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Original Article

A Retrospective Study of Incidence of Superficial Venous Thrombophlebitis in Long Saphenous Varicose Vein and its Surgical Significance in Preventing DVT

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Abstract
Aim: *To highlight the importance and emphasize the consequence of DVT and pulmonary embolism in superficial thrombophlebitis in long saphenous vein varicosities and the methodology to prevent them.*
Objectives: *To study the incidence in 1.sex, 2.age, 3.associated risk factors, 4.site of Superficial Thrombophlebitis in long saphenous vein, 6.management - surgical and medical management,.7. intra – operative findings,8.post operative study, 9.morbidity and 10.mortality.and the outcome in patients of Superficial venous Thrombophlebitis in long saphenous vein in Rajah Muthiah Medical College Hospital.*
Keywords: *superficial thrombophlebitis (STP), deep vein thrombosis [DVT], Pulmonary embolism, visceral neoplasm.*

Introduction

Until the late 1980's, SVT was considered as a benign disease, self-limited, with low morbidity and low potential for complications, and its treatment was symptomatic. However, more recently frequencies of PTE associated with SVT have changed that focus, with subsequent changes in diagnostic and therapeutic approaches.

SVT- also called superficial venous thrombosis, is a pathological condition characterized by presence of a thrombus in the lumen of a superficial vein, followed by inflammatory reaction of its wall and adjacent tissues. It presents with a palpable, hot, painful and hyperemic cord through a superficial vein. This thrombosis extends gradually and has variable amplitude, reaching from small tributaries until large extension of saphenous trunks in the lower limbs. In more severe cases, it can be extended to the deep venous system (DVS), it can also cause pulmonary embolism, and there are indications of an association with recurrent episodes of venous thromboembolism.

Prolonged immobilization, trauma, obesity, hypercoagulable states, use of oral contraceptives or hormonal therapy, prior history of SVT or

DVT, intravenous catheter use, malignancies, and autoimmune disorders, Behcet's and Buerger's disease are susceptible to SVT.

SVT is characterized by the combination of thrombosis and inflammation in a superficial vein, and involves the great saphenous vein in up to 60%–80% of cases. small saphenous vein are next in frequency, occurring in 10%–20% of cases, followed by upper extremity veins. Thrombosis normally occurs as asequelae of "phlebitis" or inflammation (not infection) of the vein. However, secondary "phlebitis" is also seen. The pathophysiology of SVT can be classified in terms of external trauma, internal direct endothelial trauma, vein wall inflammation, and primary hematologic changes. External trauma can result from direct external force or compression, either from blunt traumatic injury or externally applied dressings. A superficial vein exposed to external force can sustain endothelial damage with resulting edema and leukocyte activation that predisposes to thrombosis.

Prominent varicose veins are both more likely to have decreased flow rates and venous stasis, as well as local external injury, contributing to the higher incidence of SVT.

Internal trauma involves a direct endothelial injury leading to activation of the same inflammatory response seen in external trauma, with similar outcomes. The inciting event is often related to routine intravenous procedures, including phlebotomy and intravenous infusions. The length of in situ catheter time is related to the rate of SVT. In addition, infusion of hypertonic solutions can directly injure the endothelium. Commonly implicated drugs are diazepam and pentobarbitone, both of which can cause a chemical inflammation. Suppurative superficial venous thrombosis is characterized by pus at the injection site, a tender, erythematous extremity, and possibly systemic signs, including fever, leukocytosis, and hemodynamic compromise. Commonly cultured organisms include *Staphylococcus aureus*, Pseudomonas, Klebsiella, Enterococcus, Fusibacterium, and Candida.

biopsy findings of acute SVT involving all three layers of the vessel wall can confirm the diagnosis. Adjacent inflammation with resultant SVT can be due to trauma, infection, with the previously discussed septic thrombosis, or adjacent malignant disease. Because some tumors grow along the line of draining veins, this can result in SVT, and, in fact, malignancy is reported in up to 13%–18% of patients with SVT. Moreover, while the overall incidence of SVT in nonvaricose veins is much lower, the presence of SVT in nonvaricose veins may be associated with a risk of malignancy .Migratory SVT is characterized by repeated thrombosis of superficial veins at varying sites. Described by Trousseau, when associated with cancer, migratory thrombophlebitis can occur years before a cancer diagnosis is made. Although it can also be seen with some of the vasculitis, migratory SVT warrants investigation for an occult malignancy.

