ORIGINAL ARTICLE

Surgical Management of Primary Varicose veins

ABRAR ASHRAF ALI, MMUHAMMAD TANVEER ANWAR, YAR MUHAMMAD, *HAMMAD NAEEM RANA, SAFWAN AHMED, FAIZA ABRAR*

ABSTRACT

Purpose: This study was carried out to evaluate the surgical outcome of patients with lower limb primary varicose veins.

Material and methods: During the 4-year period between July 2006 and July 2010, 42 consecutive patients with primary varicose veins were surgically treated at North and West surgical Departments of Mayo Hospital, Lahore. Medical records and computerized data were retrospectively reviewed focusing on patient's age, sex, clinical features, investigations, type of surgical procedure, and complications.

Results: Records of 42 patients with 54 limbs were reviewed. Majority of patients belong to 3rd(8) and 4th(15) decade of life. The data revealed 24 females and 18 males. Twelve patients presented with right leg involvement, 18 had left leg disease and 12 had bilateral limb disease. Family history was present in 18 patients, 12 patients had professional history and in 11 patients pregnancy was the causative factor. Duplex ultrasonography proved to have edge in diagnosing incompetent perforators (09) as compared to clinical examination. Flush ligation (saphenofemoral(38) and saphenopopliteal(12) veins), stripping (38 long saphenous and12 short saphenous veins) and stab avulsions were the procedures carried out. Haematoma /Bruising (12), residual varices(8) and hypertrophic scar (8) were the commonest complications. Residual varices were treated with injection sclerotherapy

Conclusion: Duplex scan and expertise in varicose (flush ligation and stripping of involved vein)surgery can reduce the incidence of recurrence of varicose veins

Key words: Varicose veins, Flush ligation, post-operative complications

INTRODUCTION

The venous system of the lower limbs consists of an interconnected network of superficial veins, perforator veins, and deep veins. The severity of symptoms tends to increase according to the number of systems affected[1].

Varices are caused by systemic weakness in the vein wall; thus, their recurrence is common[2]. Varicose changes may involve the great and small saphenous veins ("truncal varices"), their tributaries ("branch varicosities"), or both. Valve reflux in the saphenous veins is often associated with varices, and this may worsen the dilatation of branch varicosities.

Varicose vein surgery is the most common elective general surgical operation done in the United Kingdom, with almost 90,000 operations performed per year[3]. Newer methods of ablating the Great Saphenous Vein and Small Saphenous Vein, using either laser, radio-frequency or foam sclerotherapy, are being used more widely, but conventional surgery remains the mainstay of varicose veins treatment in the National Health Service (NHS)[3]. The newer techniques must demonstrate comparable results in the long-term, not merely the benefits of short-term gain through earlier mobility.Approximately 20% of procedures are done for recurrent veins[4] Despite published recurrence rates ranging from 7% to 70%,[4-6] little research has been done into the long-term outcomes of varicose vein surgery.

The high incidence of varicose veins in both North America and Europe contrasts with their rarity in Africa and India, particularly in rural communities. This study is carried out to evaluate the outcome of surgical management in our context.

Correspondence to: Dr Abrar Ashraf Ali, Associate Professor of Surgery Services Institute of Medical Sciences abrarashraf2000@yahoo.com

MATERIALS AND METHODS

This study was carried out in surgical units of Mayo hospital, Lahore. During the 4-year period between July 2006 and July 2010, 42 consecutive patients with varicose veins were surgically treated.

Medical records and computerized data was retrospectively reviewed focusing on patient's age, sex, clinical features, investigations, type of surgical procedure, surgical complications and recurrence rate.

