Original article:

A Clinical study and management of varicose veins of lower limbs

Dr Devid Hazarika, Dr Dhirendra Nath Choudhury

Department of Surgery
FAKHRUDDIN ALI AHMED MEDICAL COLLEGE, BARPETA PIN 781301, ASSAM

Abstract

Aims: Varicose veins of lower limb remain common affecting 5% or more of the adult population. The aim of this study was to compare the different modalities of treatment that it is available in our Institution.

Materials and Methods: All patients with varicose veins of lower limb undergoing treatment in Surgery Deptt of Fakhruddin Ali Ahmed Medical College at Barpeta, Assam from 1st of January 2015 to 31st December 2017 were included in this study. 67 cases of varicose veins of lower limbs were treated during this period and out of this 23 cases were treated by surgery and rest were treated conservatively. Cases were analysed prospectively for a period of 6 to 18 months. Morbidity and potential factors influencing the complication rate were recorded.

Results: 67 cases of varicose veins of lower limbs were treated during the period. Most commonly affected age group was 21 to 40 years. The most commonest symptoms was aching in the veins at the end of the day after prolonged standing. Out 67 cases 23 cases were operated. Saphenofemoral junction flush ligation with ligation of all tributaries with ligation of incompetent perforator of GSV was the most commonly done surgical procedures. Compressive elastic stocking is the best method of conservative treatment.

Conclusion: There are different modalities of treatment for varicose veins. Saphenofemoral junction flush ligation with ligation of all tributaries with ligation of incompetent perforator of GSV was the most commonly done surgical procedures. It is an easy, effective and definitive method of treatment.

Keywords: Varicose, Long saphenous vein, Communicating or perforating vein, Stripping

Introduction

A vein is stated to be varicose when it is dilated, lengthened and tortuous. The problem is with veins having incompetent valves, because of valvular incompetence the veins will eventually become enlarged and tortuous.

Materials and Methods

All patients with varicose veins of lower limb undergoing treatment in Surgery Deptt of Fakhruddin Ali Ahmed Medical College, at Barpeta, Assam from 1st of January 2015 to 31st December 2017 were included in this study. 67 cases of varicose veins of lower limbs were treated during this period.

All cases were studied with detailed history regarding duration, mode of onset, associated symptoms. Examination with full care in good light, both in standing & lying down position. Different clinical tests like Brodie Trendelenberg test, Multiple tourniquet test, Fegan’s test, Schwartz and Perthe’s test were done. Marking of the perforators and varicose veins was done with skin pencil. Abdominal and rectal examination was done. Cases were investigated with duplex scan, standard Doppler study, USG of abdomen. However normal routine investigation were done that required for preoperative preparation. Out of 67 cases 23 cases were treated by surgery and rest were...
treated conservatively. SFJ flush ligation with ligation of all tributaries with ligation of incompetent perforator of GSV vein was the most commonly done surgical procedures. Compressive elastic stocking is the best method of conservative treatment. Most of the patients were discharged on 10th postoperative days. Cases were analysed prospectively for a period of 6 to 18 months.

Results
67 cases of varicose veins of lower limbs were treated during this period. Age distribution shows (Table 1) minimum age was 17 years and maximum age was 83 years. Out of this maximum no 34 cases in the age group between 21 to 40 years and mean age is 50. M:F=1.3:1.

Table 1 shows age distribution
Pie diagram shows sex distribution

The commonest symptoms with varicose veins aching in the veins at the end of the day, after prolonged standing in 54 cases. Other symptoms include dilated veins 49, lipodermatosclerosis 7, Ankle swelling 6, Itching 5, eczema 4, ulceration 3, and bleeding 1.

