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Case Report

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Concealed Paravaginal Hematoma Spreading in The Anterior Abdominal Wall- A Case Report

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Abstract

A case is reported in which a paravaginal hematoma spread to the anterior abdominal wall after a first-time mother's spontaneous cephalic labour, resulting in maternal hemodynamic instability. The patient experienced persistent and worsening lower back and buttocks pain two hours after delivery, but despite close monitoring, no large hematoma was initially observed. However, nine hours after labour, the patient became hemodynamically unstable. The shock index was used to monitor maternal hemodynamic, and bedside ultrasound was crucial in diagnosing the hematoma. A manual examination confirmed the diagnosis and conservative treatment involving vaginal tamponade with a uterine balloon catheter and two Foley catheters successfully prevented the further spread of the hematoma. Due to the rarity of this postpartum complication and the lack of established guidelines, sharing clinical experiences can contribute to successful decision-making.

Keywords: *paravaginal hematoma, tamponade, case report.*

Introduction

Postpartum vulvovaginal hematoma is a rare but life-threatening condition associated with significant maternal morbidity and mortality. The occurrence of substantial obstetric-vulvovaginal hematoma is estimated to range from 1 in 500 to 1 in 900 vaginal births [1]. Common risk factors include maternal age over 30 years, nulliparity, fetal weight over 4500 grams, and comorbidities like preeclampsia, coagulopathy, genital tract varicosity, prolonged second stage of labour, and delivery complications such as tears, episiotomy and operative vaginal delivery [2]. This anatomical manifestation can occur following a stretch and rupture of a blood vessel without an associated tear [3,4]. We are presenting a primiparous patient who developed an unusual postpartum complication: a large paravaginal hematoma extending superiorly to the anterior abdominal wall.

Case report

A 27-year-old, healthy, primiparous woman with an uneventful singleton pregnancy at 40+1 weeks of gestation was admitted in spontaneous active cephalic labour.

The first period of labour took four hours, and an amniotomy was performed in the second stage, which lasted for 1 hour 27 minutes. A healthy male newborn weighing 3686 grams and 55 cm tall was born with an Apgar score of 8/9. The third stage of labour was managed actively.

On per speculum examination, an intact cervix was demonstrated. A deep left vaginal wall laceration was visualised and sutured using lidocaine infiltration with interrupted polyglactin 910 sutures; vaginal tissue was described as edematous and loose. The patient was hemodynamically stable, with a well-contracted uterus. The estimated blood loss was 700 ml, and 500 ml of crystalloids was administered intravenously.

Two hours after delivery, the patient complained of pressing pain in the lower back and buttocks region; the pain was constant and became worse. During a repeat vaginal examination, a hematoma was detected on the left vaginal wall. It was drained under intravenous anaesthesia, and the laceration was sutured with interrupted polyglactin 910 sutures. A urinary bladder catheter was inserted for diuresis control. Prophylactic cephalosporins and intravenous diclofenac sodium were given, and an additional 40 IU of oxytocin was administered over 4 hours in the absence of uterine atony.

Nine hours after labour, the patient became pale and sleepy, presenting with tachycardia at 130 bpm, a shock index of 1.2, and additional blood loss of 200 ml. The haemoglobin level dropped from 9.2 g/dL to 6.7 g/dL. Tranexamic acid 1 gram with 500 ml crystalloid was administered. Four units of erythrocyte mass, fresh frozen plasma, and ten units of cryoprecipitate were ordered.

There was an unremarkable blood clot in the low uterine segment, and no free fluids were seen on transabdominal ultrasonography. Perineal ultrasonography demonstrated a large hyperechogenic mass in the left paravaginal tissues.

The anesthesiologist made a decision on epidural analgesia for repeated hematoma evacuation and surgical treatment. After an epidural block, the maternal collapse occurred, and rapid fluid resuscitation and a massive blood transfusion were provided; all the products were already on site at the moment of collapse.

