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ORIGINAL ARTICLE

To Assess the Short Term Outcomes of Ambulatory Selective Varices Ablation Under Local Anesthesia in Primary Varicose Veins Disease

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ABSTRACT

Background: Varicose veins are superficial veins that have become enlarged and twisted. A vein that is confined within fascial planes or is buried beneath subcutaneous tissue can carry massive amounts of high-pressure reflux without being visible at all.
Aim: To assess the short-term outcomes of Ambulatory Selective Varices Ablation under Local anesthesia in primary varicose veins disease
Methods: this is a descriptive case series conducted at department of surgery, Services Institute of Medical Sciences, from December 2018 to June 2019. After fulfill the inclusion criteria, 181 patients were enrolled. Preoperatively, all varicose veins marked but the patient is in standing position as it's difficult or impossible to identify during recumbent position. A micro incision or puncture is made near the vein after the anesthetic has been administered into the peri-venous tissues. After removing a segment, the surgeon moved along the vein for roughly the similar distance, makes a second incision, then the procedure is repeated until all sections of the varix have been removed, reducing the risk of an inflammatory response from the residual segment thrombosis.
Results: In this study the mean age of the patients was 35.03±5.25 years. C2 CEAP classification was noted in 52(28.7%) patients, c3 CEAP classification found in 101(55.8%) patients. The reflux found in 54(29.8%) patients and recurrence noted in 33(18.23%) patients.
Conclusion: The conclusion of this study that Ambulatory Selective Varices Ablation under Local anesthesia is a feasible and reliable technique with lower rate of recurrence in patients presented with in primary varicose veins disease.
Keywords: Varicose vein, varices, local anaesthesia

INTRODUCTION

A varicose vein is a dilated and convoluted vein that most commonly refers to the leg's superficial veins. They are frequent in the United Kingdom, affecting 15-40.0% of the adult population[1]**.** Varicose veins, which comprise spider telangiectasias, reticular veins & genuine varicosities, are all part of the chronic venous disease spectrum. Varicose veins affect over 23% of adults in the United States[2]. Generally more common in women & older adults, varicose veins affect 22.0 million women & 11.0 million men under the ages of 40.0 to 80.0 years. 2.0 million individuals worldwide will acquire the symptoms of chronic venous insufficiency, such as venous ulcers, as a result of this. Varicose veins can now be treated using a number of treatments, and it is estimated that around40, 000 treatments are conducted annually in the UK's National Health Service to treat varicose veins[3].

Varicose veins are the tortuous, dilated and incompetent veins causing reflux of blood normally in lower extremities & is the first sign of venous insufficiency which may lead to long term blood stasis with pain, skin changes, oedema & Ulceration. Varicose veins are seen in 5%-30% of population with female predominance. Family history, pregnancies, lifestyle, smoking, and overweight are all factors in this disease[4].

Clinical manifestations and ultrasonography are used to diagnose varicose veins. The gold standard for diagnosing superficial venous incompetence is duplex ultrasonography. The classification of CEAP (Clinical, Etiology, Anatomy & Pathophysiology) is used to describe the severity of varicose veins. In rating the severity of varicose veins, the "C" element of the CEAP classification is useful & practical[5].

Newer techniques are under study for the management of varicosities. Instead of a top to bottom model for varicose vein development, it provides a model that ascends from the superficial tributaries to the saphenous trunk, then to saphenofemoral junction[6,7,8]. In light of this new model, a novel technique for treatment of varicose veins, known as Ambulatory Selective Varices Ablation under Local anesthesia (ASVAL), has been introduced. In this procedure, superficial phlebectomies are done, i.e. the superficial varicose veins are selectively removed while preserving the traditionally stripped incompetent great saphenous vein, and this results in correction of venous reflux in the great saphenous vein and a decreased recurrence of varicose vein development in that limb[9,10].

According to a study done by Igor A Zolotukhin, the cases were managed by ASVAL and on follow up reflux was seen in 17%, and recurrence was seen in only 13.5% of the cases[11].

As this is less invasive and less expensive procedure as compared to whole removal of saphenous vein so the rationale of this study is to assess the short term outcomes of this procedure in our population and to introduce this new procedure for the treatment1of primary varicose vein as there is scarcity of relevant studies in local population. The rationale of the study is to measure the recurrence rate of varicose veins at six months after the procedure & to establish the effect of ASVAL on the reflux of a great saphenous vein in same patients.

