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RESEARCH ARTICLE

A STUDY OF CLINICAL FEATURES EVALUATION AND SURGICAL MANAGEMENT OF VARICOSE VEINS OF LOWER LIMBS

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Abstract

Background: Varicose veins have been described as chronic venous disorder since ancient times. The number of patients coming to hospital for treatment is far less than the actual incidence as they come to hospitals only when complications arise

Objectives: To study the clinical presentations, surgical management and its outcome and complications associated with varicose veins in lower limbs.

Methods: A total of 50 patients with primary varicose veins were sourced from cases admitted to Basaveshwar Teaching and General Hospital attached to Mahadevappa Rampure Medical College, Gulbarga from 1st August 2022 to 31st January 2024. They were investigated, operated and followed up, and the outcome evaluated. All the information was taken down in the proforma designed for the study.

Results: The study observed that the majority of patients 44%belonged to the age group of 41-60 years, Male to Female ratio being 7.3:1. The most common presenting symptom being pain 86%followed by edema 52%, most common usg finding being perforator incompetence92%.in the study 94% patients underwent Subfascial Perforator Ligation,50%underwent only Saphenofemoral flush ligation. Study revealed that 18% patients had complications of wound infection, thrombophlebitis, hematoma in the immediate postoperative period. In follow-up after 3 months 6% patients had Saphenous Neuralgia.

Conclusion: The prevalence of varicose veins is most common in middle aged individuals with males being more commonly affected than females, prolonged standing was observed as the significant risk factor. Surgical interventions like the Trendelenburg operation with Stripping and Subfascial Perforator ligation are highly effective for treating varicose veins, Bisgaard's method is effective for Healing Ulcers. Most postoperative complications were managed conservatively and showed excellent resolution with time. No patient developed life threatening or debilitating complications and there was no mortality or recurrence in this study.

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Introduction:-

Varicose veins and their associated symptoms and complications constitute the most common chronic vascular disorders leading to surgical treatment. ―Varicosity is the penalty for verticality against gravity[1] . "Varicose" is derived from the Latin word for "dilated." d." Definitions of varicose veins vary considerably: Arnoldi describes them as "clearly visible, dilated, tortuous, and possibly prominent subcutaneous veins of the lower extremities," while Dodd and Cockett refer to them as "veins with a loss of valvular efficiency." The World Health Organization (WHO) defines them as "veins with a saccular dilatation, often tortuous.

Epidemiology

Varicose veins are common. The prevalence has been variously reported from as little as 2% to over 20% in population studies[2]

Objectives of Study:-

1. To study age and sex incidence of varicose veins of lower limbs and their clinical features
2. To study the correlation between occupation and incidence of varicose veins in lower limb
3. To study different surgical methods like Sapheno -femoral flush ligation, multiple subfascial perforator ligation, stripping of veins and respective clinical outcomes at the end of three months of follow up period.

Materials and Methods:-

The present clinical study and management of varicose veins was done at Mahadevappa Rampure Medical College Gulbarga during period of AUG 2022-JAN 2024

Source of Data

During the study period 50 inpatients with Varicose veins admitted in Department of General Surgery, Basaveshwar Teaching & General Hospital attached to Mahadevappa Rampure Medical College, Kalaburagi.were studied .

Meth

Study

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Sample Size : 50

Sampling Procedure :

p=incidence of Varicose veins is 15- 20%

q= 100-p=100-15=85

L= permissible error of p

L=50% of p=10

Sample size $n = (Z^2\alpha pq)/L^2$

$=[(196)^2 x15x85]/10^2$

=48..98

=50

Duration of Study : (18 months), from 1st AUGUST 2022 –31st JANUARY 2024

Inclusion Criteria :

- Patients presenting with symptoms such as aching heaviness cramps
- Patients with complications of Dermatitis Ulceration superficial thrombophlebitis
- Patients with cosmetic concerns

Exclusion Criteria :

- All patients with secondary varicose veins with Deep Vein Thrombosis ,Pregnancy, Peripheral Arterial diseases
- All patients with recurrent varicose veins

Informed Consent

Written and informed consent was taken in patients own vernacular language .**Statistical Analysis**

Statistical analysis was done using IBM SPSS software version 20.0 Chi square test was applied for qualitative analysis. Student t test and ANOVA was applied for quantitative data analysis. If $p<0.05$ was considered significant.

