

STUDY OF LUMBAR SYMPATHECTOMY IN THROMBOANGIITIS OBLITERANS PATIENT IN KBNIMS

Ravindra G. Devani¹, Sagar S. Kathare², Veerendra Medide³

¹Professor and HOD, Department of General surgery, Khaja Banda Nawaz Institute of Medical Sciences, Kalaburagi, Karnataka.

²Junior Resident, Department of General surgery, Khaja Banda Nawaz Institute of Medical Sciences, Kalaburagi, Karnataka.

³Junior Resident, Department of General surgery, Khaja Banda Nawaz Institute of Medical Sciences, Kalaburagi, Karnataka.

ABSTRACT

BACKGROUND

The aim of this study was to evaluate the effect of lumbar sympathectomy in thromboangiitis obliterans patients. The present study has been conducted on 50 consecutive cases of thromboangiitis obliterans admitted to the hospital attached to KBNIMS, Kalaburagi. In the present study of 50 cases, age ranged from 30 yrs. to 60 yrs. at the onset of disease. In this study all 50 cases were chronic smokers with minimum duration of 2 yrs. of smoking, 30 patients treated with lumbar sympathectomy and 5 patients with lumbar sympathectomy with amputation and 15 patients with only amputation. Lumbar sympathectomy improved the symptoms clinically with relief of rest pain and also decreased the level of amputation.

MATERIALS AND METHODS

The present study is a prospective study conducted on 50 consecutive cases of Thromboangiitis obliterans during the period of May 2016 to November 2017 in KBNIMS, Kalaburagi.

RESULTS

In present study 50 cases ranged from 3rd to 6th decade, the age factor was regarded as one of the most important factors in diagnosis. All the cases were male patients suffering from thromboangiitis obliterans.

CONCLUSION

Though the role of lumbar sympathectomy had been debated in the recent past as a treatment modality for chronic lower limb ischaemia, but lumbar sympathectomy still remained an important interventional measure in limb salvage and symptomatic relief with good result.

KEYWORDS

Thromboangiitis obliterans (TAO), Lumbar sympathectomy (LS).

HOW TO CITE THIS ARTICLE: Devani RG, Kathare SS, Medide V. Study of lumbar sympathectomy in thromboangiitis obliterans patient in KBNIMS. J. Evid. Based Med. Healthc. 2018; 5(18), 1482-1485. DOI: 10.18410/jebmh/2018/310

BACKGROUND

Thromboangiitis Obliterans also called as Buerger's disease, predominantly affects young male smokers in 3rd-4th decade, it is characterized by thrombosis in medium-sized arteries and veins along with a marked inflammatory response, presenting with distal limb ischemia and localized distal gangrene. The aetiology of Buerger's disease is unknown, although TAO is a type of vasculitis it is distinct from other vasculitis.

Pathologically, the thrombus in TAO is highly cellular, with much less intense cellular activity in the wall of the blood vessel and a preserved internal elastic lamina. In addition, TAO differs from many other types of vasculitis in that the usual immunological markers—elevation of acute-

Financial or Other, Competing Interest: None.

Submission 16-03-2018, Peer Review 21-03-2018,

Acceptance 28-04-2018, Published 30-04-2018.

Corresponding Author:

Dr. Sagar S. Kathare,

Jagrathi Road, Ring Road,

Kalaburagi, Karnataka-585104.

E-mail: sagarkothare@gmail.com

DOI: 10.18410/jebmh/2018/310

phase reactants such as Erythrocyte Sedimentation Rate (ESR) and C-Reactive Protein (CRP), circulating immune complexes, and autoantibodies such as antinuclear antibody, rheumatoid factor, and complement levels are usually normal or negative. It is a well-known fact that there is increased incidence of TAO due to smoking and tobacco chewing.¹ Chronic lower limb ischaemia is a clinical entity comprising of atherosclerosis, thromboangiitis obliterans and other rare forms of non-specific and specific arteritis like SLE, Rheumatoid arteritis etc. which are rare. Though in western countries atherosclerosis predominates, in Indian subcontinent, thromboangiitis obliterans is much more common. It is a relatively common disorder in the rural Indian population.

Many of them present at an advanced stage, when the possibilities of a successful treatment becomes narrowed, sometimes even becoming restricted to sympathectomy and amputations. Advances in radiological techniques and interventional radiology have helped to define the arterial pathologic anatomy more precisely and some of the treatment modalities. Lumbar sympathectomy has been used to treat TAO since 80 yrs. Lumbar sympathectomy has also been used in the treatment of various other vascular



diseases. It is the most commonly performed operation in developing countries for peripheral vascular diseases.^{2,3}

MATERIALS AND METHODS

The present study is a prospective study conducted on 50 consecutive cases of thromboangiitis obliterans during the period of May 2016 to November 2017 in KBNIMS, Kalaburagi.

Inclusion Criteria

All cases visiting to surgery OPD suffering from thromboangiitis obliterans diagnosed clinically and later confirmed by radiological and histopathological study.

