ORIGINAL ARTICLE

Our Experience of Day Case Surgery of Varicose Veins in Relation to Delaying Factors

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ABSTRACT

Background: Day case surgery may reduce burden of inpatient bed requirements. Varicose vein surgery is a simple procedure in which patient can be discharged on day case basis, which can improve patient health, can reduce burden of hospital and cost of patient..
Aim: To determine the frequency of patients undergoing day case procedure and overnight hospital stay after varicose veins surgery and to compare the frequency of delaying factors in patients undergoing day case procedure and overnight hospital stay.
Methods: It was a descriptive case series conducted in the Department of Surgery, Jinnah Hospital Lahore. The study duration was from March 2013 to June 2017. Study was approved by the Ethical and review committee. It includes 170 patients of varicose veins, from 20 to 60 years presenting to surgical OPD fulfilling the inclusion criteria were included in the study.
Results: The mean age of patients was 38.40±11.76 years. Out of 170 subjects, 138(81.2%) patients had undergone day case procedure while the remaining 32(18.8%) patients had an overnight hospital stay procedure. Patients who had overnight hospital stay was 34.4% for recurrent varicose vein surgery, 50% for bilateral varicose vein surgery and 56.3% for Saphenopopliteal Ligation..
Conclusion: Varicose vein surgery with appropriate organization is safe, feasible and cost-effective day case procedure. However, overnight stay of few patients for minor post-operative problems
Keywords: Day case procedure, Over night hospital stay, delaying factors, varicose vein surgery,

INTRODUCTION

Varicose vein disease of the lower extremities is a challenging socio-medical problem because it is responsible for high disability rate and requires substantial expenditures. Varicose veins are the visible surface manifestations of an underlying problem with reverse venous flow, which is also termed venous insufficiency syndrome. Venous insufficiency syndromes describe venous blood deviating from a normal flow path and flow in a retrograde direction so that fluid accumulates, causing a "congested" leg[1].

Numerous methods for its treatment have been proposed, each having advantages and drawbacks[2]. Therapies aim to remove the superficial venous system either through surgery or endovenous ablation[3]. The early results after varicose vein surgery are good. The patients' convalescence time is short and there is a quick resumption of routine activities. The invasiveness of vein surgery seems to be overestimated[4]. Day-case surgery or endovenous ablation using endovascular laser ablation(EVLA) or radiofrequency ablation (RFA) performed as an outpatient are likely to be cost-effective treatment strategies for patients with primary unilateral Great saphenous vein reflux requiring treatment[5]. The convenience experienced by patients and their families is the main perceived value of day surgery[6].

However there are certain situations where overnight stay may be essential. In a study to assess whether redo varicose vein surgery as a day case is feasible and safe, Of the 70 patients intended to be treated as day cases, four (5.7%) were admitted overnight while 94.3% cases discharged within 12 hours[7]. Another study has reported that the incidence of day case surgery was 75% while 25% cases required overnight stay and it was noticed there is significant association of overnight stay with recurrent varicose vein surgery (60% vs. 9.8%, day case), bilateral varicose vein surgery (40.7% s. 20.7% day case) and Saphenopopliteal ligation (21.5% vs. 11.4% day case surgery). The difference was found to be significant between both groups (P<0.05) and overnight stay is more associated with above-mentioned factors[8]. An older technique of stripping to the ankle (rather than to just the knee) has fallen into disfavor because of a high incidence of complications, including damage to the saphenous nerve, which is closely associated with the vein below the knee[9].

In this study our aim was to see the feasibility of day case surgery for varicose veins and to find the number of cases required overnight stay in hospital postoperatively and factors causing overnight hospital stay.

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MATERIAL AND METHODS

The descriptive case series was performed in the department of surgical unit-III, Jinnah Hospital Lahore, from March 2013 to June 2017. Study was started after approval by the ethical review committee of the institution. Non-probability, consecutive sampling technique was used. It included 170 patients of varicose veins from 20 to 60 years presenting to surgical OPD. The diagnosis was confirmed on the basis of clinical examination and venous duplex scan was performed on all patients to exclude deep venous thrombosis and to mark saphanofemoral, saphanopopliteal junctions and perforators. Varicose vein patients fulfilling the inclusion criteria were included in the study. Informed consent was obtained and demographic variables was recorded. The same consultant under spinal anesthesia carried out all the operations. After surgery, patients were shifted to surgical wards for postoperative monitoring and analgesia. The patients discharged within 12 hours of surgery were day case, those patient stayed overnight more than 24 hours were labeled as overnight hospital stay.