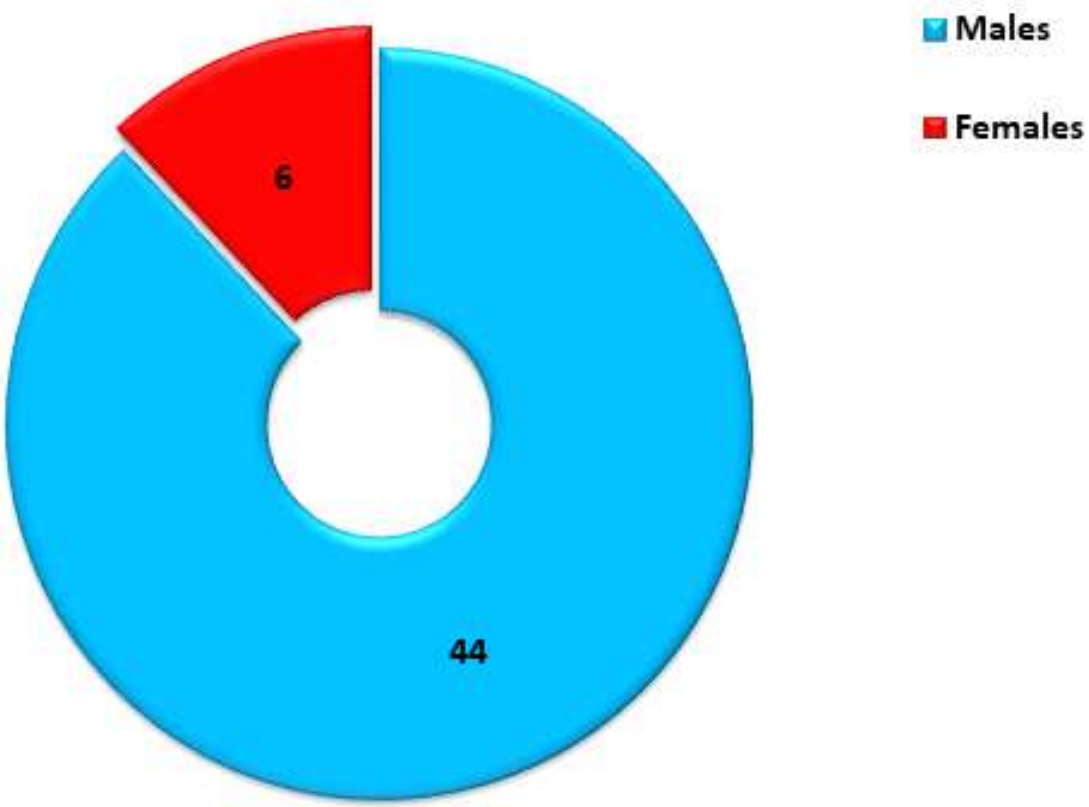
The routine investigations were done and special investigations were performed wherever necessary. The pre-operative treatment, operative findings and post-operative outcome are documented. Routine follow up was done during the immediate postoperative period and every day till discharge.

Results:-

Table No.1:- Age wise distribution of patients.

