



BLEEDING TRINITY : SPONTANEOUS PELVIC AND SIGMOID BOWEL HEMATOMA WITH CEREBRAL VENOUS SINUS THROMBOSIS IN A CASE OF ATRAUMATIC VAGINAL DELIVERY – A RARE CASE REPORT

Obstetrics & Gynaecology

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KEYWORDS

INTRODUCTION:

Pregnancy induces a heightened prothrombotic state that escalates throughout gestation, peaking in the postpartum period [1,2]. It takes approximately six weeks post-delivery to revert to the normal risk level observed in the general population (3). The physiological prothrombotic state during and after pregnancy serves as a protective mechanism, aiming to minimize blood loss during delivery. This mechanism is associated with elevated levels of fibrin, other regulatory factors, and a systemic upregulation of plasma prothrombotic mediators [4]. In the late stages of pregnancy, specifically the third trimester, augmented plasma volume and diminished venous return flow, caused by the increasing pressure of the gravid uterus on the vena cava, result in venous stasis and an elevated risk of thrombosis [5]. A vulvar hematoma refers to the accumulation of blood in the vulva resulting from either direct or indirect injury to the soft tissue [6]. The vulva receives its blood supply from branches of the pudendal artery [7] and venous drainage is facilitated by labial veins, which subsequently drain into both external and internal pudendal veins [8, 9]. During pregnancy, particularly in parous women, the vulvar vasculature often develops varicosities due to increased venous pressure resulting from the growing uterine weight [8]. Damage to the labial branches of the internal pudendal artery within this vascular network can easily initiate hematoma formation [7, 8, 9]. Postpartum vulvar hematomas give rise to maternal morbidities, including anaemia, postpartum haemorrhage, superinfection, necrotizing fasciitis, prolonged hospitalization, and the need for blood transfusion [6, 7]. Puerperal cerebral venous thrombosis, one of a rare disorder occurring in approximately 12 cases per 100,000 deliveries, poses the highest risk within the initial two weeks post-delivery [10]. Unlike other intracranial vascular conditions, the clinical manifestation in individuals with cerebral sinus thrombosis is nonspecific, encompassing a spectrum from asymptomatic cases to symptoms such as nausea, vomiting, severe headache, altered mental status, seizures, and neurological deficits. Headache is the most frequently reported symptom [11]. The initial imaging study typically involves nonenhanced CT scan of the head, and the superior sagittal sinus is the most commonly affected site [12]. Postpartum, abdomino-pelvic hematomas may manifest as severe haemorrhagic complications, stemming from the rupture of blood vessels within the pelvic region. The clinical presentation covers a range of symptoms, spanning from abdominal pain to indications of substantial blood loss, such as tachycardia, palpitations and paleness [13]. In this report, we describe a rare case where a Day 2 PNC patient with Eclampsia presented with atraumatic postpartum vulvar hematoma which was found to be coupled with sigmoid bowel hematoma as well as Cerebral Venous Sinus Thrombosis.

Presentation Of Case:

A 22 year-old female, Married since 2 years, Day 2 PNC P1L1 post preterm spontaneous vaginal delivery referred from a Primary Health Centre in view of Eclampsia with vulvar hematoma with severe anaemia. During her pregnancy, she received Antenatal Care (ANC) at a nearby health centre, where routine investigations and comprehensive care were administered. At 34 weeks of gestation, Patient started having complaints of pain abdomen with headache and had one episode of seizure at home following which she visited the same health centre. Her labour advanced within 4 hours of the onset of labour pain and she delivered a preterm male child of 1.8 kg. Baby cried immediately after birth and shifted to NICU in view of preterm with low birth weight. Patient suffered from another episode of seizure immediately post delivery and was shifted to CCU. Patient was started