Hypercoagulability may be associated with SVT - hypercoagulable disorders - factor V Leiden mutation, 20210 A gene mutation, abnormal plasminogen, tissue plasminogen activator disorders, lupus anticoagulant, and Anticardiolipin antibody syndrome.

Primary blood diseases- including polycythemia, Thrombocythemia, and sickle cell disease may predispose to SVT.

Materials and Methods

All the patients with Long Saphenous Vein varicosity and the Long Saphenous Vein Thrombophlebitis admitted in Rajah Muthiah Medical College between march 2015 to march 2017 were analyzed in relation to age, sex, risk factors, complications, superficial thrombophlebitis, per-operative findings, postoperative complications.

Results

Chart-1A Sex incidence

sex	Number of cases -56	%
Male	22	39.3
Female	34	60.7

Chart-1B Sex incidence

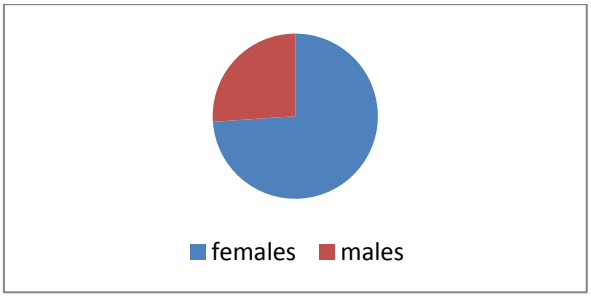


Chart-2A Age incidence

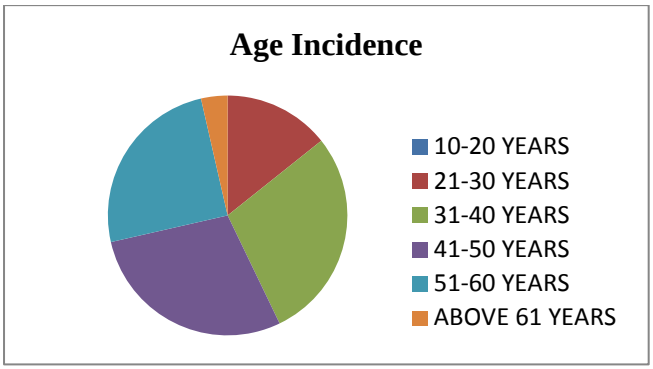


Chart-2B Age incidence

Total number of patients	56	
Age group	No: of patients	%
10-20 Years	0	0
21-40 Years	24	42.9
41 years and above	32	57.1

Chart-3 Risk factor wise incidence

Total number of patients	56	
Risk factor	No: of patients	%
Long standing occupation	30	53.5
Nulliparous women	1	1.7
Multiparous women	12	21.4
Contraceptive pills	3	5.3
Alcohol	24	42.8
Smoking	14	25

Chart 4 Site of superficial thrombophlebitis.

Total number of patients	56		
Site	No: of patients		%
Long saphenous vein	Above knee	20	35.7
	Popliteal	24	42.8
	Below knee	12	21.4
Short saphenous vein			0

Chart-5A superficial thrombophlebitis Management

Type of Management	Number of cases	%
Conservative	0	0
Surgical	56	100

All the cases were conservatively treated first and then electively posted for surgery.

Chart- 5B superficial thrombophlebitis Surgical Management

Surgery	Number of cases	%
SF ligation	56	100
Stripping upto above knee	40	71.4
Stripping upto below knee	16	28.5
Stab incision below knee and leg	56	100

In all cases SF-Ligation and Stripping done. Depending upon the tortuosity and the friability of the vessels the level of stripping is decided, the blow-outs and varicosities dealt by stab incision.

6.Intra –operative findings

Dilated tortuous long saphenous veins,tortuous tributaries, thrombosed varicose veins , thrombosed tributaries, saccular out pouchings in vein walls, cord like texture of the veins, phlebolith, Superficial inguinal lymphadenitis were encountered during the surgery.