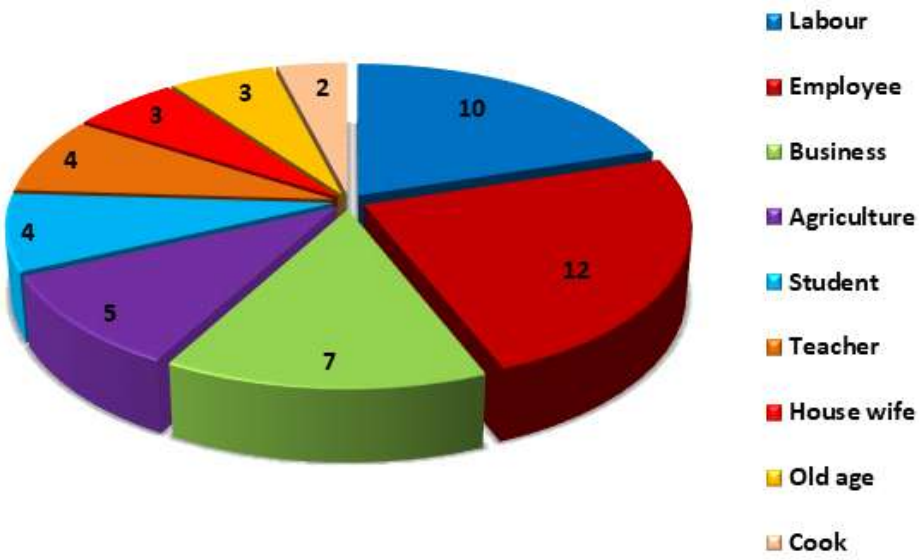
Age in years	Number of patients	Percentage
≤ 20	2	4.0
21—40	19	38.0
41—60	22	44.0
61—80	7	14.0
Total	50	100.0
Mean ± SD	43.66 ± 13.52	

Study observes that, majority of patients each 22 (44.0%) belong to the age group of 41—60 years. Followed by 19 (38.0%) of patients belong to the age group of 21—40 years, 7 (14.0%) of patients belong to the age group of 61—80 years and 2 (4.0%) of patients age is in the range was ≤ 20 years. Minimum age of patient was 18 years and maximum age of patient was 70 years. The mean age of patients was 43.66 years.



Graph 1:- Pie chart represents gender wise distribution of patients.

Study observed that; Male patients were predominant in the study were 44 (88.0%) and 6 (12.0%) of patients were females. Male to Female ratio was 7.3:1



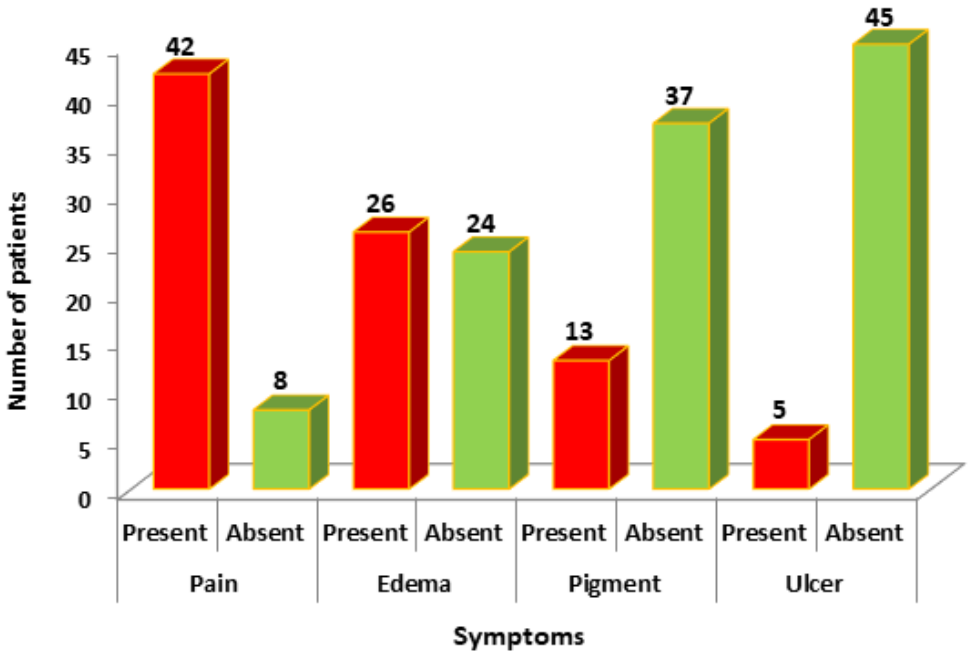
Graph 2:- Pie diagram presents occupation wise distribution of patients.

