

## COMPLICATIONS OF VARICOSE VEIN SURGERY IN IRAQI PATIENTS

Dr. Ihssan Ali Hais Elamery\*<sup>1</sup> and Dr. Maysa Edan<sup>2</sup><sup>1</sup>Specialist in Thoracic and Cardiovascular Surgery, Department of Surgery, Al-Hussein Medical City / Holy Kerbala – Iraq.<sup>2</sup>Practioner thoracic and vascular Surgery, Department of Surgery, Al-Hussein Medical City / Holy Karbala, Iraq.**\*Corresponding Author: Dr. Ihssan Ali Hais Elamery**

Specialist in Thoracic and Cardiovascular Surgery, Department of Surgery, Al-Hussein Medical City / Holy Kerbala – Iraq.

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## ABSTRACT

**Objectives:** Varicose veins are common, may be caused by poorly functioning valves in the veins, and decreased elasticity of the vein wall, allowing pooling of blood within the veins, and their subsequent enlargement. **Aim:** The aim of this study was to detect whether routine stripping of the complications of varicose vein surgery and the ways to prevent them. **Materials and methods:** The study was designed as a 5-year, clinical and duplex scan follow-up examination of a group of patients who undergo varicose vein surgery and their post-operative complications. The study was conducted in the vascular unit of imam Hussein medical city. Two hundred ninety six patients (317 legs) with varicose veins were randomized, and their complications was analyzed with the ways to prevent them from occurring in the future. Randomized controlled trial. All operations done by a consultant vascular surgeon. Five year follow-up. **Results:** Two hundred ninety six patients, 317 legs undergoing varicose vein surgery stripping and avulsion, 204 female and 92 male, the results two major complications one case amputated leg and the other deep vein thrombosis with 10 minor complications including (36.82%) hematoma, (4.05%) skin ecchymosis, (6.4%) wound infection, (2.03%) wound dehiscence, (10.47%) parasthesia, (2.7%) recurrence, (4.7%) persistent pain, (1.01%) leg swelling and (7.4%) Complications of spinal anesthesia. **Conclusion:** Although the varicose vein surgery is safe with minor complications but major complications can occur and may lead to loss of limb or life.so it is important to take a big carful when to do it specially in dealing with saphenofemoral and saphenopopliteal junctions.

**KEYWORDS:** Varicose veins; Post-operative complications; Prevention; Surgery.

## INTRODUCTION

Varicose veins are common, may be caused by poorly functioning valves in the veins, and decreased elasticity of the vein wall, allowing pooling of blood within the veins, and their subsequent enlargement <sup>(1)</sup>. It effect about 40% of people and women effect more than men. Surgery is undertaken for symptomatic varicose veins or for complications arising from them <sup>(2,3)</sup>. Eighty per cent of procedures are undertaken for primary varicose veins arising from saphenofemoral junction (SFJ) incompetence with long saphenous vein (LSV) reflux or saphenopopliteal junction (SPJ) incompetence with short saphenous vein (SSV) reflux <sup>(4,5)</sup>. Surgery is done under general or spinal anesthesia and consists of a high tie, LSV strip, and multiple stab avulsions (MSAs) for the former and SPJ ligation and MSAs for the latter <sup>(6)</sup>. Surgical treatment is still most commonly performed in Iraq, but less invasive treatment options such as laser or radiofrequency ablation and foam sclera-therapy are growing in popularity, although their long-term results are not yet clear <sup>(7)</sup>. Recurrent varicosities may warrant re-visional or re-do surgery, which is technically more

complex with a higher chance of complications.<sup>[8,9]</sup> complications can be minimized with good surgical technique and better supervision of surgical trainees.<sup>[10]</sup> Modification of postoperative management can further enhance the safety of this procedure <sup>(11)</sup>.

The aim of this study was to detect whether routine stripping of the complications of varicose vein surgery and the ways to prevent them.

