International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Superficial Vein Thrombosis in Postoperative Cesarean Patients: An Overlooked Marker of Venous Thromboembolic Risk

Dr. Ayesha Parveen A G[1], Dr. Dipali Prasad[2], Dr. Sadia Parween[3], Dr. Tarnija Vajpai[4]

[1]Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna – 800014
Email: *dr.ayesha2509[at]gmail.com*

[2]Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna – 800014
Email: *dr.dipalipd[at]gmail.com*

[3]Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna – 800014
Email: *parweensadia[at]gmail.com*

[4]Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna – 800014
Corresponding Author Email: *tarnijavajpai[at]gmail.com*

Abstract: ***Superficial vein thrombosis (SVT), often considered benign, may serve as an early marker for venous thromboembolism (VTE) in postpartum women, especially following cesarean sections. Cesarean delivery increases thrombotic risk due to surgical trauma, immobility, and a hypercoagulable state. Despite this, SVT remains underrecognized compared to deep vein thrombosis (DVT) and pulmonary embolism (PE). Evidence suggests SVT can precede or coexist with DVT/PE, highlighting its clinical significance. Early detection of SVT may allow timely intervention to prevent serious VTE. Greater awareness is essential to improve outcomes in postoperative cesarean patients.***

Keywords: Pregnancy, superficial vein thrombosis, basilic vein, cephalic vein

1. Introduction

Superficial vein thrombosis (SVT), also known as superficial thrombophlebitis, is defined as the formation of a thrombus within a superficial vein accompanied by inflammation of the vessel wall [1]. The estimated annual incidence of SVT in the general population is approximately 0.64 per 1000 individuals [1]. However, the incidence in postpartum patients is not well documented. Traditionally considered a benign and self - limiting condition, SVT occurs most commonly in the lower extremities, particularly the great saphenous vein (60–80%) and the small saphenous vein (10–20%) [2]. However, atypical presentations involving upper extremities, chest wall, and breasts have been increasingly recognized, with bilateral involvement reported in 5–10% of cases [2, 3].

Recent studies challenge the notion of SVT being entirely benign. If left untreated, SVT may progress to deep vein thrombosis (DVT) or pulmonary embolism (PE) in approximately 10% of patients within 90 days of symptom onset [4]. Notably, asymptomatic DVT is present in up to 18.1%, and PE in 6.9%, of patients diagnosed with SVT, underscoring its clinical relevance within the venous thromboembolic (VTE) spectrum [4].

Postoperative pregnant patients constitute a significant at - risk group for SVT due to surgical tissue trauma, prolonged immobilization, anaesthetics - induced vasodilation, and systemic inflammatory responses [5]. The traditional Virchow's triad comprising venous stasis, endothelial injury, and a hypercoagulable state—provides a robust framework for understanding the development of SVT in this patient group [6]. Prolonged intravenous (IV) cannulation (>48 hours), use of compression dressings, and perioperative sedentariness further contribute to venous stasis and thrombus formation [6, 7].

Pregnancy itself creates a hypercoagulable state, thereby doubling the risk of venous thromboembolism (VTE) and significantly contributing to maternal morbidity and mortality. [8]. In the postoperative setting, particularly following cesarean section, local tissue injury and hormonal influences act synergistically with pregnancy - induced hypercoagulability to increase the risk of SVT.

Here we present an uncommon case of upper extremity superficial thrombophlebitis in a post caesarean patient.

2. Case Report

A 30 y/o Gravida 2, Para 1, Living 1 woman came to IGIMS ANC OPD at 38+1 weeks gestation, with complaints of leaking per vaginum for 3 hours. The patient had no complaint of labour pain, and upon examination, she was diagnosed as a prelabor rupture of membranes. She had undergone LSCS 3 years ago for meconium - stained liquor & fetal distress. The patient refused for trial of labor after caesarean and was admitted in labour room for caesarean section. Upon admission, the patient was evaluated and routine pre - operative investigations were done, which were within normal limits. Caesarean section was performed on the same day, and a live healthy male child of 4.13 kg was delivered. The operation went uneventful. For administering pre - operative medications, multiple attempts of cannulation were made in left hand on dorsal aspect before obtaining intravenous access. Post - operatively, patient was received

antibiotics and analgesics via intravenous route.5hours after the operation, patient suddenly developed swelling and pain in her left hand. Upon examination, the hand was swollen, warm and tender. There was increased pain on passive extension of wrist joint. Patient had no pain or history of prior trauma or injection. The patient had never undergone any tests for thrombophilia, nor she gave any family history of thrombophilic disorder. Cannula was removed from left hand and intravenous access was obtained in the right hand. Doppler ultrasound was performed immediately, which revealed that a tributary of left cephalic vein appeared dilated, and with its non - compressibility extending from distal end of metacarpal to mid - forearm; indicating presence of thrombus in that tributary. Upon investigating, international normalised ratio (INR) was 1.04, Activated Partial Thromboplastin Time (APTT) test was 28 seconds and D - dimer was 3.08 µg/ml. After 12 hours of the operation, patient was started on 60mg Enoxaparin subcutaneously once a day, Warfarin 3 mg once a day orally, Clopidogrel and Aspirin 75mg each orally once a day and Silodosin 50 mg orally twice a day. However, the swelling in left hand progressed to left forearm.