All the patients included in the study were above 12 years of age. The exclusion criteria included patients with deep venous thrombosis, recurrent disease and associated skin diseases. All patients had primary uncomplicated long saphenous varicose

veins with saphenofemoral, incompetence, short saphenous veins with saphenopopliteal incompetence and incompetent perforators diagnosed clinically and confirmed by handheld Doppler (HHD) scanning and Duplex imaging. All patients had flush saphenofemoral or saphenopopliteal ligation as indicated with striping of involved vein. Patients with superficial varicosities and incompetent perforators treated accordingly with stab avulsions and subfascial ligation as indicated. Patients were followed-up at 6 weeks with clinical assessment, 1 year with clinical, HHD assessment, and if indicated with venous duplex imaging. All the complications identified recorded and treated accordingly.

RESULTS

Table 1 shows the age range of the patients and table 2 shows the sex of the patients.

Table 1: Age of the patients

Age(years)	=n	%age
12-20	02	04.76
21-30	08	19.04
31-40	15	35.71
41-50	08	19.04
51-60	06	14.28
>60	03	7.14

Table 2: Gender of patients

Gender	=n	%age
Male	18	42.85
Female	24	57.15

Table 3 and 4 shows involved side and etiology respectively.

Table 3: Side involved

Side	=n	%age
Lt	12	28.54
Rt	18	42.85
Bilateral	12	28.54

Table 4: Etiology

Etiology	=n	%age
Family history	18	42.85
Profession	12	28.54
Pregnancy	11	26.18

Table 5 shows the accuracy of clinical diagnosis and duplex scan and their comparison.

Table 5: Diagnostic comparison between clinical and duplex scan

System Involved	Clinical	Duplex Scan
Saphenofemoral incompetence	38	38
Saphenopopliteal incompetence	12	12
Incompetent perforators	04	09

Trendelenberg procedure is the commonest procedure performed as shown in table no 6

Table 6: Surgical Procedure

Surgical procedure	=n
Trendelenberg procedure (saphenofemoral ligation)	38
Stripping of long saphenous vein	38
Saphenous popliteal ligation	12
Stripping of saphenopopliteal ligation	12
Stab avulsion	05
Sub fascial ligation	04

Bruising followed by residual varices and hypertrophic scar were commonest complications as shown in table no 7

Table 7: Complications

Complications	=n
Haematoma and Bruising	12
Residual varices	08
Hypertrophic scar	08
Saphenous nerve injury	02
Recurrence	01
Infection	01

DISCUSSION

Standard open varicose vein surgery has been used to treat uncomplicated varicose veins for over 100 years. The specific techniques of the operation have been subject to regular, and often cyclical, change over the years. However, the essential aim of the operation, to ligate and disconnect the great (GSV) or small saphenous vein (SSV) at its junction with the deep venous system has remained constant[3].

Standard surgery remains the gold standard against which newer interventions need to be evaluated[3].

The heredity, prolonged standing and pregnancy are the commonest reasons for primary varicose veins in our study as evidenced by other studies[7].

The causes for failure of varicose vein operations fall into three categories: errors of judgment, technical errors, and unavoidable failures due probably to the underlying congenital factors in varicosis. To minimize error of judgment an initial history and clinical examination is essential. Further evaluation of the leg(s) is required to establish reflux within the GSV and SSV. The council of perfection is for every patient to have a complete duplex ultrasound assessment of the veins in the leg to fully evaluate the deep and superficial venous systems. For many centres this would place a significant burden on the provision of duplex services that would be deemed unacceptable or unsustainable. However in our experience judicious use of hand held Doppler and duplex scan can reduce the recurrence rate especially in small saphenous vein and perforator surgery.

Technical errors comprise persistence of an intact long saphenous trunk, persistence of a proximal long saphenous remnant, persistence of a mid-saphenous trunk, and persistence of a proximal short saphenous remnant. Most of these errors can be prevented by the proper placement of an incision of adequate length for the needed exposure and clear identification of the sapheno-femoral or sapheno-popliteal junction. The low recurrence rate in our study is because of the fact that all patients with sapheno-femoral and sapheno-popliteal incompetence were treated by flush ligation and stripping as evidenced by other studies[8-11].

