Study of Varicose Veins In Sample of Population, Aggrevating Factors and Management

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ABSTRACT:

BACKGROUND:

Varicose Veins is a common problem in our population and there are many factors which aggravate its progress.

OBJECTIVE:

In this study the author concern on analysis of risk factors which aggravate varicosities and management of these cases either surgical or conservative.

PATIENTS AND METHODS:

A prospective study is carried on 85 patients with varicose veins from September 2008 to September 2014 at Al-yarmook Teaching Hospital and private sector. History, clinical examination and Color Duplex Imaging were done for all patients and then they were divided into two groups according to the causes of development of varicosity and method of management, group-A include 55 patients (65 Limbs) who were managed surgically while group-B include 30 patients who were managed by conservative methods.

RESULTS:

After a mean follow up period of 30 months (rang from12-42 months). Regarding group-A patients, 46 patients (55 limbs=84.6%) got good results, while six patients (6 limbs=9.2%) developed variable degree of post operative foot and leg edema, in three patients (Four limbs=6.2%) recurrence developed after three years postoperatively. Regarding group-B patients they expressed improvement in their symptoms by conservative measures and life style modification that help to stop the progress of varicosity.

CONCLUSION:

Varicose Veins is a common condition with many causes and aggravating factors, surgery is excellent method to manage extensive varicosities while conservative method is suitable in certain inoperable conditions.

KEYWORDS: varicose veins, aggravating factors, surgery, conservative management.

INTRODUCTION:

Varicose veins is one of the common conditions world-wide with prevalence rate from 40-80%[(1)], mostly involves the Greater Saphenous Vein(GSV) and to lesser extent the Lesser Saphenous Vein(LSV), it usually develop due to defect in connective tissue and smooth muscles in the venous wall which leads to venous dilatation and secondary incompetence in the venous valve leading to retrograde venous blood flow with dilatation and tortousity of veins. There are many conditions which aggravate the development and progress of varicosity[(2-4)] like repeated pregnancy, prolong standing, obesity, etc.

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The aim of this study is to concern on factors which aggravate the development of Varicose Veins (V.V) and on the modality of suitable management of these cases.

PATIENTS AND METHODS:

A prospective study is carried on 85 patients with varicose veins from September 2008 to September 2014 at Al-yarmook Teaching Hospital- Department of Thoracic and Vascular surgery and private sector, after history taking and clinical examination, a Color Duplex Imaging (CDI) (done by ultrasonoligist) was used to check for valve function by calf muscle compression to augment blood flow through GSV followed by sudden release, any reflux for more than 0.5 second was considered

pathological since the normal venous valve requires 0.5 second to close and accordingly patients were divided into two groups, group-A who were managed surgically, while group-B treated conservatively.

Group-A included 55 patients(65 limbs), history was taken concerning on factor(s) which may aggravate varicosities like(kind of job, number of pregnancies, smoking which leads to chronic cough), body weight was measured, the involved limb(s) was(were) examined to delineate the course of varicosity and site of incompetent valve(s), general examination was done concerning on cardio-respiratory system preparing patients for general anesthesia , general investigations like Hemoglobin, bleeding time, blood sugar and virology were done while for high risk patients ECG and Echo study done. Patients were admitted to hospital on day of surgery, all operations were carried out under general anesthesia except in two patients who complain from class-2 heart failure and they were operated under spinal anesthesia.

Hair-shaving the area was done immediately prior to operation and the whole length of the vein was stripped from below upwards (i.e from level of medial malleolus to saphenofemoral junction with ligation and division of joining tributaries), incisions were closed and the limb was wrapped with bandage with mild pressure, a good post-operative intravenous hydration plus encouragement of early mobilization used as a prophylaxis to prevent the development of deep vein thrombosis post operatively.