7.Post-Operative period Study

Chart-7 Post-Operative complications

Post-Operative complications	Number of cases	%
Surgical site infection	4	7.1
Edema	6	10.7
Bruising	5	8.9
DVT	0	0
Pulmonary embolism	0	0
Saphenous neuralgia	0	0
Sapheno-femoral avulsion	0	0
Septicaemia	0	0

8.Morbidity: Previous DVT, pulmonary embolism, valvular heart disease, coagulation disorders, visceral malignancies, poly cythaemia, thrombocythemia, haemoglobinopathies, oral contraceptives ,post splenectomy status, Anaemia, hypoprotenimia, malnutrition, Diabetes mellitus, liver failure, renal failure, CAD, COPD and Asthmatic bronchitis all decide the fate of patient.

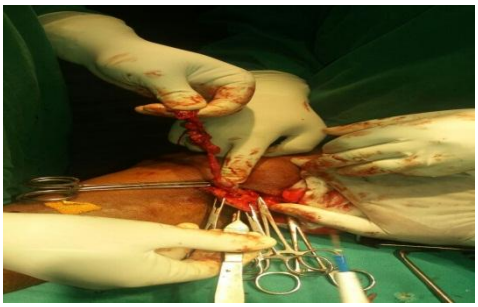
Chart-8 Morbidity

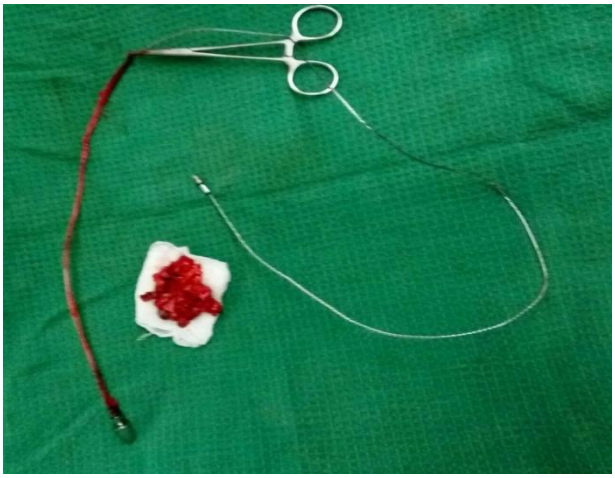
CO-MORBID FACTORS	NUMBER OF CASES TOTAL:56	%
Anaemia	14	25
hypoprotenimia,	-	-
Malnutrition	-	-
Diabetes mellitus,	13	23.2
liver failure	1	1.9
CRF	-	-
CAD	3	5.3
COPD	4	7.1
Asthmatic bronchitis	3	5.3

Chart-9 Mortality

Site of ST	Death	%
Long saphenous vein-ST	0	0
Short saphenous vein-ST	0	0

A retrospective study of 56 patients of long saphenous vein varicose veins admitted between March 2015 To March 2017 in Dept of Surgery Rajah Muthiah Medical College were studied and the incidence in various factors were categorized. After analysis we found that superficial thrombophlebitis occurred commonly in multpara than in nullipara, post natal women rather than antenatal, females more than males, and more in persons aged over 40 years and patients whose occupation demands long standing hours.





Conclusion

Superficial thrombophlebitis, a common complication of long saphenous varicose veins. The incidence is more common in women than man. Thrombophlebitis that extended into the saphenous vein at or near the saphenofemoral juncture is a potential hazard. STP was more frequently located in the varicosities at lower thigh, behind knee and below knee. The prolonged duration of STP and the recurrent attacks suggest that thrombophlebitis can be chronic, recurrent, or subacute and may remain a threat as long as the varicosities are present. Hence surgical excision of the thrombosed venous segments, with excision or stripping of the remaining varicosities is preferred. This shortens the convalescence and mitigates the chance of recurrence without any significant morbidity. Postoperative prophylactic anticoagulants were used in most patients. Surgical removal of the varicosities with excision of the thrombosed veins is currently our preferred treatment for superficial thrombophlebitis in otherwise healthy patients.

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