The vaginal hematoma extended into the anterior wall of the abdomen, 5 cm above the symphysis, and 500 ml of blood was evacuated during manual revision. A uterine balloon catheter

filled with 300 ml warm crystalloid and two Foley catheters, each filled with 60 ml, was used to tamponade the hematoma site. Two interrupted sutures were used to close the previous incision site and fix the catheters. An outer anal sphincter rupture was observed and closed with end-to-end sutures. The estimated total blood loss was 2200 ml. Patient observation in the intensive care unit was provided.

The next day, both Foley catheters were removed, and the uterine balloon catheter was emptied but left in place for 24 hours to provide drainage. The patient received broad-spectrum antibiotics and thrombotic event prophylaxis during the post-surgical period.

Figure 1: Management of concealed paravaginal hematoma spreading in the anterior abdominal wall- timeline.

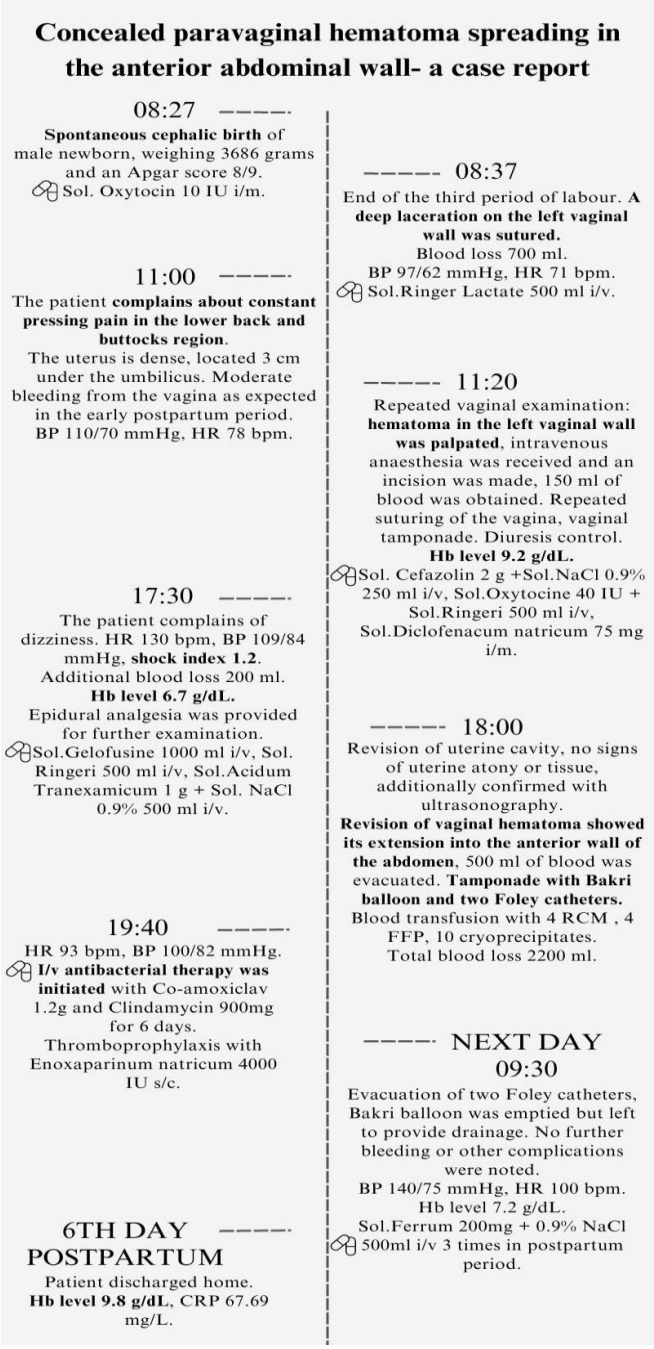
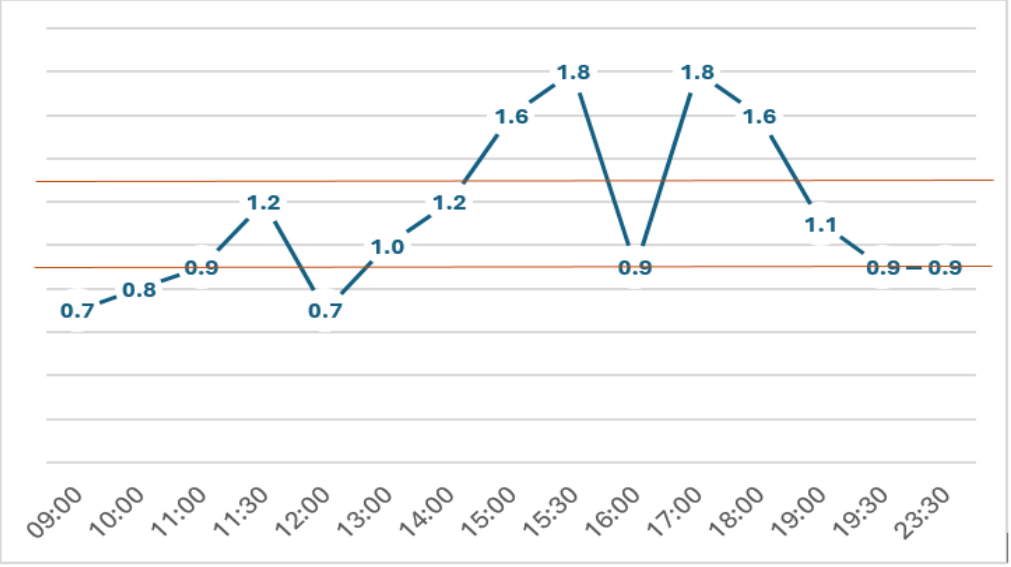
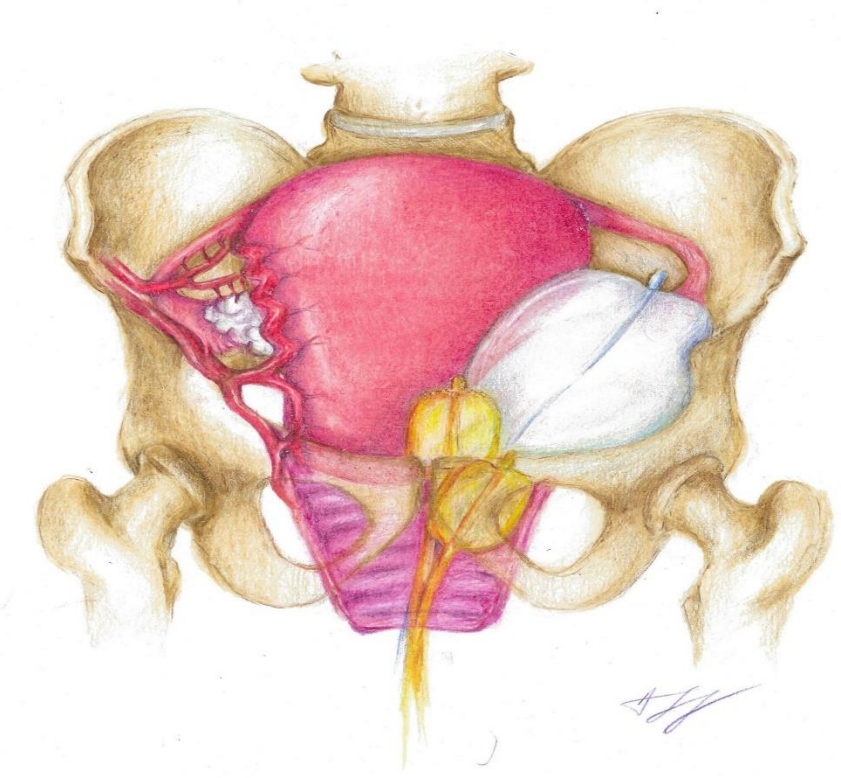


Figure 2: Timeline of Dynamic Changes in Patient Shock Index.