## PATIENTS AND METHODS

A retrospective study was included all patients operated on for varicose veins in a period between 2012\_2017. The study included a series of 19-59 year-old patients including 296 patients (with a total of 317 operations performed) suffering from varicose veins of the lower limbs. Of these, there were 92 men (41%) and 204 women (59%). They were admitted to the department of vascular surgery in imam Hussein medical city, some patients had primary uncomplicated long saphenous varicose veins with saphenofemoral incompetence, other had short saphenous vein with saphenopopliteal

incompetence diagnosed by Doppler ultrasound scanning, a total of 317 legs underwent operation by a single consultant vascular surgeon. The randomization experienced complications following surgery. There were two major complications (1%), one patient developed a deep vein thrombosis and another amputated right lower limb. The other cases (99%) were classified as they had minor complications including 109 cases (34.3%) had hematoma at coarse of stripping, 12 (3.7%) cases had skin ecchymosis. 19 Cases (5.9%) develop wounds infection, 6 cases (3.7%) wounds dehiscence, 31 cases (9.7%) had parasthesia at coarse of lower stripping, recurrence occurs in 28 cases ( 6.6%), persistent pain in 14 cases (5.2%), leg swelling in 3 cases (1.1%) and complication of spinal anesthesia like headache and neck stiffness which occur due to early elevation of the head and hypotension in 22 of cases (7.4%).

Complications have been classified as major if they are life- or limb-threatening or require further surgical treatment. Other complications either delaying discharge from hospital or requiring re admission, investigation and/ or medical treatment have been classified as minor/ intermediate complications. The procedure is done under general or spinal anesthesia the vein stripped is usually great saphenous vein by making incision in the groin, Flush ligation involved dissection of the saphenofemoral junction visualizing 2cm of common femoral vein and included disconnection of all small lateral tributaries. Followed by insertion of metallic wire into the vein, the vein is attached to the wire and then pulled out from the body. The incisions are stitched up and pressure dressing are applied to the area.

There were no early postoperative complications. Usually the patient stay one day in hospital and discharge in a second day if they had no complications.

## RESULTS

A total of 296 patients were included, 92 (31.1%) men, and 204 (68.9 %) women were shown in (Fig 1) were included in the study.

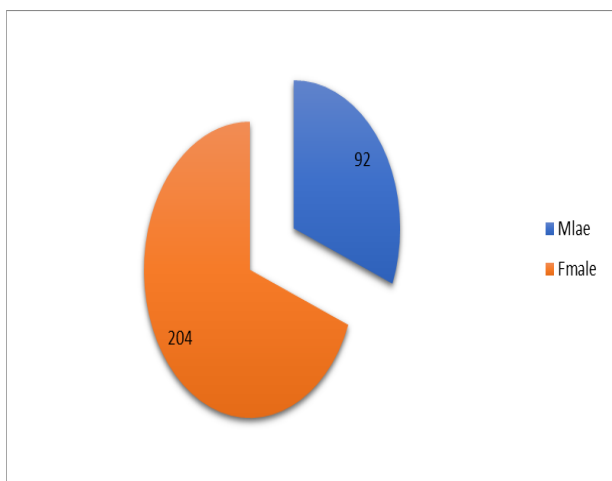


Figure 1: Number of patients according to gender.

The age in current study were shown in (Fig 2) divided into three group, the first group (19 – 30) years the number of patients (198), the second group (31 – 40) years the number of patients (74) and the third group (41 – 59) the number of patients (24).

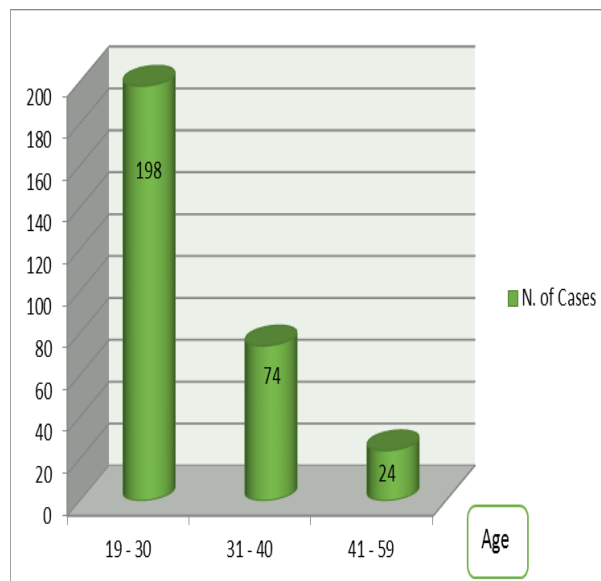


Figure 2: Number of patients according to age.

