



"A STUDY OF PERIPHERAL ARTERIAL OCCLUSIVE DISEASES OF LOWER EXTREMITIES"

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ABSTRACT

INTRODUCTION: Peripheral arterial occlusive disease (PAOD) refers to diseases causing obstruction to arteries of limbs not within the coronary, aortic arch, and brain vasculature¹. This term usually applies to disease involving the arteries of lower extremity.

AIMS AND OBJECTIVES:

- To study the pattern of clinical presentation of PAOD.
- To evaluate the various investigations which are helpful in arriving at a suitable diagnosis and management.
- To study the effectiveness of various interventions both medical & surgical in the progress and outcome of the disease.

MATERIALS AND METHODS:

INCLUSION CRITERIA:

- All the patients admitted to Santhiram Medical College and General Hospital and detected to have chronic PAOD either from the history or clinical examination or vascular investigations from October 2018 to September 2020 forms the subjects of this study.

EXCLUSION CRITERIA:

- Patients with acute ischemia of lower extremities due to arterial trauma were excluded.
- Patients with acute ischemia due to thromboembolic phenomenon were excluded.

RESULTS: In this prospective study 96 cases were studied. 63% of the patients are above the age of 60 years and only 4% of the patients are in the age group between 31-40 years. In the present study, 81% of the patients are males, 19% of the patients are females.

CONCLUSION: Incidence of PAD increased with increase in age. Most of the affected individuals belonged to old age group mostly more than 60 years.

KEYWORDS : Peripheral arterial disease, critical limb ischemia, Diabetes mellitus, Hypertension.

INTRODUCTION

Definition:

The peripheral arteries are defined as arteries other than those that supply the heart and brain¹.

Peripheral arterial occlusive disease (PAOD) refers to diseases causing obstruction to arteries of limbs not within the coronary, aortic arch, and brain vasculature¹. This term usually applies to disease involving the arteries of lower extremity. Most common cause of PAOD is atherosclerosis.

Epidemiology:

The prevalence of peripheral arterial disease in the general population is 12-14%, affecting up to 20% of those over 70yrs. 70%-80% of affected individuals are asymptomatic^{2,3}. Peripheral Vascular Disease of the lower extremity is an important cause of morbidity and affects 10 million people in India⁴.

Peripheral arterial disease affects 1 in 3 diabetics over the age of 50. The incidence of symptomatic PAOD increases with age.

PAOD broadly classified as :

- Atherosclerotic diseases
- Non atherosclerotic diseases

- Buerger's disease
- medium and large vessel vasculitis
- popliteal entrapment syndrome
- fibromuscular dysplasia
- cystic adventitial disease
- endofibrosis of the iliac artery.

Early diagnosis of PAOD is important because:

- unlike the coronary and cerebral vascular beds, the peripheral arteries are not end arteries
- Given adequate time and intervention, will result in development of collaterals and delay the progression of the disease.

PAOD is under diagnosed, undertreated, poorly understood, and much more common than previously Thought^{5,6}.

The diagnosis of PAOD should not be overlooked for 2 important reasons: First, patients with PAOD may experience many problems, such as claudication, ischemic rest pain, ischemic ulcerations, repeated hospitalizations, revascularizations, and limb loss⁷.

These lead to a poor quality of life and a high rate of depression^{8,9}. Even patients who have no leg symptoms have a poorer functional performance, poorer quality of life than an age-matched group of patients without PAOD¹⁰.

Second, patients with PAD have a greater likelihood of experiencing a myocardial infarction (MI), stroke, and cardiovascular death and have a higher rate of mortality compared with patients without PAD^{11,12,13}.

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METHODOLOGY:

- Detailed history taken from all the patients with special emphasis with symptoms related to PAOD where patients complains of claudication, overt signs of ischaemia, skin changes, nail changes, atrophy of muscle groups, ulceration, gangrene and grading of severity of the ischemia.

- Thorough clinical examination
- Doppler evaluation of both lower limbs done for all patients including ankle brachial index.

All patients were simultaneously evaluated for coronary artery disease.

RESULTS

In this prospective study 96 cases were studied.

Table Showing Age Distribution

AGE GROUP	NO. OF PATIENTS	PERCENTAGE
21-30	NIL	NIL
31-40	4	4.16%
41-50	8	8.3%
51-60	24	25%
>61	60	62.5%
TOTAL	96	100%

Figure Showing Sex Distribution

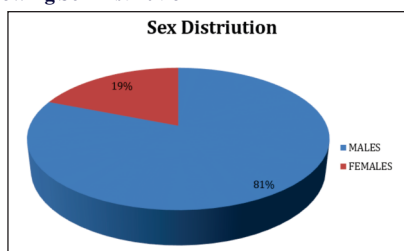


Table Showing Clinical Presentation

SYMPTOMS	NO. OF PATIENTS	PERCENTAGE
INTERMITTENT CLAUDICATION ONLY	NIL	NIL
REST PAIN ONLY	2	2%
ULCER ONLY	NIL	NIL
GANGRENE	60	62.5%
GANGRENE +ULCER	34	35.4%
TOTAL	96	100%

