

## Symptoms and Signs of Buerger's Disease: Clinical Study

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### Abstract

*Introduction:* The aetiology of the disease again is not known till today. Despite many efforts and studies, the aetiology remains obscure. But one advantage of such a vast study done in this field to find out its cause is the emergence of a body of knowledge regarding various factors that contribute towards worsening or lessening the severity of the disease. *Methodology:* The method of the study consisted of taking a good clinical history in a chronological order as soon as the patient was admitted. A thorough clinical examination was carried out personally to find out and establish clinically first, the presence of vascular obstruction. Detailed vascular system examination was done as per the proforma provided and blood pressure measured to rule out hypertension. *Results:* claudication was the commonest presentation seen in 32 patients (64%). Among them calf claudication is seen in 20 patients (40%) and foot claudication seen in 12 patients (24%). Rest pain is seen in 18 patients (36%). Ulceration is seen in 9 patients (18%). Gangrene was seen in 24 patients (48%). Superficial thrombophlebitis is seen in 1 patient (2%). *Conclusion:* Majority of patients were in age group 41-50 years. Lower socio-economic strata are commonly involved with Buerger's disease.

**Keywords:** Buerger's Disease; Claudication; Smoking.

### Introduction

Buerger's disease or TAO was first described by Leo Buerger in the beginning of 20th Century. The

disease affects predominantly the males of low socioeconomic status. It shows a global distribution. The patients present with IC, an insidious non-healing indolent ulcer over the extremity, thrombophlebitis migrans and sometimes frank gangrene of the toes. Whatever the complaints, pain will be the most dominating symptom. A young man sitting all night rubbing his foot in vain effort to effect some relief immediately appeals to the observer and brings a feeling of helplessness both for the doctor and for himself. This feature has been the cause of morphine addiction in many patients [1].

The study of TAO is particularly fascinating in view of the controversy that surrounds its clinical entity. Its very existence was questioned. On one hand is the extreme opinion of some that there is no such entity as TAO, while on the other hand equally argumentative are the evidences of the protagonists who firmly believe in the existence of it as a distinct clinical entity [2].

The aetiology of the disease again is not known till today. Despite many efforts and studies, the aetiology remains obscure. But one advantage of such a vast study done in this field to find out its cause is the emergence of a body of knowledge regarding various factors that contribute towards worsening or lessening the severity of the disease [3].

No form of treatment has been successful in offering the victims of this disease neither a cure nor even a long term remission. The number of procedures and surgical techniques testify to the fact that none is satisfactory. This concord will continue until the aetiology that has eluded all efforts hitherto is found out. Till such time what is required of us interested in these studies is to be optimistic and opportunistic towards our efforts in searching out the aetiology and learn the modern trends in the management of patients keeping always in view that management is meant primarily to mitigate the sufferings of the

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victims and afford them the maximum comfort under the present state of our knowledge of this disease.

## Methodology

Fifty patients in the age group of 20-50 years who were smokers, presenting with symptoms of ischemia in limbs and were taken up for study. Duration of study - 18 months. Period of study - 1st January 2013 to 30th September 2014. The method of the study consisted of taking a good clinical history in a chronological order as soon as the patient was admitted. A thorough clinical examination was carried out personally to find out and establish clinically first, the presence of vascular obstruction. Detailed vascular system examination was done as per the proforma provided and blood pressure measured to rule out hypertension.

The degree of vascular inadequacy and extent of the spread of the disease was assessed clinically by noting the color change, extent and spread of gangrene and absence of peripheral pulses in the affected limbs. This together with history of the patient regarding the distribution and type of pain gave in a fairly good number of cases studied, an idea of the state of patient's vascular condition.

Later after clinical scrutiny essential laboratory investigations were done as per the proforma provided to rule out presence of atherosclerotic risk factors, the presence of which formed basis for exclusion of the patient from study. Patients were further evaluated objectively by Doppler scanning whenever feasible to assess the level and degree of obstruction objectively and for confirmation of infra-popliteal segment involvement.

The treatment of each patient was individualized with the aim to achieve foot salvage wherever feasible. A record of patient's progress and response to various modalities of treatment was made to evaluate severity of disease, in long term prognosis and also evaluate the efficacy of treatment. Patients who returned for follow up were followed up for minimum of six months during each follow up detailed history was taken and progress of the disease was assessed.

Based on history, physical examination and

investigation patients were either included or excluded from study.

### Inclusion Criteria

Patients admitted to with symptoms of ischemia of upper and lower limbs who were smokers aged between 20-50 years irrespective of sex were included in the study.

### Clinical Criteria of Shionoya

1. A history of smoking
2. Onset before age of 50 years
3. Infra-popliteal arterial occlusive lesions
4. Either upper limb involvement or phlebitis migrans
5. Absence of atherosclerotic risk factors other than smoking

### Exclusion Criteria

Following patients admitted to who presented with symptoms of ischemia of upper /lower limb were excluded from study.

1. Non smokers
2. Patients aged < 20 years or > 50 years.
3. Presence of atherosclerotic risk factor other than smoking - diabetes mellitus, hypertension, hyperlipidemia.
4. Involvement of larger arteries - supra popliteal

## Results

Majority of the patients in our study when first presented to us were in the age group of 46-50 years constituting 21 patients (42%). The youngest patient in our series was 30 years and oldest one was 50 years old

In my study, 45 patients (90%) were from low socio-economic status, 5 patients (10%) were from middle class and no cases were reported from higher socio-economic status.