METHODOLOGY

This descriptive case series was conducted from 24 December 2018 to 24 June 2019 in the General Surgery department of Services Hospital, Lahore. It was after obtaining permission from the Institutional Board of the hospital. Written consent was obtained from patients. Sample size of 181 patients with 95% and the margin of error equal to 5% and the anticipated prevalence of recurrence as 13.5% at 6 months in previous studies.

Patients present with age of 20 to 70 years and varicose vein (assessed abnormally enlarged and tortuous superficial veins with incompetent valves occurring in the lower limbs confirmed by ultrasound), C2-C4 (CEAP classification) were included from the study. Severe deep insufficiency confirmed by duplex vein, pregnant females and any previous surgery were excluded from the study

Patients were treated by phlebectomy for dilated and incompetent tributaries of the great saphenous vein with1preservation of the great saphenous vein under1local

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anesthesia. All varicose veins were point out preoperatively however the patient is standing as it's impossible & difficult to recognize during recumbent position. After removing a segment, the surgeon moved along the vein for roughly the similar distance, makes a second incision, then the procedure is repeated until all sections of the varix have been removed, reducing the risk of an inflammatory response from the residual segment thrombosis. Local anesthetic made with 0.5% lignocaine solution mixed with 1:200,000 of epinephrine was filled in10ml sterile syringe to infiltrate at the marked sites. Most are vertically oriented, except in the area of the knee, wherever they must be aligned with tension lines. A blunt tip-spatula or the hook is inserted into the opening & the vein is blindly grasped blindly &out of opening or brought up.

The vein is then grasped between clamps/artery forceps and transected by a small scissors. Using gentle1traction on hemostat or artery forceps, the varix is drawn out of the puncture site on one end. Successive hemostats are applied to the varix as it's removed from its position. After removing a piece, the surgeon moved along the vein at approximately the same distance, makes another incision, & the method is repeated till removed all the varix parts, to decrease the potential inflammatory responses from thrombosis1of the engaged segment.

Repeat duplex scan would be performed 6 months after surgery and were assess for recurrence, presence or absence of reflux. The same study team performed duplex ultrasounds before the procedure and during the follow-up.

Data was entered in SPSS 22. Age and BMI were presented ad mean and standard deviation. Categorical data like gender, clinical assessment parameters and duple scan findings in term of present or absent were presented as frequencies & percentage. Data was stratified for gender, age, BMI, CEAP classification.

RESULTS

In this study, total 181 patients were included. The average age was 35.03± 5.25 years. Minimum and maximum age 20 % 45 years respectively. There were 123(67.96%) male and 58 (32.04%) female. The mean BMI value was 31.46±2.06 kg/m^2 (Table 1).

According to this study c2 CEAP classification was noted in 52(28.7%) patients, c3 CEAP classification found in 101(55.8%) patients and c4 CEAP classification found in 28(15.5%) patients. Out of 181 patients the reflux found in 54(29.8%) patients. The recurrence occurred in 33(18.23%) patients (Table 2).

Table 1: Distribution of Age and Gender

		Frequency (%)
Age	Mean±SD	35.03±5.25
BMI (Kg/m^2)	Mean±SD	31.46±2.06
Gender	Male	123(67.96%)
	Female	58(32.04%)

Table 2:Distribution of CEAP classification, Reflux & Recurrence

		Frequency (%)
CEAP Classification	C2	52(28.7%)
	C3	101(55.8%)
	C4	28(15.5%)
Reflux	Yes	127(70.2%)
	No	54(29.8%)
Recurrence	Yes	33(18.23%)
	No	148(81.77%)

The study results showed that in patients with age ≤ 30 the recurrence was found in 9(21.4%) patients whereas in patients with age >30 years the recurrence was found in 24(17.3%) patients. This difference was insignificant statistically i.e. p-value=0.540 In our study among c2 CEAP classification patients the recurrence noted in 9(17.3%) patients, among c3 CEAP classification patients the recurrence noted in 22(21.8%) patients while among c3 CEAP classification patients the recurrence noted in 2(7.1%) patients. This statistically insignificant difference i.e. p - value=0.203. Data was stratified according to BMI and Gender as shown in Table 3. The study results showed that there is statistically insignificant difference found between the reflux of the patients with age, gender, CEAP classification and BMI respectively i.e. p - value > 0.05 (Table 4).