Statistical analysis: Data was analyzed in the SPSS version 22. The descriptive statistics like age, operative time were presented in the form of mean ± standard deviation while gender, hospital stay and delaying factors were presented as frequency and percentage. Data was stratified for variables age, gender and duration of varicose vein. Post-stratification, chi-square test was applied taking p-value≤0.05 as significant.

RESULTS

The demographic study variables are shown in Table-I. The mean age of patients was 38.40±11.76 years range from 20 years to 60 years. The mean duration of symptoms of varicose vein was 3.08±1.02 (years), minimum varicose vein duration was 1 year and maximum was 5 years. Out of 170 subjects, there were 100(59%) male and 70(41%) female. Table 2 shows the 138(81.2%) patients belongs to day case procedure and 32(18.8%) had an overnight hospital stay.

Table 1: Distribution of sampled population (n=60)

	Age(Yrs)	Duration of Varicose Vein
Number	170	170
Minimum	20	1
Maximum	60	5
Mean	38.4	3.08
Std. deviation	11.76	1.02

Table 3 describes the 12(8.7%) recurrent varicose vein surgery patients underwent day case procedure while 11(34.4%) recurrent varicose vein surgery patients had overnight hospital stay.

Table 2 : Demographic Profile

Variable		Frequency%
Gender	Female	70(41.0)
	Male	100(59.0)
Procedure	Day Case	132(81.2)
	Overnight hospital stay	32(18.8)

Table 3 Cross tabulation of types of Procedure by Recurrent varicose vein surgery, Bilateral Varicose vein surgery, and Saphenopopliteal Ligation

	Procedure	
	Day case	Overnight hospital stay
Recurrent Varicose Vein Surgery		
Yes	12(8.7%)	11(34.4%)
No	126(91.3%)	21(65.6%)
Bilateral Varicose Vein Surgery		
Yes	15(10.9%)	16(50%)
No	123(89.1%)	16(50%)
Saphenopopliteal Ligation		
Yes	20(14.5%)	18(56.3%)
No	118(85.5%)	14(43.8%)

Overnight hospital stay percentages of recurrent varicose vein surgery was more than other day case procedure. Moreover, 15(10.9%) bilateral varicose vein surgery patients had day case procedure. However, 16(50%) bilateral varicose vein surgery patients had overnight hospital stay. 20(14.5%) Saphenopopliteal ligation patients had day case procedure and 18(56.3%) had overnight hospital stay procedure.

Table 4 shows cross tabulation of recurrent varicose vein surgery patient's age group by procedure, in which age group 20-30 years, percentages of recurrent varicose vein surgery in day case procedure and overnight hospital stay patients was 12.2% and 55.6%. There were also statistically significant association between age group (20-30) years and overnight hospital stay (p=0.010). In age group 31-40 years percentages in day case procedure and overnight hospital stay procedure was 18.8% and 27.3%, whereas, in 41-50 years patient's percentages was 2.6% in day case and 16.7% in overnight hospital stay procedure. In later age group 51-60 years recurrent varicose vein surgery in day case procedure was 0% and 33.3% in overnight hospital stay patients with statistically significant association between patients with age group (51-60) years and recurrent varicose surgery patients overnight hospital stay procedure (p=0.028). The number of Male recurrent varicose vein surgery patients was statistically same in patients who had day case procedure and patients who had an overnight stay in the hospital (Day Case: 12.8% vs. Over Night Hospital Stay: 28.6% p-value=0.131). However, numbers of female recurrent varicose vein surgery patients was statistically high who had overnight hospital stay (Day Case: 1.9% vs. Over Night Hospital Stay: 38.9%, p-value=0.000). The duration time in recurrent varicose vein surgery patients was high in overnight hospital stay as

compared to day case procedure (Day Case: 5.9% vs. Over Night Hospital Stay: 36.4%, p-value=0.000).

Table 5 depicts the numbers of bilateral varicose vein surgery patients was high in overnight hospital stay procedure in all groups and statistically significant in age group (41-50) years (p=0.027) and (51-60) year age group (p=0.000). Number of male bilateral varicose vein surgery patients in day case procedure and overnight hospital stay was 14% and 35.7% respectively. Number of female bilateral varicose vein surgery patients in day case procedure and overnight hospital stay was 5.8% and 61.1%. Frequency of female bilateral varicose vein surgery patients was high in overnight hospital stay procedure (p=0.000). Number of male bilateral varicose vein surgery patients was also high in overnight hospital stay procedure but this difference was not statistically significant (p-value, 0.059).