Table 1 were shown the post-operative complication that appeared in patients, the number of patients had minor complication (294) (99.32%) that include:

The number of patients had hematoma (109) (36.82%), skin ecchymosis (12) (4.05%), wound infection (19) (6.4%), wound dehiscence (6) (2.03%), Parasthesia at coarse and lower stripping (31) (10.47%), recurrence (8) (2.7%), persistent pain (14) (4.7%), leg swelling (3) (1.01%) and complication of spinal anesthesia (22) (7.4%).

While in the major complication the number of patients was (2) (0.68%) that include:

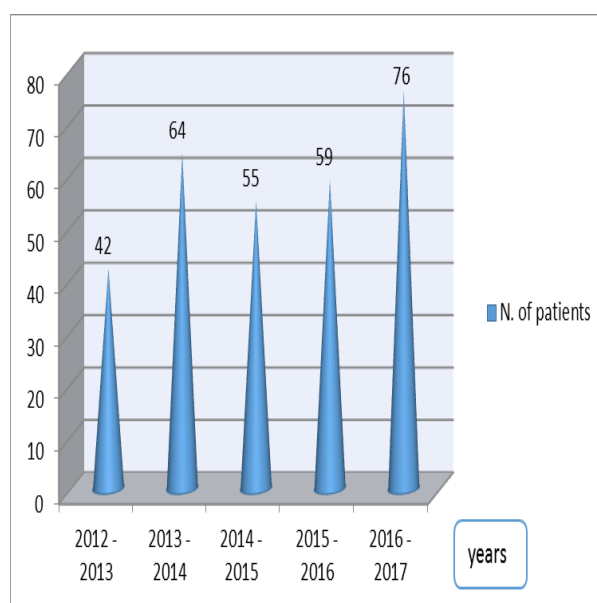
The number of patients had deep vein thrombosis (1) (0.34%) and limb amputation (1) (0.34%).

**Table 1: The incidence of complication.**

Post-operative complication		N. of patients	Percentage
<b>Minor complications</b>		294	99.32 %
1	Hematoma	109	36.82 %
2	Skin ecchymosis	12	4.05 %
3	Wound infection	19	6.4 %
4	Wound dehiscence	6	2.03 %
5	Parasthesia at coarse and lower stripping	31	10.47 %
6	Recurrence	8	2.7 %
7	Persistent pain	14	4.7 %
8	Leg swelling	3	1.01 %
9	Complication of spinal anesthesia	22	7.4 %
<b>Major complication</b>		2	0.68 %
1	Deep vein thrombosis	1	0.34 %
2	Limb amputation	1	0.34 %

In present study the years were divided into five groups (2012 – 2013, 2013 – 2014, 2014 – 2015, 2015 – 2016 and 2016 – 2017) as shown in (Fig 3).

The number of patients in years 2012 – 2013 was (42), in years 2013 – 2014 the number of patients (64), the number of patients were shown in years 2014 – 2015 was (55), in years 2015 – 2016 the number of patients was (59) and the number of patients were shown in years 2016 – 2017 was (76).

**Figure 3: Number of patients of each years.**

The number of patients according to surgical procedure as shown in (table 2) were revealed the number of patients in Stripping & saphenous vein was (22) (7.4%), Stripping & avulsion was (193) (65.2%), avulsion was (31) (10.47%), Sub facial ligation was (34) (11.49%) and Ligation & SFJ or SPJ was (7) (2.36%).

**Table 2: Number of patients according to surgical procedure.**

	Surgical procedure	N. of patients	percentage
1	Stripping & saphenous vein	22	7.4 %
2	Stripping & avulsion	193	65.2 %
3	Avulsion	31	10.47 %
4	Sub facial ligation	34	11.49 %
5	Ligation & SFJ or SPJ	7	2.36 %

