoking are less likely to develop critical limb ischemia and have improved survival.

Conclusion

Study from all observation and discussion with others studies we can conclude that, the most commons symptoms was prominent veins, age group between 21 to 50 years was the commonest age group for the disease and also male were dominant over females, the newer modalities of treatment, radiofrequency ablation and foam sclerotherapy were effective with better cosmetic results. Subfascial Endoscopic Perforator Surgery is most effective for incompetent perforators ligation. Cases with apheno femoral and sapheno popliteal incompetence Endovenous Laser therapy is effective. Also cases with Atherosclerosis and TAO (Burgers Disease) intermittent claudication with ulcer were commonest mode of presentation, initially patients with these managed conservatively which includes vasodilators and anti-coagulants for limb salvage. Surgical interventions include amputations, disarticulations and lumbar sympathectomy and were adopted according to the complications. Also Ray amputation was the most commonly performed amputation in this study.

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References

1. Jaap AJ, Tooke JE. Diabetic angiopathy and Diabetic foot. In: Tooke JE, Lowe GDO, editors. A textbook of vascular medicine. London: Arnold; 1996:254-71.
2. Kevin Burnand. Bailey and Love's Short Practice of Surgery.25th ed. London: Edward Arnold; 2008.p.9 25-943.
3. Rajgopal shenoy K. Manipal manual of surgery. 2nd ed. New Delhi: CBS;2005, p.90-100.
4. Tepe G, Zeller T, Albrecht T, Heller S, Schwarzwälder U, Beregi JP, Claussen CD, Oldenburg A, Scheller B, Speck U. Local delivery of paclitaxel to inhibit restenosis during angioplasty of the leg. N Engl J Med.2008; 358:689–699.
5. Rogers JH, Laird JR. Overview of new technologies for lower extremity revascularization. Circulation. 2007; 116:2072–2085.
6. Katzen BT, Dake MD, MacLean AA, Wang DS. Endovascular repair of abdominal and thoracic aortic aneurysms. Circulation. 2005; 112:16 63–1675.
7. Nehler MR, Taylor LM, Moneta GL, Porter JM. Natural history and non-operative treatment of chronic lower extremity ischemia. 6th Ed. In: Moore WS, editor. Vascular Surgery: A Comprehensive Review. Philadelphia: WB Saunders Company; 2002:264-275.
8. Nigam R. The clinical profile of TAO

and Arteiosclerosis obliterans. Ind J Surg 1980; 42:225.
9. Wright et al. The prevalence of venous disease in a west London population. In: Davy A, stemmer R, Eds. Phlebology' 89. Paris: John libbey Eurotext, 1989:176- 8.
10. Selvin E, Erlinger TP: Prevalence of and risk factors for peripheral arterial disease in the Unites States: Results from the National Health and Nutrition Examination Survey 1999-2000. Circulation 2004; 110:738-43.
11. A.H.M. Dur, A.J.C Mackay et al. Duplex assessment of clinically diagnosed chronic venous insufficiency. Br. J. surg. 1992; 79:155 -161
12. Chang C-J, Chua J-J. Endovenous laser photocoagulation (EVLP) for varicose veins. Lasers in Surgery and Medicine. 2002;31(4):257-62.
13. Hill GL, Moeliono F, Tomewu D, Bratanada, Tohardi A. The Buerger's syndrome in Java. A description of the clinical syndrome and some aspects of its etiology. Br J Surg 1973; 60(8):6 06-13.
14. Kafaji M. S. A. A., & Alsaadi, Z. H. Pinworms Infection: Review. Journal of Medical Research and Health Sciences, 2022; 5(8): 2182–2189.