

## ORIGINAL RESEARCH

**PROSPECTIVE STUDY OF OPEN SURGICAL MANAGEMENT OF VARICOSE VEINS**

Dr. Vikram Watti<sup>1</sup>, Dr. Rahul Dubepuria<sup>2</sup>, Dr. Palak Paliwal<sup>3</sup>,  
Dr. Krishna Kumar<sup>4</sup>, Dr. Rajkumar Singh Jat<sup>3</sup>, Dr. Shehtaj Khan<sup>5</sup>

<sup>1</sup>Assistant Professor, Department of General Surgery, People's College of Medical Sciences and Research Center, Bhopal, <sup>2</sup>Assistant Professor (Burn and Plastic surgery) Department of Trauma and Emergency Medicine, AIIMS Bhopal, <sup>3</sup>Assistant Professor, Department of General Surgery, People's College of Medical Sciences and Research Center, Bhopal, <sup>4</sup>Assistant Professor (General surgery), Department of Trauma and Emergency Medicine, AIIMS Bhopal, <sup>5</sup>Professor, Department of Emergency Medicine, People's College of Medical Sciences and Research Center, Bhopal.

**Corresponding Author**

Dr. Rajkumar Singh Jat

Assistant Professor, Department of General Surgery  
People's College of Medical Sciences and Research Center, Bhopal.

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**Abstract**

**Introduction:** The word varicose originates from varus, meaning bent, the latin word varix (pleural “varices”) led to term varicose. Varicose veins can be caused by several patho-physiological mechanisms, common among them are venous hypertension, incompetence of valves, changes in vein structure, inflammation and sheer stress, venous outflow obstruction or calf pump failure. **Materials and Methodology:** The present study has been carried out on 80 patients who had varicose veins of lower extremities. All patients underwent high ligation with stripping. Follow up was done at 1 month, 3 months and 6 months. Patient outcome and complications were record. **Results:** It was found that most common complication reported was tenderness (n=57) followed by infection in 15 patients. It was found that the ulcer size improved significantly. It was also found that majority (n=27) of the patients in returned to work in 10 days of treatment and day by 15 and day 20, 23 and 19 patients respectively had returned to work. **Conclusion:** Surgical treatment is an important procedure in the management of varicose veins of lower limbs. Even though various advances have been introduced in the management of varicose veins, open surgical management remains pivotal in the treatment of this condition and is related with acceptable rate of complications if carried out correctly.

**Keywords:** Varicose Veins, Ligation, Stripping, Great Saphenous Vein

**INTRODUCTION**

Varicose vein is dilated, elongated, tortuous and often palpable superficial venous system of the body especially of the lower extremities, having subcutaneous veins with diameter  $\geq 3$ mm measured in upright erect position with demonstrable reflux. Originating from varus, meaning bent, the latin word varix (pleural “varices”) led to term varicose. Varicose veins can be caused by several patho-physiological mechanisms, common among them are venous hypertension, incompetence of valves, changes in vein structure, inflammation and sheer stress, venous outflow obstruction or calf pump failure.<sup>1</sup> Being the most common peripheral vascular disease is the varicose veins of lower extremities, the prevalence of varicose veins among adults is estimated to range from 20-40%. The presence of varicose veins, reported a prevalence of varicose veins in 10-40% in men and 26-32% in women. This enormous

variation results from the different populations studied, different definitions applied and the different assessment or examination techniques used.<sup>2</sup> General risk factors are prolonged working in a standing position, increasing age, belonging to the female sex, family history of venous diseases, number of pregnancies, smoking, overweight and history of deep venous thrombosis. Prolonged working in a standing position is an important occupational risk factor. Heredity also plays an important role.<sup>3</sup> This study has been carried out to analyse the open surgical management i.e., high ligation with stripping and its outcomes in varicose veins patients.

#### **MATERIALS AND METHODOLOGY**

After obtaining prior permission from the ethical committee, the present study was carried out among 80 patients who had varicose veins of lower extremities. The study was carried out at a Tertiary Care center in central India. Written informed consent was obtained from all the patients. The inclusion criteria comprised of patients with varicose veins of lower limb presenting for first time to hospital with proven Sapheno Femoral Junction incompetence, on colour doppler study. Exclusion criteria consisted of patients with previous history of surgery of varicose veins, presenting with recurrence, those patients with DVT before surgery of varicose veins, those patients who reported with varicose veins secondary to some other pathology which has not been managed effectively and varicose veins as a part of certain syndromes like Klippel- Trenaunay syndrome. Patients who were willing to participate in the study and the follow-up thereafter were enrolled in the present study. This study was adopted as a prospective study and all the patients underwent high ligation with stripping (figure 1 & 2). Follow up was done at 1 month, 3 months and 6 months. Patient outcome and complications were recorded. Record analysis was done and patient identity was kept confidential. No Funding was provided for the study. Statistical analysis was done using SPSS software and appropriate statistical test.