Figure 1: Skin changes in superficial venous thrombosis: 5 hours after operation, the marked venous congestion in left hand

A review ultrasound doppler examination revealed thrombus in the left cephalic vein which was dilated extensively from distal end of metacarpal to elbow joint. Also, the left basilic vein showed thrombotic extension from mid arm to distal end of metacarpal along with diffuse subcutaneous edema over dorsal aspect of the left hand. The patient was shifted to was done. Patient was monitored using INR and apTT. Gradually, the swelling and pain subsided. Intensive Care Unit (ICU) where infusion of 5000 IU Heparin was added. Magnesium sulphate dressing was done.

Figure 2: Improvement in the swelling after treatment

On 6th postoperative day, D dimer value decreased to 0.74. Patient was discharged following normal ultrasound doppler examination of the left upper limb. She was advised to undergo testing for protein C, protein S, APLA & factor V Leiden mutation 6 weeks postpartum, but she denied due to financial constraints.

3. Discussion

In particular, pregnant and postpartum women undergoing cesarean section represent a unique cohort with dual risk factors: physiological hypercoagulability of pregnancy and surgical insult. The compounded risk makes vigilant monitoring for thrombotic complications essential in this subgroup [8].

Common risk factors for SVT include varicose veins, obesity, hormonal therapy, malignancy, prior DVT, and use of central venous catheters [2, 6]. Clinically, SVT presents as acute localized pain, tenderness, erythema, warmth, and a palpable, cord - like induration along the course of a superficial vein [1, 5]. Although physical examination remains key, clinical assessment may underestimate thrombus extent. Doppler ultrasonography is the diagnostic gold standard for confirming SVT, delineating thrombus length, proximity to deep veins, and ruling out concurrent DVT [6].

Management strategies include early mobilization, use of graduated compression stockings, and pharmacologic interventions. Nonsteroidal anti - inflammatory drugs (NSAIDs) provide symptomatic relief, while anticoagulants such as fondaparinux 2.5 mg daily for 45 days have demonstrated efficacy in preventing thromboembolic progression [9]. Emerging data support risk - stratified anticoagulation approaches tailored to thrombus extent and location to minimize bleeding risks [10].

SVT is not merely a localized inflammation; it carries potential for extension into deep veins and may embolize to pulmonary vasculature. Studies report that up to 10% of untreated SVT cases progress to DVT or PE within 90 days of symptom onset [4]. Moreover, asymptomatic DVT and PE may be present in nearly 18% and 7%, respectively, at the time of SVT diagnosis, especially in hospitalized or postoperative patients [4]. These findings challenge the notion of SVT being trivial and highlight the importance of early recognition and intervention.

4. Conclusion

In conclusion, SVT in the post ceserean setting requires a proactive, evidence - based approach. Multidisciplinary involvement—including surgical, anesthetic, and critical care teams—is crucial for optimal prevention, diagnosis, and management. Future research should aim at developing risk - stratification tools, enabling clinicians to distinguish patients who would benefit from full anticoagulation versus those in whom conservative treatment may suffice. Improving clinical awareness and adherence to internationally recognized guidelines will ultimately reduce the morbidity, mortality, and economic burden associated with SVT in surgical patients.

Conflict of Interest: None.

References

[1] Decousus H, Quéré I, Presles E, Becker F, Barrellier MT, Mismetti P, et al. Superficial venous thrombosis and venous thromboembolism: a large, prospective epidemiologic study. Ann Intern Med.2010; 152 (4): 218–24.
[2] Di Nisio M, Wichers IM, Middeldorp S. Treatment for superficial thrombophlebitis of the leg. Cochrane Database Syst Rev.2018; 2 (2): CD004982.
[3] Gillet JL, Perrin M, Allaert FA. Superficial venous thrombosis: risk factors, diagnosis, and treatment. Vasc Health Risk Manag.2009; 5 (1): 619–24.
[4] Nasr W, Benseñor IM, Newman AB, Michos ED, Reis JP, Lima JA, et al. Clinical significance and prevalence of superficial vein thrombosis. J Thromb Haemost.2014; 12 (6): 791–8.
[5] Ramsey G. Postoperative venous thrombosis and pulmonary embolism. Ann Surg.1994; 219 (2): 109–17.
[6] Nicolaides AN. Investigation of chronic venous insufficiency: a consensus statement. Circulation.2000; 102 (20): E126–63.
[7] Spencer FA, Emery C, Lessard D, Anderson F, Emani S, Aragam J, et al. Venous thromboembolism in the outpatient setting. Arch Intern Med.2007; 167 (14): 1471–5.
[8] James AH. Venous thromboembolism in pregnancy. Arterioscler Thromb Vasc Biol.2009; 29 (3): 326–31.
[9] Decousus H, Prandoni P, Mismetti P, Bauersachs RM, Büller HR, Katz D, et al. Fondaparinux for the treatment of superficial - vein thrombosis in the legs. N Engl J Med.2010; 363 (13): 1222–32.
[10] Kakkos SK, Caprini JA, Nicolaides AN, Comerota AJ, De Maeseneer MG, Goldhaber SZ, et al. Combined European and American guidelines on the management of superficial vein thrombosis. Eur J Vasc Endovasc Surg.2017; 53 (4): 452–60.