Exclusion Criteria

Patients suffering from other peripheral vascular disease like atherosclerosis, acute arterial occlusion and other co morbidities are excluded from the study

Diagnostic Criteria Included were³

- CBC, glucose level
- Colour Doppler of lower limb
- Digital subtraction angiography
- Arteriography

A good clinical history and detailed clinical examination was done with the presumptive diagnosis of thromboangiitis obliterans. In a few cases diagnosis was done by a Doppler study and histopathology of the vessels obtained after the amputation. The degree of the vascular insufficiency and the extent of the disease were assessed clinically by noting the severity of the symptoms, ankle brachial index, temperature changes and assessment of pulsations. Doppler study was done in all patients.⁴ After a presumptive diagnosis, essential laboratory investigations within the scope of the hospital were done. Some of the patients were managed conservatively and others underwent surgery. The operative treatment was based on the symptoms and patient's condition, with lumbar sympathectomy and amputations.

RESULTS

In the present study 50 cases of thromboangiitis obliterans were admitted to our surgical services over a period of May 2016 to November 2017 in KBNTH, Kalaburagi. The study is as follows:

1. In present study 50 cases ranged from 3rd to 6th decade, the age factor was regarded as one of the most important factors in diagnosis. All the cases were male patients suffering from thromboangiitis obliterans. In the study, the age of youngest patient was 33 years and that of oldest was 60 years. Highest distribution of cases was seen in the 5th and 6th decades of life.

Age	No. of Cases of TAO	%
30-40	5	10
40-50	20	40
50-60	25	50

Table 1

2. All the 50 cases were chronic smoker, minimum duration of smoking was 2 yrs. (1 case) and maximum duration of smoking was 15 yrs., Use or exposure to tobacco plays a central role in the initiation and progression of the disease. By using an antigen-sensitive thymidine-incorporation assay, Adar et al. showed that patients with TAO have an increased cellular sensitivity to types I and III collagen compared to that in patients with arteriosclerosis obliterans or healthy males, considering smoking as a common risk factor for thromboangiitis obliterans.^{5,6}

The relationship of smokers to the onset of disease is shown in the table below:

Duration of Smoking in yrs.	No. of Patients
Non-smoker	Nil
1-5	1
6-10	19
11-15	30

Table 2

3. The duration of symptoms is varied from 20 days to 4 yrs. The following are the symptoms with which patients presented.⁷

Symptoms	No. of Patients
Intermittent claudication	50
Rest pain	50
Cold foot and legs	50
Numbness and paraesthesia	45
Colour changes	48
Ulceration	20
Gangrene	20

Table 3

4. Investigation was performed in all 50 cases to rule out other causes of vascular diseases.⁸ On Color Doppler study of limbs all patients showed vascular supply hindrance and later confirmed by arteriography in 20 cases only.⁹
5. Medical treatment included Tab. Pentoxyphylline (Trental) 400 mg tid, Tab Dynaspirin (Dipyridamol and Aspirin) 1 mg bid and antioxidant, B-complex vitamins. These drugs were prescribed to all patients. But there was no subjective improvements in pain relief and temperature were noted.
6. In the present study all patients underwent surgical treatment. Lumbar Sympathectomy is performed to decrease arterial spasm in patients with thromboangiitis obliterans and it has shown to provide pain relief and to promote ulcer healing in some patients.^{10,11} In 50 cases, lumbar sympathectomy was performed in 35 cases as shown in the following table.¹²

Treatment	No. of Cases
Lumbar Sympathectomy	30
Lumbar Sympathectomy + Amputation	5
Amputation	15

Table 4

- The duration of the hospital stay ranged from 8-days to 35-days with an average of 21-days. Patients in whom there was infection of the amputation stump and those who underwent revision amputation stayed for a longer time.
- Post-operative complications and mortality among those who had undergone primary amputations, non-healing of the stump was found in 2-patients and these patients were subjected for revision amputations. There was no mortality in the present study.
- Upon follow up Strict abstinence from tobacco smoking was stressed at the time of discharge and the patients were followed for a period ranging from 2 months to 1½ years. Majority of the patients attending follow up were doing well.

DISCUSSION

All the patients in our study were male and all had lower limb disease, it was a prospective study of 50 cases in the duration of one and a half year. The clinical course of Buerger’s disease is protracted and painful, but relatively benign. In this series, all patients reported being heavy smokers for many years, most of them since adolescence and smoked bidis (made by filling a leaf-tube with raw tobacco). The disease usually starts in one limb but both the lower limbs may be affected. If the patient continues to smoke, the disease may affect the upper limbs; approximately 30% of patient with Buerger’s disease have involvement of their upper extremities.¹³ Small- and medium-sized arteries are usually involved, and the forearm, calf, or digital arteries may be occluded. The femoral and brachial arteries are usually not involved. Arterial reconstruction is usually impossible because of the distal nature of the disease. When gangrene occurs, amputation at the lowest possible level is indicated. In this disease, unlike in arteriosclerosis, it is often possible to do amputations of the digits with satisfactory healing. In the 50 cases lumbar sympathectomy was most common operation performed, operating on 35 cases in which 5 cases undergone lumbar sympathectomy with amputation and 15 cases undergone only amputation.⁴

In all these patients approach for lumbar sympathectomy, was retroperitoneal lumbar incision were 1st - 4th lumbar ganglia were removed routinely. The efficacy of lumbar sympathectomy was assessed purely on subjective improvement of the patient. The following criteria were taken as good results.¹⁴

- Relief of rest pain.
- Rise in cutaneous temperature.
- Rapid healing of ulcers.
- Improvement in claudication distance.
- Resumption of their occupation.