**Figure 1: Introduction of Vein stripper through GSV after ligation at Sapheno Femoral Junction**



**Figure 2: Stripped off GSV with vein stripper**



**RESULTS**

A total of 80 patients were studied. The male female ratio was 1.1:1 with male patients being 42 (52.5%) and female patients being 38 (47.5%)

**Table 1: Complications**

Complications	Number (%)
DVT	0
Recurrence	0
Skin colour change	5 (6.25%)
Haematoma	7 (8.75%)
Infection	15 (18.75%)
Tenderness	57 (71.25%)
Nerve injury	5 (6.25%)

It was found that most common complication reported in High ligation with stripping was tenderness (n=57) followed by infection in 15 patients.

**Table 2: Ulcer size**

Ulcer size(cm)				
Pre-treatment	72 hours	1 month	3 months	6 months
2	2	1	0	0
3	3	1	0.3	0
4	4	1	0.5	0

The Ulcer healed completely by 6 months.

**Table 3: Early return to work**

Day of return to work	Day 10	Day 15	Day 20	Day 25 and after	P value
No. of patients	27	23	19	11	0.002

It was found that majority (n=27) of the patients returned to work in 10 days of treatment and by day 15 and day 20, 23 and 19 patients respectively had returned to work.

**Table 4: Average number of days patients need injectable analgesia**

No. of days	POD1	POD2	Beyond POD5	P value
No. of patients	13	36	31	0.022

**Table 5: Duration of hospital days**

No. of days	D2	D4	D6	Beyond D8	P value
No. of patients	0	29	37	14	<0.001

It was found that majority had 6 days stay at hospital.

## DISCUSSION

Varicose veins are a common problem that is most often caused by great saphenous vein (GSV) valves insufficiency. Although varicose veins in early phases may be asymptomatic, common by associated problems include pain, itching, night cramps, fatigue, heaviness, and in a proportion of patients, chronic venous insufficiency characterized by ankle edema, eczema, hyper pigmentation, and leg ulceration.<sup>4</sup> In the present study, it was found that most common complication reported in high ligation with stripping was tenderness (n=57) followed by infection in 15 patients. In a similar study, Chen Cet al<sup>5</sup> reported that a total of 170 patients (236 limbs) underwent high ligation and stripping of which 86 (50.6%) patients were female and 66 (38.8%) patients received bilateral procedures. The reported incidence of wound infection was very low (2.27%) in their study, contrary to our study which reported 18.75% cases of infection. The male female ratio in their study was 1:1.02, which was similar to that in our study (1.1:1). Pan Y et al<sup>6</sup> reported postoperative phlebitis and bruise in 21.5%, bleeding and haematoma in 4.83%, wound infection in 1.91% and paraesthesia in 11.27%. In comparison, there was hematoma in 8.75% patients, infection in 18.75% patients and nerve injury in 6.25% patients. Risk factors for varicose veins can be categorized as hormonal, lifestyle, acquired, and inherited. The effect of estrogen on the risk of varicose veins may explain, in part, the increased prevalence among women. Smoking is an important modifiable risk factor for varicose veins and more severe forms of chronic venous disease, including venous ulceration. Post-thrombotic syndrome after deep vein thrombosis (DVT) may result in varicose veins in the absence of primary venous disease.<sup>7</sup> It was found in the present study that majority of patients had 6 days of hospital. Contrary to present study, in a prospective multicenter randomized comparison of procedure-related complications, Lurie F et al<sup>8</sup> reported that patients were able to return to work in 12.4 days for the same procedure. Silva MF et al<sup>9</sup> evaluated the epidemiology of varicose vein stripping and reported that more patients were female and adults with most procedures were associated with same-day (54.8%) or next-day (32%) discharge. A study by Menyhei G et al<sup>10</sup> confirmed significant improvement in quality of life measured by SF-36 questionnaire after cryostripping. The present study reports that open surgical management is important in the treatment of varicose veins and is associated with acceptable rate of morbidity if carried out correctly.

## CONCLUSION

Conservative treatment though relieves symptoms, it cannot be the definitive treatment and it has to be followed by some form of definitive treatment. Operative line of treatment is a primary procedure in the management of varicose veins of lower limbs. Despite all the advances in management, open surgical management remain important in the treatment of varicose veins and is associated with acceptable rate of morbidity if carried out correctly.

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