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Case Report

Obstetrics and Gynaecology Section

Postoperative Superficial Thrombophlebitis of the Upper Limb: A Rare Complication following Total Laparoscopic Hysterectomy

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ABSTRACT

Superficial Thrombophlebitis (STP) is an uncommon vascular condition that involves inflammation and blood clotting (thrombosis) of a superficial vein. It often presents with redness, swelling and localised pain. Although it can cause significant discomfort, it is usually less severe than Deep Vein Thrombosis (DVT) and can sometimes lead to serious complications such as DVT or Pulmonary Embolism (PE). The three factors responsible for STP are venous stasis, injury to the endothelium, and hypercoagulability, collectively referred to as Virchow's triad. The condition mainly affects the legs but can also occur in other parts of the body, such as the lower and upper limbs. Hereby, authors describe a case of a 51-year-old woman who developed STP in her left arm after a Total Laparoscopic Hysterectomy (TLH). Despite being uncommon, STP following gynaecological surgery necessitates early diagnosis and treatment to prevent its progression into life-threatening clotting disorders. This case demonstrates successful conservative management of uncomplicated STP and underscores the need for vigilance in postoperative care. Early diagnosis, risk stratification, and individualised treatment plans are essential for optimising patient outcomes and preventing serious complications.

Keywords: Case report, Heavy menstrual bleeding, Thromboprophylaxis, Vascular complications

CASE REPORT

A 51-year-old female, gravida 4, para 3, abortus 1, presented with a five-month history of heavy menstrual bleeding, two months of abdominal pain, and dysmenorrhea persisting for four to five years. She denied any urinary or bowel complaints, and her menstrual cycles had been regular until three months before presentation. General physical examination was unremarkable, with vital signs within normal limits. On abdominal examination, she revealed a soft, non tender abdomen. A per vaginal examination showed a uterus consistent with approximately six weeks' gestation size, with clear and non tender bilateral fornices. A transabdominal ultrasound revealed a bulky uterus (14.7×6.9×5.6 cm) with two anterior wall fibroids measuring 5.2×3.4 cm and 2.7×1.5 cm, respectively. The endometrial thickness was 7 mm. Both ovaries appeared normal in size and morphology. Routine laboratory tests were within normal limits, including haemoglobin and coagulation profiles. The patient underwent an elective TLH with right salpingo-oophorectomy and left salpingectomy. The surgery was uneventful, with no reported intraoperative complications. A few hours postoperatively, cyanosis of the left palm was observed, with Oxygen Saturation (SpO_2) in the left arm fingers ranging between 75-80%, along with swelling. The local examination revealed blanching and tenderness in the palm, prompting immediate further evaluation [Table/Fig-1].

[Table/Fig-1]: Cyanosis of the left palm postoperatively.

A hypercoagulability work-up revealed an elevated D-dimer level (1412 ng/mL) with normal range of 0-500 ng/mL, decreased serum fibrinogen (201 mg/dL) with normal range of 238-498 mg/dL, and a reduced activated Partial Thromboplastin Time (aPTT) of 20.5 seconds, with normal range of 28.05-36 seconds suggestive of a possible thrombotic event. A Doppler ultrasound of the left upper limb revealed near-complete to partial thrombosis of the left cephalic vein, and there was a suspicion of developing compartment syndrome in the left hand. The vascular surgeon recommended immediate limb elevation, Magnesium Sulfate ($MgSO_4$), glycerin dressings, and circumference monitoring of the mid-arm and mid-forearm every two hours for 12 hours, which initially showed a difference as swelling increased and later returned to normal.

Low Molecular Weight Heparin (LMWH) therapy with enoxaparin (Inj. Clexane) 0.4 mL was started. Following the vascular surgeon's guidance, the patient was managed conservatively with 8-hourly $MgSO_4$, glycerin dressings, and consistent limb elevation. Regular circumference measurements of the mid-arm and forearm were performed to monitor for signs of swelling, which could indicate the progression of compartment syndrome. By postoperative day 2, the patient's SpO_2 levels in all fingers normalised to 95-98%. The cyanosis, tenderness, and oedema gradually subsided, showing clear improvement with the conservative measures. The patient was monitored closely for signs of thrombus propagation or worsening symptoms. No further complications arose, and she was discharged in stable condition.