Table Showing Comarbities

ASSOCIATED DISEASES	NO. OF PATIENTS	PERCENTAGE
DIABETES MELLITUS	68	70.8%
HYPERTENSION	32	33.3%
ISCHEMIC HEART DISEASE	28	29.1%

Table Showing Type Of Surgical Treatment

TYPE OF SURGERY	NO. OF PATIENTS	PERCENTAGE
MINOR AMPUTATION	50	52%
MINOR FOLLOWED MAJOR AMPUTATION	10	10.4%
MAJOR AMPUTATION	34	35.4%
LUMBAR SYMPATHECTOMY	NIL	NIL

DISCUSSION

Peripheral Arterial Disease is under diagnosed, undertreated, poorly understood, and much more common than previously thought.

In the present study, 96 patients with peripheral arterial diseases of lower extremities were studied from October 2018 to September 2020.

All the cases in the present study fall under the category of chronic lower limb ischemia.

Age Distribution:

In the present study, 63% of the patients are above the age of 60 years and only 4% of the patients are in the age group between 31-40 years.

It indicates that peripheral arterial disease is common in old age group and the risk increases with increase in the age.

In a study conducted by Nigam R., 56% of the patients are over the age

of 60 years, results of which are nearer to my study¹⁴.

Sex Distribution:

In the present study, 81% of the patients are males, 19% of the patients are females which indicates the disease is more common in males compared to females.

As atherosclerosis is the most common cause of peripheral arterial disease of lower extremities and smoking being the strong risk factor for atherosclerosis, may be this is one of the main reasons why the disease is more common in males compared to females.

Among the females, 78% of the patients are over the age of 60 years, which indicates that age is a strong risk factor for atherosclerosis.

Clinical Presentation:

In this study, 63% of the patients presented with gangrene making it the most common presentation, 35% of the patients had associated ischemic ulcer along with gangrene.

2% of the patients presented with rest pain and no patients presented with intermittent claudication only or ischemic ulcer only in this study.

Extent Of Gangrenous Changes:

In this study, 75% of the patients presented with gangrene of the toes and 23% of the patients presented with gangrene of toes & foot.

CONCLUSION

The present study consists of 96 cases presenting with peripheral arterial disease (PAD) of lower extremities and following are the conclusions drawn from the present study:

1. Incidence of PAD increased with increase in age.
2. Most of the affected individuals belonged to old age group mostly more than 60 years.
3. Males are affected more compared to females in the ratio of 4.3:1.
4. Diabetes mellitus, Hypertension, Smoking, and Alcohol were confirmed as the risk of peripheral arterial disease of lower extremities.
5. Arterial Doppler evaluation including ankle brachial index is a powerful tool in identifying the site of pathology and quantifying the severity of ischemia.
6. Femoropopliteal segment is the most common segment involved in PAD of lower extremities followed by distal popliteal segment.
7. Conservative management is in the form of drugs like cilostazol 100mg, lifestyle modifications like smoking cessation and exercises can slow down the disease process if implemented early in the course of the disease.
8. Almost all the cases were managed with some form of surgery and majority of them had limb loss.
9. This may be due to majority of the cases presenting in the terminal stages with gangrenous changes, thus leaving no scope for limb salvage.
10. Major Amputation with primary closure is better than Major Amputation with guillotine in terms of healing of wound and early postoperative recovery.
11. Post operative Morbidity and Mortality is more with Above Knee amputations compared with Below Knee amputations.
12. Patients who underwent Below Knee amputation and comparatively younger age group are ambulatory after amputation compared to patients who underwent Above Knee amputation and older age group.
13. There is improvement in the symptoms in most of the patients after one or other form of intervention.
14. Peripheral arterial disease is a marker of coronary artery disease.
15. Most of the deaths in patients with PAOD are due to cardiovascular problems.
16. There is a lack of awareness in the general population regarding peripheral arterial disease and this is the reason why the patients are presenting late.

REFERENCES

1. Amjad Al Mahameed. Prevalence of and risk factors for peripheral arterial disease in the United States. Results from the National Health and Nutrition Examination Survey, 1999-2000. *Circulation*. 110: 2004; 738-743.
2. Hiatt WR. Medical treatment of peripheral arterial disease and claudication. *N Engl J Med*. 2001;344(21):1608-1621
3. Regensteiner JG, Hiatt WR. Current medical therapies for patients with peripheral arterial disease: a critical review. *Am J Med*. 2002;112(1):49-57
4. Dutta. R; Vascular disease management plagued by lack of awareness & Research, *Express Health Care Management*, 1:2, Jan 1.15, 2003.
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 14. Nigam R. The clinical profile of TAO and Arteriosclerosis Obliterans. Ind J Surg 1980; 42:225.