Table 6 shows the number of Saphenopopliteal ligation was high in overnight hospital stay procedure in all age groups however statistically significant difference for saphenopopliteal ligation was seen in the age group 31-40 years (p=0.001) and 41-50 years (p-value=0.004). Number of saphenopopliteal ligation male patients who had day case procedure was 12.8% and overnight hospital stay procedure was 50%. In addition, saphenopopliteal ligation female patients was 17.3% in day case procedure and 61.1% in overnight hospital stay procedure. In both sex saphenopopliteal ligation was significantly higher in patients who had overnight hospital stay procedure (P>0.05).

Table 4: Recurrent Varicose Vein surgery by age groups, gender, and duration

Recurrent Varicose Vein Surgery		Procedure		
		Day Case(%)	Over Night Stay(%)	p-value
Age groups				
20-30 Years	Yes	5(12.2)	5(55.6)	0.01
	No	36(87.8)	4(44.4)	
31-40 Years	Yes	6(18.8)	3(27.3)	0.417
	No	26(81.3)	8(72.7)	
41-50 Years	Yes	1(2.6)	1(16.7)	0.257
	No	37(97.4)	5(83.3)	
51-60 Years	Yes	0(0)	2(33.3)	0.028
	No	27(100)	4(66.7)	
Gender				
Male	Yes	11(12.8)	4(28.6)	0.131
	No	75(87.2)	10(71.4)	
Female	Yes	1(1.9)	7(38.9)	0.000
	No	51(98.1)	11(61.1)	
Duration of varicose vein surgery				
1-2	Yes	6(16.7)	3(30)	0.299
	No	30(83.3)	7(70)	
3-5	Yes	6(5.9)	8(36.4)	0.000
	No	96(94.1)	14(63.6)	

Table 5 Bilateral varicose vein surgery by age groups, gender and duration

Bilateral Varicose Vein Surgery		Procedure		
		Day Case(%)	Over Night Stay(%)	p-value
Age groups				
20-30 Years	Yes	6(14.6)	4(44.4)	0.065
	No	35(85.4)	5(55.6)	
31-40 Years	Yes	1(3.1)	2(18.2)	0.156
	No	31(96.9)	9(81.8)	
41-50 Years	Yes	7(18.4)	4(66.7)	0.027
	No	31(81.6)	2(33.3)	
51-60 Years	Yes	1(3.7)	6(100)	0.000
	No	26(96.3)	0(0)	
Gender				
Male	Yes	12(14)	5(35.7)	0.059
	No	74(86)	9(64.3)	
Female	Yes	3(5.8)	11(61.1)	0.000
	No	49(94.2)	7(38.9)	
Duration of bilateral vein surgery				
1-2	Yes	5(13.9)	5(50)	0.027
	No	31(86.1)	5(50)	
3-5	Yes	10(9.8)	11(50)	0.000
	No	92(90.2)	11(50)	

Table 6: Saphenopopliteal Ligation by age groups, gender, and duration

Saphenopopliteal Ligation		Procedure		
		Day Case(%)	Over Night Stay(%)	p-value
Age groups				
20-30 Years	Yes	5(12.2)	2(22.2)	0.37
	No	36(87.8)	7(77.8)	
31-40 Years	Yes	5(15.6)	8(72.7)	0.001
	No	27(84.4)	3(27.3)	
41-50 Years	Yes	7(18.4)	5(83.3)	0.004
	No	31(81.6)	1(16.7)	
51-60 Years	Yes	3(11.1)	3(50)	0.058
	No	24(88.9)	3(50)	
Gender				
Male	Yes	11(12.8)	7(50)	0.003
	No	75(87.2)	7(50)	
Female	Yes	9(17.3)	11(61.1)	0.001
	No	43(82.7)	7(38.9)	
Duration of bilateral vein surgery				
1-2	Yes	2(5.6)	5(50)	0.000
	No	34(94.4)	5(50)	
3-5	Yes	18(17.6)	13(59.1)	0.000
	No	84(82.4)	9(40.9)	