**Table 1:** Age wise distribution

Age group	Frequency	Percentage
30 - 35 years	12	24.0%
36 - 40 years	07	14.0%
41 - 45 years	09	18.0%
46 - 50 years	22	44.0%
Total	50	100%

**Table 2:** Distribution based on socio economic status

SES	Frequency	Percentage
Low	45	90.0%
Middle	05	10.0%
Total	50	100%

**Table 3:** Incidence of involvement of upper and lower limbs

Right lower limb	29(58%)
Left lower limb	20(40%)
Bilateral lower limb	01(2%)
Upper limb involvement	-

**Table 4:** Smoking distribution

Sl. No	Number of Beedis/day	Number of patients
1	Non smokers	0
2	Occasional smokers(<10 beedis/day)	0
3	Moderate smokers(10-20 beedis/day)	42(84%)
4	Heavy smokers(>20 beedis/day)	08(16%)

**Table 5:** Modes of Presentation

Sl. No	Mode of Presentation	Number of patients	Percentage
1	IC	32	64
2	RP	18	36
3	Ulceration	09	18
4	Gangrene	24	48
5	Superficial thrombophlebitis	01	02
6	Raynaud's Phenomenon	-	-
7	Cyanosis of toes	-	-

In my series, all 50 patients had involvement of lower extremities and no cases were reported with involvement of upper limb

All the 50 patients were smokers. The duration of smoking varied from 6 to 24 years. Most of the patients in this study were smoking beedis. This shows that smoking is certainly a risk factor for TAO

In my study claudication was the commonest presentation seen in 32 patients (64%). Among them calf claudication is seen in 20 patients (40%) and foot claudication seen in 12 patients (24%). Rest pain is seen in 18 patients (36%). Ulceration is seen in 9 patients (18%). Gangrene was seen in 24 patients (48%). Superficial thrombophlebitis is seen in 1 patient (2%).

## Discussion

Majority of the patients in our study when first presented to us were in the age group of 46-50 years constituting 22 patients (44%). The youngest patient in our series was 30 years and oldest one was 50 years old.

Telford had mentioned TAO in a case at 8 years of age. Allen reported it in a 17 year old male. They emphasized that between 40-50 years, atherosclerosis would be a more likely cause of the arterial disease

and for the diagnosis of Buerger's disease after the age of 50 years a good evidence of histological proof would be required. So Allen remarked that it was safe to make a diagnosis of TAO between 35 and 40 years [4].

Buerger had given age incidence of TAO between 20-30 years. His average being 32 years 5 months. Telford and Stopford's series of 48 cases (1935) showed age incidence of 45 years as average.

Brown and Allen (1928) stated that 90% of their cases were between 20-50 years. Lewis series showed average age as 30 years [4].

Homan's series (1936) lies between 20-40 years and Wright's (1948) between 40-55 years. In Mayo clinic series youngest was 17 years of age and oldest was 73 years. So it appears obvious that it is safe to make a diagnosis of TAO clinically in patients between 20-50 years of age, and with a strong radiological and pathological evidence after the age of 45 years [5].

All the patients were males in our study of 50 cases. TAO was previously described as typically affecting the males only. But later studies revealed that females will also be affected though less often. According to Lewis less than 1% affected were females.

Martin's series of 41 cases included one female. They further stated that less than 7% of cases of TAO have been reported in the literature. Mayo clinic

statistics showed 10% of female patients. In De Takata's series of 200 cases, 7 were women Kaiser et al in their report on two cases of TAO in women proved pathologically stated that of the more than 60 cases in females reported in the literature only 15 had pathological confirmation [6].

David Messent reported a case of a woman suffering from TAO associated with digital gangrene at birth. She developed TAO at the age of 32 years. She was a smoker of 10 cigarettes per day. According to Messent, the incidence in 3620 cases was 0.9%. Silbert [11] in 1948 had given a greater incidence. Fisher, Zukerman and Sweeney in 1957 cited 7 cases in the literature and added one case of their own. Various authors have given varying % of its incidence in the females, ranging from 0.1% to 4% [7].

In my series, all 50 patients had involvement of lower extremities and no cases were reported with involvement of upper limb. The disease process predominantly started in the lower extremities and involved the upper extremities in its natural history later. Involvement of the upper limbs at the very commencement of the disease is quite rare in TAO. Of the 50 patients presenting with involvement of lower limbs, 29 patients (58%) had involvement of right lower limb, 20 patients (40%) had involvement of left lower limb and remaining 1 patient (2%) had bilateral involvement of lower limbs. No cases were reported with involvement of upper limb.

The analysis of smoking history of the 50 patients studied, clearly shows how closely habituated these patients were to smoking. There were no non-smokers in the series. Most of the patients in the series were heavy smokers, constituting 42 patients (84%) who smoked more than 20-25 cigarettes per day and 8 patients (16%) were moderate smokers who smoked between 10-20 cigarettes/day.

All these patients smoked locally prepared rough cigarettes. No particular type of tobacco could be incriminated as different patients smoked different types of cigarettes. The interval between smoking and onset of the disease in the present series varied from 5-25 years. The highest incidence was seen between 5-15 years.

In 1904 Erb mentioned the possible relationship of smoking to the vascular disease and called it nicotine arteritis. In 1918, Mayer stated that the disease was due to tobacco smoke. In 1927 Silbert stated that

whatever the underlying causes of arterial pathology, prolonged smoking was the immediate causative factor in the disease [8].

Many workers agreed to the fact that great majority of the patients who had Buerger's disease had been heavy smokers and smoked more than 20 cigarettes per day on the average.

### Conclusion

- ❖ Smoking is an important and definite risk factor in relation with the development of Buerger's disease.
- ❖ All the patients had involvement of Lower limbs.
- ❖ Pain in the limb with intermittent claudication was the predominant

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