DISCUSSION

STP is a condition that requires careful evaluation and management due to the potential for discomfort and complications, including DVT or PE [1]. STP involves inflammation and thrombosis of a superficial vein, most commonly in the lower extremities. The condition is typically associated with Virchow's triad: venous stasis, endothelial injury and hypercoagulability [2]. In this case, the patient's TLH likely contributed to endothelial injury due to prolonged intraoperative time, creating a localised environment conducive to thrombosis. Additionally, postoperative immobility, a common risk factor, may have contributed to venous stasis.

Risk factors for STP include varicose veins, chronic venous insufficiency, previous thromboembolic events, intravenous catheter

use, malignancies and autoimmune disorders. Hormonal factors, such as hormone replacement therapy or oral contraceptive use, are also associated with an increased risk of STP [3]. Although this patient had no known history of these factors, they remain important considerations in the broader context of thrombotic risk. STP typically presents with localised pain, tenderness, erythema, and a palpable, cord-like structure along the course of the affected vein [4]. In this case, the patient displayed cyanosis and tenderness in the left upper limb without significant swelling shortly after TLH. Although localised oedema and warmth may often accompany the inflammatory component of STP [4], these symptoms were not prominent in this case.

While the clinical presentation in this patient strongly suggested STP, a Doppler ultrasound was used to confirm the diagnosis and assess the extent of thrombosis. It identified near-complete to partial thrombosis of the left cephalic vein, raising concerns about the potential progression to DVT or compartment syndrome. Doppler ultrasound is essential in excluding concomitant DVT and evaluating deeper venous involvement, especially in postoperative patients [5]. The management of STP varies depending on its severity and extent. For uncomplicated cases, conservative measures such as Non Steroidal Anti-Inflammatory Drugs (NSAIDs), analgesics, and compression therapy are often effective. Elevating the affected limb can reduce swelling and discomfort, while compression stockings may promote venous return and decrease venous stasis [6]. In this case, limb elevation, $MgSO_4$, glycerine dressings and anticoagulation with enoxaparin were employed, which aligns with vascular surgery recommendations. A review of the literature revealed few reports of upper limb thrombosis following gynaecological surgeries but numerous cases of lower limb DVT and PE are also reported. For example, Pinjala R et al., reported a case of DVT in a 45-year-old woman following TLH, highlighting the need for thromboprophylaxis in gynaecological surgery [7]. Chu CS et al., also described postoperative PE, emphasising the importance of early mobilisation and prophylactic anticoagulation [8].

Yuk JS et al., conducted a retrospective study on the incidence of Venous Thromboembolism (VTE) in patients undergoing gynecologic surgery. The study found an overall incidence of 0.6%, with higher rates in cancer-related surgeries, underscoring the importance of risk stratification and thromboprophylaxis in high-risk patients [9]. In contrast, Tounsi S et al., reported a case of acute upper limb ischaemia due to arterial thrombosis following gynaecological surgery, stressing the need for prompt diagnosis and management in similar cases [10]. Early recognition and aggressive management of vascular complications, such as thrombophlebitis, are crucial to prevent long-term sequelae. In a study by Alsheikh K et al., all included drugs were non inferior to enoxaparin regarding VTE-associated mortality, major bleeding, and adverse events [11]. Similarly, Farge D and Frere C provided comprehensive guidelines for the management of VTE in cancer patients, underscoring the importance of individualised treatment plans and the role of anticoagulants in managing thrombotic events [12]. STP can arise as an independent entity. While it is known to occur in various clinical settings, its direct association with TLH requires further scientific validation. In this case, it is possible that the prolonged surgical time and postoperative immobility contributed to a localised environment conducive to thrombosis, potentially creating conditions for STP. However, it is important to note that this is speculative and has not been proven specifically in the context of TLH. The risk factors typically associated with STP—such as endothelial injury, venous stasis and hypercoagulability (Virchow's triad)—may have been present due to the surgery itself, but establishing a direct causality between TLH and upper limb STP would require more rigorous investigation and controlled studies. Therefore, while this case presents an interesting possibility, it is premature to conclude that TLH alone was responsible for the development of STP without additional evidence.

CONCLUSION(S)

The STP, while generally considered a benign condition, can have significant complications if not promptly and appropriately managed. This case illustrates the potential for upper limb thrombosis following gynaecological surgery. It emphasises the importance of early diagnosis, multidisciplinary intervention and individualised thromboprophylaxis to prevent severe outcomes such as DVT or PE.

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