**CLINICAL PRESENTATION**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Aching</td>
<td>54</td>
<td>80.5%</td>
</tr>
<tr>
<td>2 Dilated Veins</td>
<td>49</td>
<td>73%</td>
</tr>
<tr>
<td>3 Lipodermatosclerosis</td>
<td>7</td>
<td>10.4%</td>
</tr>
<tr>
<td>4 Ankle swelling</td>
<td>6</td>
<td>8.9%</td>
</tr>
<tr>
<td>5 Itching</td>
<td>5</td>
<td>7.4%</td>
</tr>
<tr>
<td>6 Eczema</td>
<td>4</td>
<td>5.9%</td>
</tr>
<tr>
<td>7 Ulceration</td>
<td>3</td>
<td>4.4%</td>
</tr>
<tr>
<td>8 Bleeding</td>
<td>1</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

**Signs of varicose veins**

A careful inspection and documentation of the site of the varicosities and the sites of incompetent perforators is extremely important. In addition, the termination of the long and short saphenous veins must be palpated.

**Venous system involvement**

- Long Saphenous Vein          | 47 cases   
- Short Saphenous Vein         | 9 cases    
- Both Long & Short Saphenous veins | 11 Cases  

![Pie diagram showing sex distribution](image-url)
Involvement of Perforator

<table>
<thead>
<tr>
<th>Location</th>
<th>No of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Knee</td>
<td>9</td>
</tr>
<tr>
<td>Below Knee</td>
<td>41</td>
</tr>
<tr>
<td>Around Ankles</td>
<td>17</td>
</tr>
</tbody>
</table>

The prevalence of reflux is more in greater saphenous vein (47) than small saphenous vein (9). No significant difference in side 29 cases on left side, 25 cases on right side and in 13 cases on both sides.

Investigation

All patients with varicose veins were investigated with duplex scan, Doppler study, USG of abdomen. However, normal routine investigation were done that required for preoperative preparation.

Types of Surgery done

<table>
<thead>
<tr>
<th>Type of Surgery</th>
<th>No of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFJ flush Ligation with ligation of all tributaries with Stripping of GSV upto Knee with ligation of incompetent perforator</td>
<td>5</td>
</tr>
<tr>
<td>SFJ flush Ligation with ligation of all tributaries with ligation of incompetent perforator of GSV</td>
<td>11</td>
</tr>
<tr>
<td>SFJ flush Ligation with ligation of all tributaries with multiple stab avulsions of leg varicosities</td>
<td>4</td>
</tr>
<tr>
<td>SPJ Ligation with ligation of incompetent perforator SSV</td>
<td>3</td>
</tr>
</tbody>
</table>

Complications of varicose vein surgery

<table>
<thead>
<tr>
<th>Complications</th>
<th>No of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound Infection</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Seroma</td>
<td>2</td>
<td>8.6</td>
</tr>
<tr>
<td>Haematoma</td>
<td>1</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Treatment

Treatment options for varicose veins includes reassurance, conservative treatment and surgery. 67 cases of varicose veins of lower limbs were treated during this period and 23 cases were operated. Saphenofemoral junction flush ligation with ligation of all tributaries with ligation of incompetent perforator of GSV was the most commonly done surgical procedure. Compressive elastic stocking is the best method of conservative treatment.
Discussion

Age Incidence

Age distribution shows minimum age was 17 years and maximum age was 83 years. Out of this maximum no 34 (50.74%) cases in the age group between 21 to 40 years and mean age is 50. The most commonly affected cases 12 (24%) presented in the 31-40 years age group by Pavan Prasad B.K. Commonest age group presenting with varicose veins was 31-40 years (30%) by S Sahu, S Bhushan, P Sachan.

Sex Incidence

In this study Males were predominantly involved 38 (56.71%) patients and 29 (43.28%) were female. Out of the 50 cases 39 cases (78%) were male with only 11 female patients (22%) by Pavan Prasad B.K. It was observed a higher percentage of men presented than women. Most studies show that varicose veins are more common in women than men. Since my institute is in a rural area and due to poor socio-economic condition females are unlikely to come until and unless they have severe problems. They are not much worried about the cosmetic appearance. The gender prevalence was found to be nearly equal in the recent Edinburgh Vein Study.

