

ORIGINAL RESEARCH

Study of the Surgical Anatomy of the Sapheno-Femoral Junction in patients of Varicose Veins in a Tertiary Care Teaching Hospital

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ABSTRACT

Background: Varicose veins are a frequently encountered surgical problem in today's practice. Ligation of the Sapheno-Femoral junction (SFJ) in Flush with the femoral vein after ligating and dividing the known and unknown tributaries is a time tested method of treating Sapheno-Femoral incompetence in primary varicose veins.

Material and Methods: This study was conducted in Department of Anatomy. The duration of study was over a period of one and half year. On the basis of inclusion and exclusion criteria, total of 120 cases of SFJ incompetence were included in this study.

Results: In our study we were included total 120 no. of participants. Among all, 93.4% were male rest were female. In the USG finding, 88.4% participants were showing SFJ below the pubic tubercle and in 11.6% participants was marked at the level with pubic tubercle. This study also showed that anatomical subtypes of SFJ which were found 93.4% subtype I, 5% subtypes H & rest Subtype S. In this study, nobody had postoperative complications and good cosmetic outcome.

Conclusion: It can be concluded that thorough knowledge of all the anatomical variations of the SFJ is mandatory for efficient management of varicose vein and safety of SFJ.

Keywords: Sapheno- Femoral Junction, Surgical Anatomy, varicose veins.

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INTRODUCTION

In the recent times, varicose veins are a commonly observed surgical problem. The ligation of the Sapheno-Femoral junction (SFJ) after ligating and dividing the known and unknown tributaries (Trendelenburg's procedure) is the traditional method of treating Sapheno-Femoral incompetence in primary varicose veins.

Failure to ligate the long saphenous vein (LSV) close to the SFJ, failure to ligate and divide all groin tributaries, and failure to remove the LSV from the thigh have been found to be associated with Recurrence of varicose veins.^[1-3] Failure to understand the anatomical variations at the SFJ can be attributed to inadequate primary varicose vein surgery. Recently, various imaging techniques of hand-held Doppler,^[5-7] duplex ultrasonography,^[4,7-10] and venography,^[8,10,11] have been used to study the LSV anatomy, in place of dissection techniques. The inferences derived from various anatomical dissections, either in cadavers or at the time of varicose vein surgery have used small sample sizes of. The study of Daseler et al. performed in 1946 has been the largest and has reported 350 cadaveric dissections.^[12-14]

The aim of the present study was to study and evaluate the surgical anatomy of the SFJ in a greater number of patients.

MATERIAL AND METHODS

This study was conducted in Department of Anatomy. The duration of study was over a period of one and half year. On the basis of inclusion and exclusion criteria, total of 120 cases of SFJ incompetence were included in this study.

Data collection

All cases was admitted in tertiary care hospital and clinically diagnosed with SFJ incompetence. Height, weight, BMI was measured. The SFJ is marked preoperatively by Venous Doppler scan. Surgery for the SFJ is performed using a new oblique incision 1cm above the groin crease, at the level of the Pubic Tubercle. Once the SFJ has been dissected out. Its level respect to the pubic Tubercle is noted. The veracity of the Venous Doppler Marking is ascertained. Any anatomical subtypes of the SFJ are noted.

Data analysis

Data were analysed by using Microsoft excel.

RESULTS

In our study we were included total 120 no. of participant. In our study, majority of the patients were male (93.4%) and rest were female. This study showed left side varicose more common which was in 74 participants rather than right side which was 46. In the USG finding, 88.4% participants were showing SFJ below the pubic tubercle and in 11.6% participants was marked at the level with pubic tubercle. This study present that, in 36.7% cases lateral distance from SFJ to PT was 3 cm, in 38 cases 3.5cm and in reaming 38 cases 4 cm. We found intraoperative finding of vertical distance of SFJ from pubic tubercle which was above in 4 cases, below in 26 cases & in 90 cases at the level. In this study, 4 tributaries were found in 46 cases, 3 tributaries in 34 cases, 5 tributaries in 24 cases, 6 tributaries in 10 cases, 2 tributaries in 4 cases & 7 tributaries in 2 cases. This study also showed that anatomical subtypes of SFJ which were found 93.4% subtype I, 5% subtypes H &rest Subtype S. In this study, nobody had postoperative complications and good cosmetic outcome.