In patients who have thrombosed varicosities in the medial surface of leg (Known as Gaiter area) the lower skin incision was made about 10cm below knee joint while the thrombosed segments were approached by separate incisions to excise them, in cases of ulcerated area the margins and the bed of ulcers were removed after excision and ligation of varicosities and ulcers were covered by skin flaps.

Next day the patients were discharged home with analgesics and prophylactic antibiotics for 5 days, sutures were removed on 12-15 postoperative day and patients were followed up monthly for 2 months and then every 6 months.

Group-B composed of 30 patients include those who have discrete dilated veins all over both limbs, some patients with Deep vein thrombosis and post thrombotic recanalization have dilated GSV and LSV but with competent valves, other patients were obese, smoker, old age with many associated orthopedic and cardio-respiratory problems, these patients were managed by following conservative measures:-

1. Life-style modification to decrease daily standing period (Even by change of type of job when possible).
2. Avoidance of excess flexion of Knee joint (during sitting) beyond 90 degree since this will impede venous drainage from the leg and predispose to development of varicosities and even Deep Vein Thrombosis(DVT).
3. Weight reduction will retard the progress of varicosity, abstinance from smoking and management of orthopedic problems.
4. Improvement of cardio-respiratory condition through treatment of heart failure, hypertension, chronic cough to help to improve the circulatory condition.
5. Use of venotonic agents show some improvement during treatment course.
6. Use of below-knee elastic compression devices.

RESULTS:

Concerning group-A that was composed of 55 patients (65 Limbs) (Table-1 below) include those who have a well established varicosity of GSV. Their aggravating factors and co morbidities were obtained and summarized in (Table-2 below) *(some patients have more than one risk factor*):-

Table 1: Criteria of group-A patients included in this study.

		Frequency	Percentage
Gender	Male	18	32.7%
	Female	37	67.3%
Age distribution in years	20-29	7	12.7%
	30-39	18	32.7%
	40-49	16	29.1%
	50-59	13	23.7%
	60-69	1	1.8%
Limb involved	Bilateral	10	18.2%
	Unilateral /Left	24	43.6%
	Unilateral /Right	21	38.2%

Table 2: Risk factors and associated comorbidities in group-A patients.

		Frequency	Percentage
Risk factors	Multiple pregnancies	36	65.5%
	Heavy smoker	20	36.4%
	Job with long standing time	20	36.4%
	Obesity	11	20%
Local Comorbidities	Thrombosed varicosities	3	5.5%
	Bleeding +Ulcerated varicosities in gaiter area	5	9.1%
	Recurrent varicosity after saphenofemoral disconnection(Trendlenberg operation)	2	3.6%
General Comorbidities	Hypertension	14	25.5%
	Heart failure necessitating spinal anesthesia	2	3.6%
	Diabetes Mellitus	8	14.5%

They were followed up post operatively for a mean period of 30 months (rang 12-42 months) looking for development of complications (Table-3 below). Earliest complication was simple wound infection which occurred in nine limbs (13.8%), mostly at the upper thigh incision and respond to 10-day course of antibiotics.

All patients complained from pain and bruises in the limb(s) that subside gradually with analgesia and exercises, the mean duration of pain was 7 days (range 5-23 days), the time range to return to work and activities was 10-28 (mean 13) days.

In 32 limbs (49.2%) variable degree of parasthesia occurred in the medial side of leg and sole of foot, these cases were classified to three groups according to severity, the duration and the modality of treatment. In Eight cases (12.3%) the parasthesia was mild and subside within one month with simple analgesics, in 19 cases (29.2%) it was moderate and last for 3-4 months but then subside with analgesics and vitamin-B complex preparations while in Five cases (7.7%) the parasthesia was severe and continue for one year and the patients were given additionally 2-month course of Neurotonine capsule 300mg/day till they improved (Table-3 below).

Six patients(6 Limbs=9.2%) developed variable degree of leg and foot edema, they express it as gradually increasing swelling after prolong standing which subside with rest, they were advised to avoid long standing and to avoid strong flexion of knee joint in sitting-position to facilitate venous drainage through deep veins.