Clinical response after lumbar sympathectomy is variable and transitory. This can be partially explained by physiological changes in skin and muscle blood flow after sympathectomy. The initial result of lumbar sympathectomy in all these cases were remarkably good. From below table it is assessed that patient improved following lumbar sympathectomy.

Criteria	Cases
Relief of rest pain	40
Rise in coetaneous temperature	40
Rapid healing of ulcers	16
Improvement in claudication distance	42
Resumption of their occupation	35

Table 5

Among patient who underwent sympathectomy (35 cases), 31 patients reported improvements in their symptoms namely relief of pain and healing of ulcers (88% of those undergone surgery). At 6-months post operatively, this was in marked variance with other observers where in the results were 60%. However long term followup studies were needed to come to a conclusion.¹⁵

Comparison of the results of sympathectomy.

Results	Present Study	Postlewaite JC
Pain relieved	80%	51%
Improvement in claudication distance	80%	51%
No change	10%	29%
Subsequent amputation	40%	60%
Death	0%	2%

Table 6

In comparison to the results of sympathectomy done by Postlewaite JC there was significant improvement in pain and healing of ulcers and the failure rate was almost half as compared to their study. The findings varied considerably in the two studies. These findings might be because of inadequate follow up in the present study.¹⁶

CONCLUSION

Though the role of lumbar sympathectomy had been debated in the recent past as a treatment modality for chronic lower limb ischaemia, lumbar sympathectomy still remained an important interventional measure in limb salvage and symptomatic relief with good results.

REFERENCES

- [1] Sayers R. Arterial disorder. In: Williams NS, Bulstrode CJK, O’Connell, eds. Bailey & Love’s short practice of surgery. 26th edn. CRC Press 2013:877-900.
- [2] Charlie C, Cheema F. Peripheral arterial diseases. In: Beauchamp RD, Evers BM, Mattox K, eds. Sabiston textbook of surgery. Vol. 2. 20th edn. Philadelphia: Elsevier 2017: p. 1780.
- [3] Shead GV, Oomen RM, Savarirayan SS. The patterns of non-diabetic peripheral vascular disease in South India. Br J Surg 1978;65(1):49-53.

- [4] Dutta R. Vascular disease management plagued by lack of awareness and research. *Exp Health Care Management* 2003;1:2.
- [5] Myers KA, King RB, Scott DF, et al. Surgical treatment of the severely ischemic leg: I. Survival rates. *Br J Surg* 1978;65(7):460-464.
- [6] Adar R, Papa MZ, Halpern Z. Cellular sensitivity to collagen in thromboangiitis obliterans. *The New England Journal of Medicine* 1983;308(19):1113-1116.
- [7] Yogasundram YN. Salvage of lower limb. *Br J Surg* 1976;63:371-376.
- [8] Martin P, Lynn RB, Dible JH. *Textbook of peripheral vascular diseases*. 1st edn. Edinburgh: Livingstone 1956: p. 78.
- [9] Mangalvedkar RK. Clinical study of thromboangiitis obliterans. *Br J Surg* 1965;67:23-25.
- [10] Chander J, Singh L, Lal P, et al. Retroperitoneoscopic lumbar sympathectomy for buerger's disease: a novel technique. *JSLs* 2004;8(3):291-296.
- [11] Nesargikar PN, Ajit MK, Evers PS, et al. Lumbar chemical sympathectomy in peripheral vascular disease: does it still have a role? *International Journal of Surgery* 2009;7(2):145-149.
- [12] Shionoya S. Management of chronic lower limb ischemia. *Br J Surg* 1988;75:259.
- [13] Shionoya S, Hirai M, Kawai S, et al. Pattern of arterial occlusion in buerger's disease. *Angiology* 1982;33(6):375-384.
- [14] Nayak RS. Clinical assessment and outcome of adrenalectomy and sympathectomy in treatment of Burgers disease. *Indian J Surg* 2002;2:120-122.
- [15] Perez-Burkhardt JL, Gonzalez-Fajardo JA, Martin JF, et al. Lumbar sympathectomy as isolated technique for the treatment of lower limbs chronic ischemia. *J Cardiovasc Surg (Torino)* 1999;40(1):7-13.
- [16] Postlethwaite JC. Lumbar sympathectomy. A retrospective study of 142 operations on 100 patients. *Br J Surg* 1973;60(11):878-879.