Table: 1 Distribution of cases according to gender

Gender	No.	Percentage
Male	112	93.4
Female	8	6.6
Total	120	100

Table: 2 Distribution of cases according to diagnosis

Diagnosis	No.	Percentage
L1	28	23.3
L2	18	15
L3	24	20
L4	4	3.4
R1	26	21.7
R2	18	15
R3	2	1.7
R4	0	0
Total	120	100

Table: 3 Distribution of cases according to different mode of presentation

Lateral distance in cm	No.	Percentage
3.00	34	28.3
3.50	30	25
4.00	46	38.3
4.50	8	6.7
5.00	2	1.7
Total	120	100

Table: 4 USG Finding - Relation of SFJ to Pubic Tubercle

USG finding	No.	Percentage
Below	106	88.4
At the level	14	11.6
Total	120	100

Table: 5 Intraoperative Finding of Lateral Distance of SFJ from PT

Intraoperative lateral distance (cm)	No.	Percentage
3	44	36.7
3.5	38	31.6
4.0	38	31.6
Total	120	100

Table: 6 Intraoperative Finding of Vertical Distance of SFJ from Pubic Tubercle

vertical distance from pubic tubercle on OT	No.	Percentage
Above	4	3.4
Below	26	21.6
At the level	90	75
Total	120	100

Table: 7 Agreement between USG and intra op finding in determining vertical location of SFJ

		OT			Total
		Above	Same level	Below	
USG	Above	0	0	0	0
	Below	4	26	76	106
	Same level	0	0	14	14
Total		4	26	90	120

Table: 8 Distribution of cases according to no. of tributaries

No. of tributaries	No.	Percentage
2.00	4	3.4
3.00	34	28.3
4.00	46	38.3
5.00	24	20
6.00	10	8.4

7.00	2	1.6
Total	120	100

Table: 9 Distribution of cases according to Anatomical subtypes of SF Junction

Anatomical subtypes of SF Junction	No.	Percentage
I	112	93.4
H	6	5
S	2	1.6
Total	120	100

Table: 10 ?

Post-operative wound complications	0
Cosmetic Outcome	Good

DISCUSSION

In the study of AGE Brand et al (1988),^[15] the prevalence of varicose veins in people lesser than 30 years of age was less than 1% for males and less than 10% for females. While, the rate increased to 57% and 77%, respectively in males and females of more than 70 years of age.¹⁰ In the study of Hoseein et al,^[16] the mean age of 228 patients of varicose vein was 45.03 years. In the present study, the prevalence of varicose veins was observed more in 40-50 years of age. The studies of Brand, Dannenberg et al. 1988, Callam 1994, Bergan, Schmid-Schonbein et al. 2006 have reported higher prevalence of varicose veins in females.^[17] While the study of Evans, Fowkes et al. 1999 have observed the contradictory findings.^[18] On the other hand, a couple of study,^[19] reported a higher prevalence of trunk varicosities in males and a higher prevalence of telangiectasia in females. In the present study, the male preponderance of 93.4% was observed and it can be due to more number of male patients admitted to the hospital. 46 cases presented with varicose vein in right leg while 74 were having varicosity in left leg. Apart from these findings, Varicosity was reported with only SFJ incompetence in 54 cases, with SFJ and perforator incompetence in 36, SFJ and SPJ incompetence in 26, and with SFJ incompetence and complications (skin changes /venous ulcer) in 4 cases.

In the study of Hossein Hemmati et al,^[16] 228 patients of varicose veins were observed for more than 2 years and a number of tributaries at SFJ, presence of external pudendal artery and its relationship to the SFJ were reported. At the first five centimetres of the great saphenous vein (GSV), two to seven tributaries have been observed and the average number of branches was reported to be 3.87. In the study of Carolina Vaz et al 120 of 140 patients, one to seven tributaries were reported. In the present study, 2 tributaries were observed in two, 3 in 17 patients (28.3%), 4 in 23 patients (38.3%), 5 in 12 patients (20%) and 7 were observed in one patient. Almost similar to previous studies, the average number was 4.

In the study of Ricci S, Caggiati A et al.^[20] reflux followed the saphenous vein forming I type and the reflux was spilled outside the LSV into an ASV leading to formation of H or S types respectively in 57% and 43% of patients. While in the present study of 60 patients, 93.3% (56) reported I type, 5% (3) H type, and 1.7% patient (1) reported S type of SFJ. Most patients were found to have reflux along GSV rather than ASV. Seidell, Bakx et al.^[15] reported that obese females having BMI more than 30 Kg/m² had three times more varicose veins. Almost similar results were observed in the present study with varicosity more common in patients having BMI more than.^[25] In the present study, no correlation was observed in the ultrasonic and intra operative level of SFJ. In all the 120 patients, SFJ was reported ultrasonographically to be at mean distance of 3.641cm lateral and 1.853 cm below

from the Pubic tubercle while, intra operatively at mean distance of 3.475 cm lateral and 0.2833 cm below the level of pubic tubercle.

Other study of the rate of wound infection was observed between 4.0- 4.5%, while in the presented study, rate of wound infection was 0% and no patient reported any cosmetic abnormality.

In the present study, SFJ was observed to be at the level of a fixed bony point the pubic tubercle. In our study, which is a fixed bony landmark? This observation proved to be helpful in minimizing the dissection and operative time as well as reducing the scar size. It was beneficial also in proper flush ligation at SFJ while minimizing the recurrence rates. Two to seven tributaries were found in the present study.

CONCLUSION

It can be suggested that the incision of only 2 cm just lateral to pubic tubercle is adequate enough for precise SFJ and tributaries ligation. It can be concluded that thorough knowledge of all the anatomical variations of the SFJ is mandatory for efficient management of varicose vein and safety of SFJ.

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