Table 3: Comparison of Recurrence with age, gender CEAP classification and BMI

		Yes	No	P value
Age	≤30 years	9(21.4%)	33(78.6%)	0.54
	>30 years	24(17.3%)	115(82.7%)	
Gender	Male	22(17.9%)	101(82.1%)	0.861
	Female	11(19%)	47(81%)	
CEAP Classification	C2	9(17.3%)	43(82.7%)	0.203
	C3	22(21.8%)	79(78.2%)	
	C4	2(7.1%)	26(92.9%)	
BMI	Overweight	5(16.1%)	26(83.9%)	0.739
	Obese	28(18.7%)	122(81.3%)	

Table: 4 Comparison of reflux with age, gender CEAP classification and BMI

		Reflux		P value
		Yes	No	
Age	≤30 years	28(66.7%)	14(33.3%)	0.572
	>30 years	99(71.2%)	40(28.8%)	
Gender	Male	82(66.7%)	41(33.3%)	0.134
	Female	45(77.6%)	13(22.4%)	
CEAP Classification	C2	36(69.2%)	16(30.8%)	0.926
	C3	72(71.3%)	29(28.7%)	
	C4	19(67.9%)	9(32.1%)	
BMI	Overweight	19(61.3%)	12(38.7%)	0.235
	Obese	108(72%)	42(28%)	

DISCUSSION

A number1of patients with1varicose veins have been diagnosed as having disease stage C2, which can be treated with general phlebectomies performed with the ASVAL method. If underlying venous disease has already caused ulceration & progressive skin changes or ulceration (C4 - C6 disease), ASVAL method use in any attempt will provide significant recurrence rate, because the saphenous vein & its valves may have already been irrevocably damaged[9].

In this study the reflux found in 54(29.8%) patients and the recurrence noted in 33(18.23%) patients. The results showed that in female patients the recurrence was found in 11(19%) patients while in male patients the recurrence was found in 22(17.9%) patients. This difference was statistically insignificant. i.e., p-value=0.861. A study by Zolotukhin IA et al[11] presents that isolated phlebectomy with preservation of the incompetent great saphenous vein results in the absence of reflux and most of the cases and a considerable reduction in vein diameter in all cases, according to research.

The cases were managed by ASVAL and on follow up reflux was seen in 17%, and recurrence was seen in only 13.50% of cases, the ASVAL process may be considered a fewer expensive & aggressive method in certain cases. These findings support those of Lane et al. & Biemans et al., who showed that the great saphenous vein was reflux-free in 69.9% & 50% of patients after a year[12,13]. In only 13.50% of cases, the ASVAL process may be considered a much less aggressive and cost-effective option.

Mehmet Mahir Atasoy and Levent Oğuzkurt[14] conducted a study to assess the concepts and initial outcomes of the endovenous ASVAL technique. According to the authors, eASVAL is a practical and safe technique in certain patients, with encouraging results after a year of ultra-sonographic follow-up. In 75.3 percent of patients, segmental reflux was no longer evident. At a one-year follow-up, the average diameters of great saphenous veins were reduced significantly (8.50 mm vs. 7.50 mm, P= 0.001).

Many phlebologists consider the surgical ASVAL technique to be the best option in the situation of segmental great saphenous vein reflux with limited or no terminal valves reflux[15]. Great

saphenous vein reflux was minimized using classical technique for surgical ASVAL procedure (isolated phlebectomy), with a significant decrease in duration of reflux & velocity of peak reflux[16].

Sylvain Chastanet et al[17] carried ASVAL conducted a ten-year study on the outcomes of varicose vein treatment. They found that in selected individuals, the treatment of e ASVAL for varicose veins provides good hemodynamic clinical outcomes over time, with only a small number of cases requiring a further surgical surgery. Though, results clinically appear to deteriorate faster than hemodynamic changes, especially in terms of aesthetics, that could represent the natural progression of venous insufficiency regardless of reflux.

CONCLUSION

The conclusion of this study that Ambulatory Selective Varices Ablation under Local anesthesia is a feasible and reliable technique with lower rate of recurrence in patients presented with in primary varicose veins disease.

Conflict of interest: Nil

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