Recurrence was developed in three female patients (4 limbs=6.2%) (In the anatomical course of LSV) after three postoperative years as they became pregnant, and they were managed conservatively.

The rest of 46 patients(55 Limbs=84.6%) got good results on follow up and they were satisfied with their limb condition even they accept the presence of simple scars when they notice that it was going to fade up gradually.(Table-3) below.

Table 3: Operative complications and Final results in group-A patients.

		Management	Frequency	Percentage
complications	Wound infection	10-day course of antibiotics	9	13.8%
	Pain & Bruisis	Simple analgesia	65	100%
	Parasthesia/ Mild	100 mg Diclofenac capsule^{SR}	8	12.3%
	Parasthesia/Mododerate	As above+ Vit.B Complex	19	29.2%
	Parasthesia/severe	As above+ neurotonine cap.	5	7.7%
Final results	Edema of leg and foot	Conservative	6	9.2%
	Recurrence of varicosity	Conservative	4	6.2%
	Satisfactory outcome		55	84.6%

Regarding group-B patients (Table-4 below) they express a variable degree of improvement in their symptoms by above conservative measures and life style modification that help them to stop the progress of varicosity and they can continue on their usual daily activity with minimum complain.

Table 4: Criteria of group-B patients included in this study.

		Frequency	Percentage
Gender	Male	11	36.7%
	Female	19	63.3%
Age distribution/years	30-39	4	13.3%
	40-49	5	16.7%
	50-59	13	43.3%
	60-69	8	26.7%
Associated problems	DVT and/or Post-thrombotic	12	40%
	Somking	17	56.7%
	Hypertension and/or heart failuer	19	63.3%
	Obesity	16	53.3%
	Orthopedic complain e.g Osteoarthritis of knee Jt.	18	60%

DISSCUSSION:

Varicose veins (V.Vs) is a common problem in our country and World-Wide with many aggravating factors like prolonged standing, multiple pregnancies, chronic cough which all were seen in this study and other studies [1-4]. Although V.Vs is more common in male but mostly females seek for treatment and this is obvious in this study and other studies [2, 5] as the Female to Male ratio is about 2/1. Regarding age distribution most of patients with primary varicosity were from 4th and 5th decade of life which is similar to other studies [2]. Limb predilection is also similar to other studies [3, 5] as V.Vs is more common at left side and in 18% found to be bilateral. As in this study, other studies use (CDI) as standard method for diagnosis [2,6,7], it also can help to delineate anomalies of (SFJ) although they are rare with incidence of 0.24%[8].

Regarding group-A patients they were surgically treated by High-Ligation- stripping (HLS) up to medial malleolus as this procedure is found to be associated with lest recurrence rate in many other studies[5-7] as the whole length of diseased GSV is removed with ligation of perforators.

In this study stripper was introduced from below-upwards, while in other studies stripper was introduced from above-downwards [2,3,5,7]. In a study carried out in Japan[8] about the variation

of (SFJ), five different types were found (although they are rare) and they concluded that stripper is better to be introduced from below-upwards to identify the (SFJ) safely depending on manipulation of stripper. In this study variation of (SFJ) was found in three cases in which there was double-confluence of saphenous vein joining the femoral vein (Figure-1, Type 5) below.

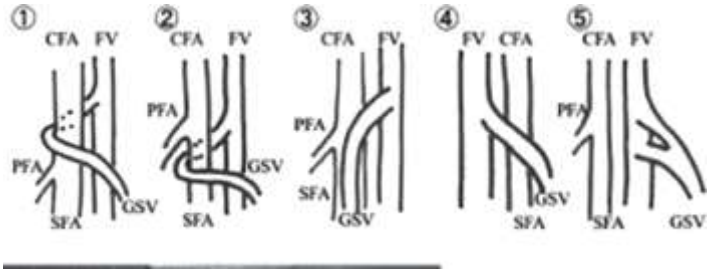

Figure 1: Is taken from the Japaneese study (Anatomical Variation at Saphenofemoral junction) Ann Vasc Dis Vol.6, No 4; 2013; pp 703