According to occupational status, the majority of the cases were seen in the prolonged standing workers. In this study, manual labourers were found constituting 10 (20.0%) of cases, shopkeepers of business 7 (14.0%), employees 12 (24.0%), and farmers or agriculturalist 5 (10.0%)

Table No2:- Distribution of patients based on side of incidence of varicosity.

Side	**Number of patients**	**Percentage**
Right	26	52.0
Left	21	42.0
Bilateral	3	6.0
Total	50	**100.0**

Study observed that; an increased incidence of varicosity was noted on right side i-e 26 (52.0%), the incident of varicosity were seen on left side 21 (48.0%) and 3 (6.0%) of patients were seen the bilateral incidence of varicosity



Graph 3:- Bar diagram represents symptoms wise distribution of varicosity patients.

The most common presenting symptom in varicose veins in this study was pain seen in 42 (82.0%) of cases. Oedema was reported in 26 (52.0%) cases. In this study, 13 (26.0%) cases presented with pigment and ulcer was seen in 5 cases (10.0%).

Table No.3:- USG finding wise distribution of varicosity patients.

USG Findings		**Number of patients**	**Percentage**
SFI	**Present**	24	48.0
	Absent	26	52.0
PI	**Present**	46	92.0
	Absent	4	8.0
SPI	**Present**	4	8.0
	Absent	46	92.0

The most common USG findings observed were Perforator incompetence in 46 (92.0%) of cases,followed by saphenofemoral junction incompetence were observed in 24 (48.0%) of cases and saphenopopliteal junction incompetence were observed in 4 (8.0%) of cases.

Table No. 4:- Treatment procedure wise distribution of varicosity patients.

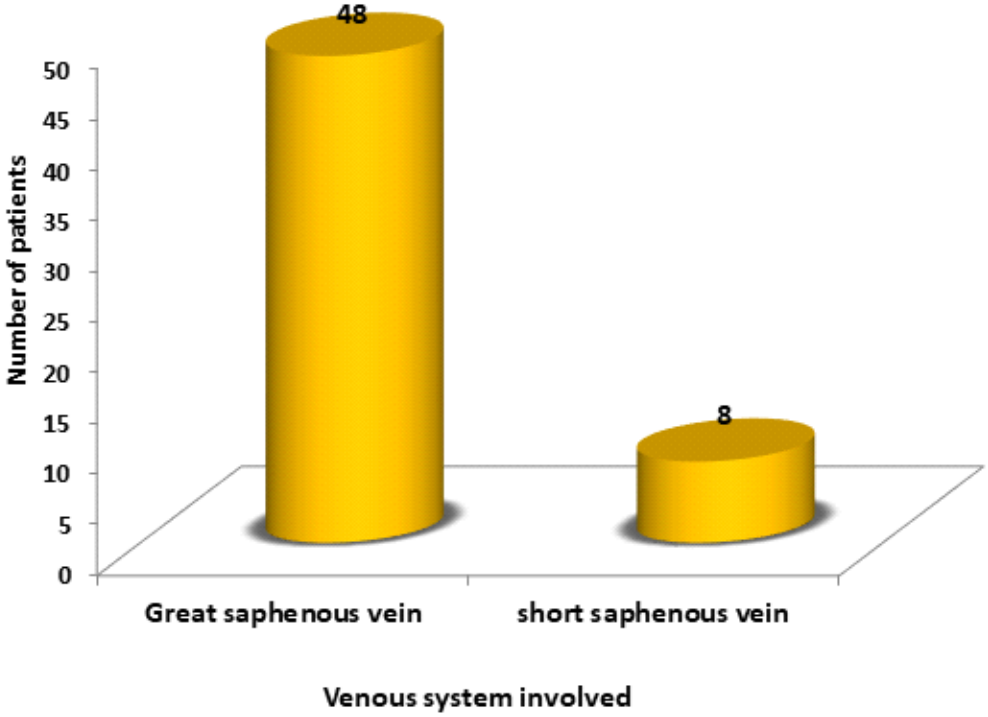
Treatment procedure	**Number of patients**	**Percentage**
Bisgaard	5	10.0
Saphenofemoral flush ligation	25	50.0
Stripping of veins	14	28.0