on tablet Lobet 100 mg Bd in view of raised BP. Post delivery on Day 1, Patient's CBC was Hb 11.2, TLC 12K, Platelet 132k with healthy episiotomy on left side and no active bleeding on local examination. On Day 2 Post Preterm vaginal delivery, Patient started complaining of severe perineal pain with headache and blurring of vision. It was found that Patient was pale and Local examination revealed Right sided vulvar hematoma with repeat CBC suggestive of Hb- 5.7, TLC- 20.3 k, Platelets -146k. Patient was then referred to our Centre in view of need for higher centre and further management. On reaching our centre, the patient underwent reassessment. She had no history of hypertension, bleeding tendency or any other significant history. On examination, her general condition was guarded and vital signs were recorded as blood pressure (BP) 100/70 mmHg, pulse rate (PR) 130 beats per minute, respiratory rate (RR) 22 breaths per minute, SPO₂ : 99% on room air and temperature 37.1 °C. Physical findings included dry buccal mucosa and pale conjunctivae with mild bilateral pedal oedema of Grade 1. The lymph glandular system, chest, and cardiovascular system exhibited normal characteristics. Abdominal examination revealed a well contracted, 20 week sized uterus, no tenderness/guarding / rigidity noted and no signs of fluid collection or organomegaly were observed. Genital examination disclosed a 6 x 5 cm right-sided tender vulvar mass extending to the mons pubis (Fig. 1). No active vaginal bleeding or evidence of vaginal and cervical tear was noted. Left Episiotomy was nontender with no significant visible swelling. Neurologically, she was oriented to time, place and person, with brisk Deep Tendon Reflexes in all the four limbs and no pre monitoring signs and symptoms.

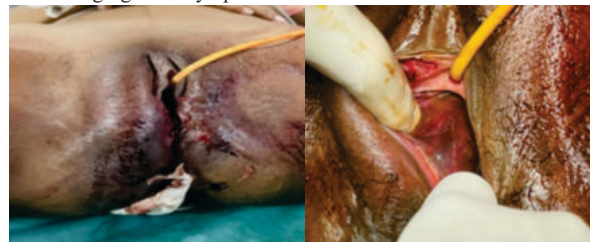


Fig.1 Postpartum spontaneous atraumatic vulvar hematoma

The patient was stabilized and further investigations were conducted, and results included : Hemoglobin 5.7 g%, Total Leucocyte Count : 20.3 K/ cu.mm, Platelet : 116K/cu.mm Bleeding time : 1 minutes 45 seconds, Clotting time : 5 minutes 15 seconds , Serum LDH levels were 941 IU/L , Serum Fibrinogen levels were 452 mg/dl, Urine Albumin 3+

USG Abdomen + Pelvis :

A well defined heterogeneously hyperechoic collection of 7.1 x 5.6 x 7.1 cm, noted in pelvis adjacent to lower uterine segment and cervix on right suggestive of pelvic hematoma. Uterus bulky consistent with post partum status.

USG Vulvar Region :

Ill-defined hypoechoic fluid in superficial plane of bilateral labia majora

CT Scan Abdomen:

s/o Bilateral vulvar and pelvic hematoma of 8.9 x 5 x 9 cm located medially to right pelvic wall and right psoas muscle with edematous sigmoid colon . CT scan of Brain : Partial contrast filling defect noted in frontal portion of Superior Sagittal sinus suggestive of Cerebral

Venous Sinus Thrombosis (Fig.2)

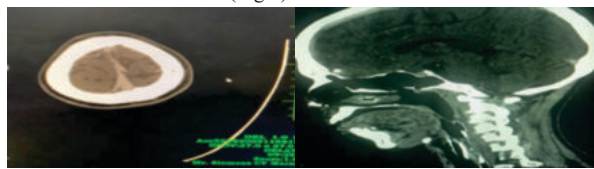


Fig 2. CT scan imaging of brain showing partial contrast filling defect in frontal portion of Superior Sagittal sinus

Surgical Procedure:

The patient underwent immediate preparation and was shifted to the operating room with blood and blood products. While under General anaesthesia, approximately 300 grams of clots was evacuated from the right vulvar hematoma. Identification and ligation of actively bleeding vessels were performed, followed by the closure of the wound in three layers. Episiotomy wound present over the left vulva was explored and closed in similar fashion. Based on the findings from the CT scan, the decision was made to proceed with exploratory laparotomy. During the laparotomy, it became evident that a hematoma had encompassed the lateral and posterior aspects of the sigmoid-rectal junction of the bowel. Bowel tracing was done including liver as well as splenic capsule tracing and nothing significant found. Hence, decision taken to manage the bowel hematoma conservatively. Post operatively patient was shifted to CCU and continuous observation for bleeding and vulvar swelling ensued.



Figure 4: Intraoperative image of the Sigmorectal junction hematoma. In view of the CT scan brain findings suggestive of CVST post operatively patient was started on Injection Heparin 5000 IV QID with strict INR and aPTT monitoring. Her postoperative period was uneventful. Patient was then shifted to Oral anticoagulant- Tablet Dabigatran 150 mg OD and was discharged on the 14th day postoperatively in a good condition with healthy episiotomy wound.