Regarding the upper thigh incision a longitudinal incision over the SFJ was used in 19 cases, it allows easy identification of all tributaries joining SFJ to ligate them and any aberrant tributary will not be lost but it was associated with high rate of infection and delayed healing, in rest of 46 cases a transverse incision along the inguinal crease was used, it has less incidence of infection and better healing, transverse incision along inguinal crease is also used in other studies[1-7] since (as they conclude) it helps to avoid fatty area in the thigh so that all the tributaries can be exposed.

Nearly similar incidence of pain duration (MN=5, 0-42days)[4], bruises and time to return to work(MN=2wks, 10-30days) is found in this study and other studies.[9-13] The incidence of superficial wound infection in this study was 13.8% is higher than other studies 8%[4],6%[12],1.2%[14], it was mostly confined to upper thigh incision, factors which increase wound infection like obesity, diabetes must be put in mind.

The incidence of post stripping parasthesia [5] in other studies is variable from (5-50%)[15-20], in this study it was (49%). The development of parasthesia is related to variation in anatomical course of Saphenous nerve. In Morrison study postoperative parasthesia rate was 40% and decrease to 18% five years later [18]. Parasthesia from saphenous nerve injury generally is well tolerated and it must not be an obstacle for complete stripping up to medial malleolus which is associated with less recurrence rate and it is better than leaving an incompetent venous segment in the leg.

In this study recurrence developed in three patients(4 limbs= 6.2%) after three postoperative years, it is a good result in comparison to other studies in which recurrence rate as high as 37% was reported two years after (HLS) to Ankle joint level[21], in other study the recurrence rate was 23.9% reported with stripping to ankle joint[2], in other study[5] 23% recurrence rate was reported after five years of stripping to ankle joint level, recurrence is considered a very disappointing complication specially for female and every effort must be made to prevent it. Postoperative leg and foot edema was reported in six patients (9.2%). In a Turkish study [22] a post operative edema rate of 10.8% was reported.

In this study satisfactory results were obtained in 46 patients (55 limbs= 84.6%) which is a good result in comparison to other studies[5,21,23]. Regarding Conservative management it is found to be a suitable method for inoperable patients and it is compatible to what was reported in other studies [3,6].

CONCLUSION:

V.Vs is a common condition with many causes and aggravating factors, surgery is excellent method to manage extensive varicosities with better long term outcome while conservative method is suitable in certain inoperable conditions.

REFRENCES:

1. E.Volkmann, A. Falk, J. Holm, etal. Effect of Varicose Vein Surgery on Venous Reflux Scoring and Plethysmographic Assessment of Venous Function. Eur J Vasc Endovasc Surg. 2008;36:731-37.