DISCUSSION

Varicose veins affect approximately one out of two people over fifty years of age, occur in a wide range of ethnic groups and are more common in women than men[10]. The main symptoms of varicose veins include heaviness, tension, aching and itching, and their main complications are haemorrhage, thrombophlebitis, oedema, skin pigmentation, atrophie blanche, varicose eczema, lipodermatosclerosis and venous ulceration. They are thought to be caused by changes in the vein wall, causing primarily vein dilatation, followed by separation of the valve cusps, leading to valve incompetence and further vein dilatation[11,12]. Varicose veins affect approximately one out of two people over fifty years of age, occur in a wide range of ethnic groups and are more common in women than men[13]. The main symptoms they cause include heaviness, tension, aching and itching, and their main complications are haemorrhage, thrombophlebitis, oedema, skin pigmentation, atrophie blanche, varicose eczema, lipodermato-sclerosis and venous ulceration.Changes in the vein wall, causing primarily vein dilatation, followed by separation of the valve cusps, leading to valve incompetence and further vein dilatation[14,15]. Varicose vein surgery is performed frequently in the United Kingdom and approximately 20% of these operations are bilateral[16]. Varicose veins are a major burden on the surgical services. Due to patient's good general health, and the workload of most surgical services, a low priority afforded to this problem resulting in a substantial waiting list. Day case surgery is one method of dealing with this problem without adding additional inpatient resources[17,18]. The high prevalence of varicose veins ensures that there is a substantial waiting list for treatment of varicose veins. In absence of additional resources, maximizing the efficiency in the utilization of an in-patient facility is the only way of reducing waiting lists. Day case surgery is a means of the circumventing the use of inpatient surgical admission. Primary varicose vein surgery is well established day procedure in the UK. However, redo saphenofemoral ligation and saphenopopliteal ligation are often performed as in-patient procedures because the surgery can be technically demanding and of long duration. As redo varicose vein surgery, can comprise up to 25% of varicose vein procedures, significant efficiency can be achieved and waiting lists can be reduced if these operations were performed as day cases [5].In the study, it was observed that 81.2% of the patients had day case surgery and 18.8% of the patients had overnight hospital stay. The possible delaying factors for overnight hospital stay were recurrent varicose vein surgery, bilateral varicose vein surgery and saphanopopliteal ligation. Patients who had overnight hospital stay among them the frequency of these factors was 34.4% for recurrent varicose vein surgery, 50% for bilateral varicose vein surgery and 56.3% for Saphenopopliteal Ligation. However, frequency of these factors among patients who had day case surgery was 8.7% for recurrent varicose vein surgery, 10.9% for bilateral varicose vein surgery and 14.5% for Saphenopopliteal Ligation. R Mofid evaluated retrospectively the feasibility of day case varicose vein surgery in all-corners identified the risk factors for admission. As per findings 72% of patients were discharged on the day of surgery, a further 25% required admission and 4% required admission for >24 hours. The need for overnight admission was associated with the age of the patients (p-value<0.0001), bilateral varicose vein surgery (p-value<0.005) and the use of spinal anesthesia (p-value<0.01)[8]. Results regarding

surgery related factors and their association with overnight stay showed that there is significant association of overnight stay with recurrent varicose vein surgery (60% vs. 9.8%, day case), bilateral varicose vein surgery (40.7% s. 20.7% day case) and Saphenopopliteal ligation (21.5% vs. 11.4% day case surgery). The difference was found to be significant between both groups (P<0.05) and overnight stay is more associated factors[8]. Findings is in line with the results reported by R Mofid showing a high frequency of these factors (recurrent varicose vein surgery, bilateral varicose vein surgery and Saphenopopliteal Ligation.) in relation to overnight hospital stay. Kamal Nagpal assessed whether redo varicose vein surgery as a day case is feasible and safe. As per his findings 66 patients (94.3%) went home on the day of operation, whilst four (5.7%) required overnight admission[7]. In his study the delaying factors responsible for overnight hospital stay were significantly associated with age, gender and duration of Varicose Vein. Every patient should be fully addressed before scheduling patients for day surgery. Few patients will require overnight admission for delayed recovery due to certain factors. This should not be regarded as a failure of day care service but a necessary contingency if good results are to be achieved.

CONCLUSION

Varicose vein surgery is safe, feasible and cost-effective day case procedure. However patients with recurrent disease, bilateral disease and Saphenopopliteal ligation are factors requiring overnight stay in a significant percentage of patients. In such situation, day care surgery cannot be considered a failure.

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