The role of perforator surgery in primary varicose veins is less clear still. Haemodynamically there appears to be no additional benefit from adding perforator ligation to standard SFJ ligation and stripping[12]. A small randomized study did show an increase in the number of incompetent perforator veins at one year in patients who did not have endoscopic perforator ligation (SEPS) in addition to standard SFJ ligation and stripping[13]. However, at one year this had no effect on recurrence or quality of life. This is also observed in our study. Patients with isolated perforator incompetence benefitted from subfascial ligation.

Complications (infection, haematoma hypertrophic scar, superficial residual veins, saphenous nerve injury and recurrence) are reported in approximately 18-20% of patients having standard varicose vein surgery[14,15]. Our results also show similar pattern and morbidity rates.

CONCLUSIONS

The results of this study demonstrate duplex ultrasonography to be an important noninvasive method for the identification of perforating veins.
Adequate surgery, with correct exposure and demonstration of the relevant anatomy (successful ligation of the saphenofemoral junction and sapheno popliteal junction along with stripping of the vein) are the first prerequisite for prevention of recurrence. This implies that all surgeons under taking venous surgery should be adequately trained and supervised to ensure that technical errors are minimized.

REFERENCES

1. Jakobsen BH. The value of different forms of treatment for varicose veins. Br J Surg 979;66:182-4.
2. Sarin S, Scurr JH, Coleridge Smith PD. Assessment of stripping the long saphenous vein in the treatment of primary varicose veins. Br J Surg 1992;79:889-93.
3. Department of Health and Social Security. Hospital episode statistics 2002/2003. London: DHSS; 2003.
4. Sarin S, Scurr JH, Coleridge Smith PD. Assessment of stripping the long saphenous vein in the treatment of primary varicose veins. Br J Surg 1992;79:889.
5. Royle JP. Recurrent varicose veins. World J Surg 1986;10:944-53.
6. Neglén P, Raju S. A rational approach to detection of significant reflux with du-plex Doppler scanning and air plethysmography. J Vasc Surg 1993;17:590-5.
7. Martin, P., Lynn, P. B., Dible, J. H. and Aced, J. (1956). Peripheral Vascular Disorders, p 669. Edinburgh, Livingstone.
8. Glass GM. Neovascularisation in recurrence of the varicose great saphenous vein following transaction. Phlebology 1987;2:81-91.
9. Nyamekye I, Shephard NA, Davies B, Heather BP, Earnshaw JJ. Clinicopathological evidence that neovascularisation is a cause of recurrent varicose veins. Eur J Vasc Endovasc Surg 1998;15:412-5.
10. Fischer R, Chandler JG, De Maeseneer MG, Frings N, Lefebvre-Vilardebo M, Earnshaw JJ, et al. The unresolved problem of recurrent saphenofemoral reflux. J Am Coll Surg 2002;195:80-94.
11. Perrin MR, Guex JJ, Ruckley CV, dePalma RG, Royle JP, Eklof B, et al and the REVAS group. Recurrent varices after surgery (REVAS), a consensus document. Cardiovasc Surg 2000;8:233-45. Fitridge RA, Dunlop C, Raptis S, Thompson MM,
12. Leppard P, Quigley F. A prospective randomised trial evaluating the haemodynamic role of incompetent calf perforating veins. Aust N Z J Surg 1999;69:214-6
13. Kianiford B, Holdstock J, Allen C, Smith C, Price B,Whiteley MS. Randomised clinical trial of the effect of adding subfascial endoscopic perforator surgery to standard great saphenous vein stripping. Br J Surg 2007;94:1075-80
14. Critchley G, Handa A, Maw A, Harvey A, Harvey MR, Corbett CR. Complications of varicose vein surgery. Ann R Coll Surg Engl 1997;79:105-10
15. Defty C, Eardley N, Taylor M, Jones DR, Mason PF. A comparison of the complication rates following unilateral and bilateral varicose vein surgery. Eur J Vasc Endo-vasc Surg 2008;35:745-9