No significant difference in side 29 cases on left side, 25 cases on right side and in 13 cases on both sides. Left lower limb was involved in 35(70%) cases and right lower limb was involved in 15(30%) cases by Ravikumar B. L. The right limb was involved in 7 cases and the left limb in 23 cases. The exact cause for this is not known, it may be because of longer course of left iliac vein compared to right iliac vein.

Clinical Presentation

In the present study the most commonest symptoms was aching in the veins at the end of the day, after prolonged standing, is the most common complaint of patients. The Edinburgh Vein Study described aching/heaviness as the commonest symptom in women and itching as the commonest symptom in men. The commonest complaint which brought all the patients to the hospital was the complaint of dilated, tortuous swellings over the lower limb with the commonest symptom being dull aching pain (53.9%) by S Sahu. It was also observed that the majority who developed varicose veins had history of long standing work hours. The commonest symptom in 38 (76%) cases was pain. 36 (72%) cases had complaints of dilated veins in the affected limb and 10(20%) cases had limb edema, venous ulcer was present in 21(42%) of cases by Ravikumar B. L.

Venous system involvement

Long Saphenous Vein 47 cases (70.14%), Short Saphenous Vein 9 cases (13.43 %), Both Long & Short Saphenous 11 Cases (16.41 %). Long saphenous vein was involved in 90% of cases (45 patients), the short saphenous vein in 4% (2 patients) and both long and short in 6% (3 cases) by Ravikumar B. L. Delbe and Mocquet in their study had found varicosity of long saphenous vein in 98% and only 2% in short saphenous vein.

Involvement of Perforator

Involvement of Perforator in our study above knee 9(13.43%) cases below Knee 41(61.19%) cases and around Ankles 17(25.37%) cases. In Ravikumar B. L study perforator involvement is 88% as compare to Labropoulos N et al in which they found it 68%. Below knee perforators were more commonly involved (97.05%) than above knee perforator (only 11.7%). Out of 63 cases, 37 had saphenofemoral junction (SFJ) incompetence and 11 had...
saphenopopliteal junction (SPJ) incompetenc. Incompetent perforator was noted in 44 (88%) cases by Ravikumar B. L.4.

Investigation

Duplex ultrasound uses a combination of Doppler and conventional ultrasound and gives a more accurate assessment than Doppler alone that can assess the anatomy and physiology of the lower extremity venous system. Doppler/Duplex scanning is the primary non-invasive method of assessing chronic venous insufficiency, which has an overall accuracy of 94%. In this study Duplex ultrasound detected reflux in SFJ in 47(70.14%) cases and SPJ reflux in 9(13.43%) cases. This finding is in conformity of Masuda et al 8 who showed that duplex scanning had an overall accuracy of 88%. Mercer and group, in their study, detected reflux at the SFJ in 59 legs (66 per cent) and at the SPJ in 26 (29 percent) by duplex imaging (89 legs)9.

Treatment

Treatment options for varicose veins include reassurance, conservative treatment and surgery. Conservative treatment options include avoidance of prolonged standing and straining, elevation of the affected leg, exercise, external compression, loosening of restrictive clothing, medical therapy, modification of cardiovascular risk factors, reduction of peripheral edema and weight loss. Many patients without symptoms or signs of lipodermatosclerosis or ulceration simply require reassurance 1.

Symptoms of varicose veins may be relieved by the use of graduated compression stocking. No drug is better than Compression bandage.

External compression devices have been recommended as initial therapy for varicose veins by Richard H 10. Typical recommendations include wearing 20 to 30 mm Hg elastic compression stockings with a gradient of decreasing pressure from the distal to proximal extremity by Lam Ey 11.