Subfascial perforator ligation	47	94.0
Saphenopopliteal junction ligation	4	8.0

Table 5: Surgical procedures performed

Surgical procedures	Limb	Percentage
Sapheno-femoral flush ligation + Stripping	4	8
Sapheno-femoral flush ligation + Stripping + Subfascial ligation	7	14
Sapheno-femoral flush ligation + Subfascial ligation of perforators	8	16
Sapheno-femoral flush ligation + Stripping + sapheno popliteal ligation Subfascial ligation	2	4
Subfascial ligation of perforators	23	46

In this study 47 (94.0%) of patients underwent the surgical procedure of subfascial perforator ligation, followed by 25 (50.0%) of patients underwent Sapheno-femoral flush ligation. 14 (28.0%) of patients underwent stripping of veins. 5 (10.0%) of patients underwent Bisgaard regime for venous ulcer before surgical procedure and 4 (8.0%) of patients underwent Sapheno-popliteal junction ligation.



Graph 4:- Bar diagram presents venous system involved distribution of patients.

Table No.6:- Perforator type involved in varicose vein patients.

Perforator type	Number of patients	Percentage
BK, Ankle	23	46.0
Multiple	11	22.0
BK	10	20.0
Low leg and Ankle	2	4.0

Study reveals that; majority of patient's 23 (46.0%) perforator type was below knee and ankle perforator incompetence . Followed by 11 (22.0%) of patients had Multiple perforator incompetence, 10 (20.0%0 of patients had only below knee perforator incompetence, 2 (4.0%) of patients had only ankle perforator incompetence and 4 (8.0%) of patients did not have perforator incompetence

Table No.7:- Distribution of varicose vein patients based on early complications.

Early complications	Number of patients	Percentage
Wound Infection	4	8.0
Thrombophlebitis	3	6.0
Hematoma	2	4.0
Total	9	18.0

Study observed that; 9 (18.0%) of patients had seen complications. 4 (8.0%) of patients had wound infection, 3 (6.0%) of patients had thrombophlebitis and 2 (4.0%) of patients had hematoma.

Discussion:-

Age Distribution

Table 8:- Comparison study for age distribution.

Studies	Age range(yr)
Present study	18-70
Malhotra et al[3]	18-65

Malhotra et al[3] (1972) in their study comprising 677 patients from both North and South India had an age range of 18-65 years. In the West Wright et al [4in] their study of 1338 patients in England had an age range of 20-75 years. This is also corroborated in the studies by Lateef et al (65%), Fegan et al (75%) and Ratkal et al (72%). Maximum incidence being 41-60 yrs age group with mean age of patients being 43.66 yrs . So it affects the bread-earning members of the family, causing socio economic problems. This also indicates earlier health- seeking behavior in the present generation.

Sex Distribution:

Table 9:- Comparison study for sex distribution.

Studies	Male: Female
Present study	7.3:1
Widmer et al[5]	1:1
Callam et al [6]	1:2

In my series male to female ratio was found to be 7.3:1. Widmer[5] in Switzerland recorded a ratio of 1:1. Callam et al[6] in England recorded a ratio of 1:2. . It may be because they do not undergo the occupational hazards of males, like prolonged standing, physical stress involving increased intraabdominal pressure. The decreased occurrence of disease in females at our set up may be because females may be resistant to complications of varicose veins probably due to less average height compared to male which has a direct impact on venous hypertension .

Table 10:- Comparison study of occupation versus varicose veins.