DISCUSSION:

Pregnancy induces profound cardiovascular adaptations marked by significant alterations in both local and systemic hemodynamic [14]. Key characteristics of the pregnant state include reduced vascular resistance, heightened permeability, and increased cardiac output. While these changes are generally beneficial for the cardiovascular system, similar hemodynamic shifts in the brain during pregnancy, such as decreased vascular resistance and increased permeability, elevate the risk of complications like oedema formation and heightened intracranial pressure. This risk is further amplified in cases of severely elevated blood pressure, as observed in conditions like severe preeclampsia and eclampsia [15]. Disorders associated with pregnancy, such as preeclampsia, eclampsia, and HELLP syndrome, constitute a category of conditions linked to endothelial damage triggered by pregnancy itself [16].

Hormonal shifts during pregnancy and the postpartum period elevate the risk of venous thromboembolism, including cerebral venous sinus thrombosis (CVST). The incidence of venous thromboembolism during pregnancy and the postpartum period is estimated to be 5.5-6 times higher than in the general female population [17]. The occurrence of CVST during pregnancy often presents challenges in diagnosis, leading to delayed or even misdiagnosed cases. Timely and accurate identification of pregnancy-related CVST is crucial as delayed treatment can pose a threat to the patient's life. Early detection and appropriate intervention can significantly improve clinical outcomes and prevent lifethreatening complications. Administering therapeutic doses of anticoagulants promptly upon diagnosis often results in the reversal of symptoms in the majority of cases. The management of cerebral cortical vein thrombosis generally yields favourable outcomes with anticoagulation therapy.

Retroperitoneal and retrorectal hematomas are infrequently observed

after vaginal delivery as a rare complication of labour, possibly due to extension of the hematoma through the retroperitoneal pathway into the intestinal wall. Diagnosis relies on clinical examination and radiological imaging findings, and in life-threatening cases, laparotomy is considered as a last resort [13].

A substantial postpartum vulvar hematoma elucidated the patient's condition, leading to severe anaemia. Prompt and vigorous management, involving intravenous fluid administration, blood transfusion, and surgical intervention, was imperative, potentially preventing a fatal outcome. These hematomas are infrequent in contemporary obstetrics, occurring at a variable rate ranging from 1 in 300 to 1 in 15,000 deliveries. Typically, postpartum vulvar hematomas arise from genital tract lacerations or inadequate haemostasis during the repair of perineal tears or episiotomy wounds. Failure to exercise caution while suturing the episiotomy apex can result in a sizable vulvovaginal hematoma due to the distensibility of the tissue.

Spontaneous postpartum vulvar hematomas as seen in our case are uncommon occurrences, resulting from vascular injury without accompanying laceration or incision of surrounding tissue, such as pseudoaneurysm or traumatic arteriovenous fistula. These incidents are often associated with precipitate labour, macrosomic infants, prolonged second stages of labour, hypertensive pregnancy disorders, coagulopathy, or vulvar varicosities. In this particular case, the labour duration was only 4-5 hours, potentially serving as a triggering factor. The occurrence was spontaneous post-delivery, and notably, the right sided nature of the vulvar hematoma aligns with the observation that most spontaneous vulvar hematomas are right-sided, possibly attributable to the dextrorotation of the uterus, leading to vulvar varicosities.

The approach to vulvar hematoma management is contingent on factors such as hematoma size, the patient's hemodynamic stability, resource availability, and the hematoma's duration [18, 19, 20]. Conservative management, encompassing sitz baths, ice packs, empiric antibiotics, pain medication, and potential blood transfusion, is typically suitable for smaller or chronic vulvar hematomas [18]. However, in cases involving large and rapidly expanding hematomas, as exemplified here, surgical techniques are employed [18, 20]. Surgical management may involve exploration, encompassing incision and drainage, ligation of bleeding vessels, and packing or the insertion of drainage tubes [18, 19, 20]. In this instance, our patient underwent a similar surgical approach for effective management.

CONCLUSION:

Failure to promptly address and appropriately handle a postpartum vulvar hematoma along with Cerebral Venous Sinus Thrombosis as well as Sigmorectal hematoma can result in substantial maternal morbidity. Hence, timely surgical exploration, identification, and ligation of bleeding vessels, coupled with the obliteration of dead space followed by implementation of a well-balanced management approach with anticoagulants for cerebral venous sinus thrombosis (CVST) can lead to excellent outcomes, contributing to an improved prognosis for the patient as well as preventing maternal complications.

Conflicts Of Interest : There are no conflicts of interest

Abbreviations:

PNC : Post Natal Care
CVST : Cerebral Venous Sinus Thrombosis
CECT : Contrast Enhanced Computed Tomography
TVS : Transvaginal ultrasound
S/O : suggestive of

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