## DISCUSSION

Serious complications after varicose vein operations are rare. Many patients and probably many medical practitioners regard the varicose vein surgery essentially safe. In fact there are serious risks, including those of

loss of limb and loss of life. We felt it would be useful to estimate a complication occurring in our department in comparison with other studies done in Gloucestershire Royal Hospital.<sup>[12]</sup> Gloucester, U.K. at 1996 where the recurrence rate was 35% and another study done in the same hospital at 1999 show increase the rate to 40%

while the rate of recurrence of varicose vein in our study was low (2.7) due to better selection of cases, using of Doppler u/s to see the situation of perforators of saphenopopliteal and saphenofemoral junction and using of stripper whenever indicated with avulsion in addition to general instructions to the patients by decreasing the body weight, avoid standing for long time, use of elastic stockings, avoiding the use of contraceptive pills and recurrent pregnancy over a short time, and this results is very good in comparison with results of other centers.<sup>[13,14]</sup> The neurological complications, foot drop not occur during the period of study in our center unlike the other centers, in study done in Heartlands Hospital, and Department of Vascular Surgery, City Hospital, Birmingham, UK, at 2003 The rate of neurological complications was 11% Foot-drop is known to occur in re-open the popliteal fossa for previous inadequate saphenopopliteal ligation or where the saphenopopliteal junction is higher than usual above the knee creases.<sup>[15,16]</sup> The problem usually comes from retracting the nerve trunk in order to expose the saphenopopliteal junction. The surgeon also needs to be aware of the rare anatomical variant in which the short saphenous vein terminates in the sciatic nerve.<sup>[17]</sup> We found minor neurological disturbance in (10.4%) of patients with parasthesia which occur by injury to the saphenous nerve which lies on the medial aspect of the calf, above the medial malleolus. Smaller areas of patches of cutaneous numbness not within this area are due to the interruption of minor cutaneous nerves and, as such, are not true saphenous nerve injuries. They occur usually as a consequence of MSAs and are probably unavoidable.<sup>[18]</sup> Lymphatic leakage was not recorded in our study which is usually occur during re-exploration of the groin for recurrence which is a potentially dangerous procedure in comparisons to study done at 1997 in the Princess Royal Hospital,<sup>[19,20]</sup> Unnecessary re-exploration is best avoided as there is high risk of lymphatic fistula. The Complications recorded in our study are skin ecchymosis occur in (4.05%) of cases specially in multiple skin avulsions when no enough pressure applied to the avulsed area and this complication avoided by good pressure and bandaging with elevation the leg (36.8%) of patients develop hematoma at groin region due to injury to the surrounding vessels and bleeding disorders with elevated I.N.R also can be prevented by good hemostasis with plasma replacement.<sup>[21-23]</sup> Recurrence occurs in (2.7%) of cases, The causes of recurrent varicose veins are complex and obscure.<sup>[24]</sup> May be due to regrowth of new vessels at the saphenofemoral junction (neovascularization) in two thirds of the patients.<sup>[25]</sup> Wound infection and dehiscence about 6.4% and 2.02% respectively occur in few patients due to low personal hygiene and in proper wounds dressing and inadequate hair shaving in groin and pubic area pre operatively with presence of skin folds in this region.<sup>[26]</sup> All the previous complications are regarded as minor complications of varicose surgery and can be avoided in addition to the complications of general and spinal anesthesia (7.4%) of patients complain from headache and hypotension after

spinal anesthesia.<sup>[27]</sup> In our study we have two major complications, one case reported had deep vein thrombosis due to injury and repair of the femoral vein, and the injured area sutured by 6/0 prolene, then the patient put on anticoagulant therapy, and the thrombus was resolved after 6 months without any complications.<sup>[28]</sup> Unfortunately, one patient 27 years young female ended with right lower limb amputation because of major vessel injury in the theatre room when make incision in the groin region and made dissection profound bleeding occur not easy to stop, the patient develop shock, so ligation of femoral vein and femoral artery repair by interposition svg graft which was followed synthetic graft later on but limb ischemia was not resolved, so the amputation was done to save the life of the patient from the complications of organic damage due to waste product of dead limb and after failure of all trials to save the her limb.<sup>[29,30]</sup>

## CONCLUSION

Vascular injuries during varicose surgery are rare but when they occur it's limb or life threatening, so it is considered as a major complication, there for it is important to prepare the patients before surgery with all investigations that may be beneficial to prevent such major complications like bleeding profile with good proper U/S, good skill hand and experience may play a role in aright decision to save the patient limb and life. On the other hand today we can use the laser therapy or sclera-therapy to decrease the risk of surgery but with risk of recurrence, nerve injury and skin burn. Advice the patients to prevent the long standing, contraception, hormonal therapy and wearing elastic stoking during pregnancy may help to decrease the incidence of varicose vein. Surgery may help with other modes of therapy like laser and radio frequency endogenous ablation with or without sclera-therapy may help to treat and decrease the complications of varicose veins.

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