Occupation	**Lateef (1971)[8]**	**Ratkal (1980)[9]**	**Present series**
Occupation involving prolonged standing	35%	44%	52%

Varicose veins are more common in persons, whose occupation forces them to stand for prolonged hours. In the present study about 52% of patients had occupations, which involved prolonged standing like farmer, policemen, bus driver etc

Table 11:- Comparison of incidence of Clinical Features.

Symptoms	**Present series**		**Rudofsky G. Langenbecks Arch Chir (%)[10]**	**O' Shaughnessy M et. Al (%)[11]**
	No of patients	**% C**		
Prominent veins	50	100	90	92
Prominent veins and pain	42	84	30	54
Prominent veins and edema	26	52	52	62
Pigmentation	13	26	13	22
Venous ulceration	5	10	9	14
Previous history of DVT	-	-	-	5

Table 12:- Comparison study of limb involvement.

LIMB	A. H. M. Dur, A. J. C. Mackaay [65] et al[7]	PRESENT STUDY
RIGHT	48.55%	52%
LEFT	51.45%	42%

Site Of Perforator Incompetence:

Around 22% of the patients had multiple perforator incompetence. Patients who had multiple perforator incompetence had one or the other complications of varicose veins. Isolated below knee perforator incompetence was seen in 20%, The results observed were similar to study by Labropoulos et al

Table 13:- Comparison of Perforator Incompetence:

Studies	**Incompetent perforator(%)**

Present study	92%
Labropoulos N et al[12]	68%

Table 14:- Complications post surgery according to Hagmuller G.W and Langenbecks Archchis study[13]

Complications	Percentage	Present study
Femoral vein injury	1%	0%
Femoral artery injury	0.02%	0%
Deep vein thrombosis	0.15%	0%
Pulmonary embolism	0.06%	0%

In the present study some minor complications occurred which were managed conservatively. The study conducted by Hagmuller G.M. showed incidence of some major complications which are very rare and none of which occurred in the present study group.

Follow Up :

At 3 months, 6% of the patients had complications. The complications looked for were persistent oozing, stitch abscess, neuralgia, thrombophlebitis and recurrence. Neuralgia was seen in 4% patients and was treated with cobalamin capsules. Patients were advised elastic compression stockings for 1 year post operatively. None of the patients developed recurrence.

Conclusion:-

This detailed study of 50 cases of lower limb varicose veins led to the following conclusions:

1. Varicose veins of the lower limb are a fairly common condition, though the number of cases reported to hospitals is likely lower than the true incidence, as many patients do not seek treatment unless symptoms are present.
2. The most commonly affected age group is between 41 and 60 years. Most patients presented to the hospital due to complications rather than for cosmetic reasons.
3. The majority of patients were male. The lower number of females in the study could be due to cultural factors, such as women being less concerned about cosmetic appearance or potentially having a lower risk of complications due to hormonal differences, shorter average height, or less intense physical activity.
4. While no definitive conclusions about etiology can be drawn from this small sample, there is a clear relationship between occupation and the incidence of varicose veins.
5. The long saphenous vein is more commonly affected than the short saphenous vein. Subfascial ligation of incompetent perforators yields satisfactory results.
6. Clinical examination has a high predictive accuracy and can provide sufficient information for treatment, especially in centers where color Doppler imaging is not available or affordable.
7. The use of color Doppler is a valuable supplement to clinical examination and is strongly recommended to prevent recurrences and reduce morbidity, as it effectively detects venous incompetence.
8. The saphenopopliteal junction (SPJ) is highly variable and should always be marked preoperatively using Doppler.
9. The outcomes of cases of primary varicose veins depend on thorough and complete clinical examination and duplex scanning by an experienced radiologist.
10. In the absence of junctional incompetence, subfascial ligation of incompetent perforators was associated with no recurrences.
11. Complications are minimal when cases are meticulously selected and operated on, enabling patients to lead a near-normal life post-surgery, with a very low mortality rate.
12. While newer treatment methods for varicose veins show promising results, they require long-term follow-up and may not be affordable for many patients due to cost factors.

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