2. Mohammed A Gad, Aly Saber, Emad N Hokkam. Assessment of Causes and patterns of Recurrent Varicose Veins After Surgery. North American J Med Sci. 2012;4:45-48.
3. Richard H. Jones, Peter J. Carek. Management of Varicose Veins. J. American Family Physician. 2008;78:1289-94.
4. Laura van Groenendael, J. Adam van der Vliet, Lizel Flinkenflögel, etal. Treatment of recurrent varicose veins of the great saphenous vein by conventional surgery and endovenous laser ablation. J Vasc Surg. 2009;50:1106-13.
5. Theodoros T. Kostas, Christos V. Ioannou, Michalis Veligrantakis, etal. The appropriate length of great saphenous vein stripping should be based on the extent of reflux and not on the intent to avoid saphenous nerve injury. J Vasc Surg. 2007; 46: 1234-41.
6. Micheal Kendler, Peter T. Fellmer, Tino Wetzig. Varicose vein surgery. JDDG. 2012;10:157–64.
7. Minoru Suzuki, Naoki Unno, Naoto Yamamoto, etal. Impaired lymphatic function recovered after great saphenous vein stripping in patients with varicose vein: Venodynamic and lymphodynamic results. J Vasc Surg. 2009; 50: 1085-91.
8. Kimihiro Igari, Masayuki Hirokawa, Hidetoshi Uchiyama, etal. Anatomical Variation at the Sapheno-Femoral Junction. Ann Vasc Dis. 2013; 6: 702–5.
9. G. Gemayel, J.T. Christenson. Can Bilateral Varicose Vein Surgery be Performed Safely in an Ambulatory Setting?. Eur J.Vasc Endovasc. Surg. 2012; 43: 95-99.
10. Paul Pittaluga, Sylvain Chastanet, Jean-Jérôme Guex. Great saphenous vein stripping with preservation of sapheno-femoral confluence: Hemodynamic and clinical results. J Vasc Surg. 2008; 47:1300-5.
11. Manfred Kalteis, Irmgard Berger, Susanne Messie-Werndl, etal. High ligation combined with stripping and endovenous laser ablation of the great saphenous vein: Early results of a randomized controlled study. J Vasc Surg 2008; 47: 822-29.
12. A.P.Wright, D.C.Berridge, D.J.A.Scott. Return to Work Following Varicose Vein Surgery: Influence of Type of Operation, Employment and Social Status. Eur J Vasc Endovasc Surg. 2006; 31: 553–57.
13. R.J. Darwood, N. Walker, M. Bracey, etal. Return to Work, Driving and Other Activities After Varicose Vein Surgery is Very Variable and is Influenced Little By Advice From Specialists. Eur J Vasc Endovasc Surg. 2009;38:213-19.
14. Eveillard M, Delbos V, Cambuzat D, etal. Surgical-site infections following varicose vein surgery according to a continuous series of 408 interventions in a teaching hospital. Pathol Biol (Paris). 2011; 59: 37-42.
15. Assadian, G. Wickenhauser.Traditional versus Endoscopic Saphenous Vein Stripping:A Prospective Randomized Pilot Trial.Eur J Vas Endovas Surg.2008;36:611-15.
16. Wood JJ, Chant H, Laugharne M, etal. A prospective study of cutaneous nerve injury following long saphenous vein surgery. Eur J Vasc Endovas Surg.2005;30:654-58.
17. Holme JB, Holme K, Sorensen LS. The anatomic relationship between the long saphenous vein and the saphenous nerve. Relevance for radical varicose vein surgery. Acta Chir Scand. 1988; 154: 631-33.
18. Morrison C, Dasling MC. Sings and symptoms of saphenous nerve injury after greater saphenous vein stripping: prevalence, severity, and relevance for modern practice. J Vasc Surg. 2003;38: 886-90.
19. Sriram Subramonia, Tim Lees. Sensory abnormalities and bruising after long saphenous vein stripping: Impact on short-term quality of life. J Vasc Surg 2005;42: 510-14.
20. J.J. Wood, H. Chant, M. Laugharne, etal. A Prospective Study of Cutaneous Nerve Injury Following Long Saphenous Vein Surgery. Eur J Vasc Endovasc Surg.2005;30: 654–58.
21. L.H. Rasmussen, L. Bjoern, M. Lawaetz, etal. Randomised Clinical Trial Comparing Endovenous Laser Ablation with Stripping of the Great Saphenous Vein: Clinical Outcome and Recurrence After 2 Years. Eur J Vasc Endovasc Surg. 2010; 39: 630-35.
22. Hakan Uncu. Should complete stripping operation to the ankle be avoided in the treatment of primary varicose veins due to greater saphenous vein insufficiency? Acta Cirurgica Brasileira.2009; 24: 411-15
23. RJ WINTERBORN, CRR CORBETT. Treatment of varicose veins: the present and the future- a qeustionairre survey. Ann R Coll Surg Engl. 2008; 90: 561–64.