Out of 50 cases only 23 cases were operated. The number of operative cases were less in compare to other studies may be due to reluctant to accept operative treatment. Saphenofemoral junction flush ligation with ligation of all tributaries with ligation of incompetent perforator of GSV was the most commonly done surgical procedures in11cases, Saphenofemoral junction flush ligation with ligation of all tributaries with stripping of long saphenous vein up to knee with ligation of incompetent perforator in 5 cases, Saphenoemoral junction flush ligation with multiple stab avulsions of leg varicosities in 4 cases and SPJ ligation with ligation of incompetent perforators in 3 cases.

Out of 50 cases, saphenofemoral junction ligation including the ligation of tributaries at its termination with stripping of long saphenous vein in 28 cases4. Sapheno-popliteal flush ligation was done in 5 cases, SFJ and SPJ ligation with stripping of LSV in 3 cases4, only SFJ ligation done in 6 cases. Flush ligation of SFJ and incompetent perforator ligation was done in 7 cases4. Only incompetent perforator ligation was done in 4 cases by Ravikumar B. L.4.

Out of 50 cases, SFJ ligation including the ligation of anatomically constant tributaries at its termination with stripping of long saphenous vein by Myers stripper up to the knee and ligation of incompetent perforator was done in 29 cases. Sapheno-popliteal flush ligation was done in 2 cases, SFJ and SPJ ligation with stripping of LSV in 10 cases. SSV was not stripped to avoid nerve injury.
Flush ligation of SFJ and stripping of LSV was done in 9 cases.

Surgical management of venous ulcers leads to an 88 percent chance of ulcer healing, with only a 13 percent risk of ulcer recurrence over 10 months by Tenbrook JA.

Van den Bremer et al, in their study in 2010, concluded that at present, the gold standard treatment of varicose veins still is surgical ligation and stripping of the insufficient vein. In all the cases which underwent SFJ flush ligation with GSV stripping, no recurrence was seen. In cases of SFJ flush ligation with perforator ligation, there was one case of recurrence also in SFJ flush ligation with multiple stab avulsions of leg varicosities, one case showed recurrence. Hence ideal surgery was SFJ flush ligation with GSV stripping. The traditional open surgical treatment still formed the mainstay of treatment.

Complications of varicose vein surgery

After surgery bruising and sensory nerve injury are common. The greater saphenous vein should only be stripped to just below the knee to avoid damage to the accompanying saphenous nerve, and the sural nerve. Deep vein thrombosis is rare unless there is iatrogenic damage to the deep veins. The most common complication of varicose vein surgery is recurrence. Potential postsurgical complications include bleeding, bruising, and infection. In addition, a new blood vessel may form after the procedure, with the risk of neovascularization estimated to be as high as 15 to 30 percent by Bergan JJ. This study shows that incompetent perforator recurrence after surgery is far more common than previously recognized and is primarily due to either neovascularization of previously ligated perforators or the development of incompetence in newly detected perforators in association with persistent venous disease rather than due to poor surgery.

Conclusion

Though it is not a major life threatening illness but morbidity of venous ulcer is a substantial burden on the community health care system. Varicose veins are managed by a wide range of surgeons who employ numerous different techniques. New and minimally invasive techniques have been introduced to give better results & faster recovery, however long term studies are awaited before standard techniques can be replaced.

References

4 Ravikumar B. L1, Satish Kumar R2, Jose V. Francisco Menezes3, Ayush Jain4. OUR EXPERIENCE IN THE MANAGEMENT OF VARICOSE VEINS OF THE LOWER LIMB.JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES 2014;3(16):4137-4144

www.ijbamr.com P ISSN: 2250-284X , E ISSN : 2250-2858
5 Dr CB Ramesh Babu, Dr Md Jeelani, Dr K Sireesha. The Role of Stripping of Long Saphenous Vein in Varicose Vein Surgery. INDIAN JOURNAL OF APPLIED RESEARCH. 2015;5(4)


9 Mercer MG, Scott DJA, Berridge DC. Preoperative duplex imaging is required before all operations for primary varicose veins. British Journal of Surgery 1998; 85: 1495-1497