Shock index	Hypovolemic shock compensated/ decompensated.
<0.9	Normal
0.9-1.2	20% Hypovolemic shock compensated
1.3-1.4	30% Hypovolemic shock decompensated
>1.5	40% Hypovolemic shock decompensated

Figure 3: Visualisation of placement of balloon tamponade (author Alise Liepa-Liepiņa).



Discussion

Postpartum genital tract hematomas, both supralevator and infralevator, are unpredictable conditions with nonspecific symptoms and unrevealed bleeding into vulvovaginal mucosa extending sometime paravaginaly or even retroperitoneally, which develops due to hyperextended and compressed blood vessels of the vaginal wall during spontaneous or assisted childbirth [5,6,7].

It is crucial to carefully examine any tissue trauma right after delivery with adequate analgesia to prevent hematoma formation. The patient has to be closely monitored; the shock index can be used in the early postpartum period [8]. In a case of severe pain, pelvic pressure, inability to void and hemodynamic instability, postpartum hematoma must be ruled out. Examination using ultrasound could be useful for early and rapid evaluation of hematoma size and site and to monitor patients undergoing expectant management of a vulvar

hematoma [9,10,11]. CT scan is helpful for emergency assessment if ultrasound imaging is challenging or when dealing with a supralevator hematoma [12]. Angiography can be used when ultrasound results are inconclusive and can help identify pelvic aneurysms [13]. However, diagnostic tools and guidelines for managing the issue are limited and must be standardised across institutions [5].

Hematoma management depends on location, size, symptoms, and available medical resources [14,15]. The approach can be divided into expectant, surgical, and treatment using selective arterial embolisation. The obstetrician's skills and suitability for surgical intervention are crucial to stopping the bleeding effectively. Underestimated clinical picture, unfamiliarity with the situation, and timing failure are the leading causes of bad outcomes [6,9].

For hematomas under 5 cm, expectant management with observation, analgesia, cold application, pressure dressing, bed rest and antibiotics are recommended. As usual, they are self-limiting and do not need any additional interventions [9].

Surgical measures are required in large, acute or rapidly expanding hematomas, profuse and rapid bleeding, and hemodynamic instability. Large hematomas require surgery, as conservative management can lead to more extended hospital stays, antibiotic use, blood transfusion, and eventual surgery [9,16]. Surgical management involves making an incision through the vaginal mucosa to promote better healing and prevent dyspareunia. Hematoma drainage is also done to achieve a satisfactory outcome with minimal scarring. The surgeon must find and ligate the bleeding vessel using absorbable hemostatic sutures. Usually, the bleeding site cannot be identified, so vaginal tamponade is used to control the bleeding. Vaginal tamponade helps achieve hemostasis by pressing uterine arteries and cervical plexus against the pelvic wall from the vaginal cavity side [9,16,17]. Tamponade methods include commercially available uterine or double balloon catheters with or without the vaginal module, Foley catheters, the Sengstaken-Blakemore tube or surgical dressing for low-resource settings [7,9,16,17]. Tamponade must be removed after 12 to 24 hours. Our clinical case shows that both Foley and uterine balloon catheters can be combined to provide tamponade of large paravaginal hematomas. Prophylactic antibiotics to prevent secondary infection and placement of the urinary catheter for diuresis control should be considered.

Ultrasound-assisted drainage can quickly treat supralevator hematomas [18]. Ultrasound-assisted urokinase treatment can promote hematoma absorption and lower the risk of complications. It is an option for stable patients with late-detected hematomas [19].

Supralevator hematomas can be evacuated, though in rare cases, more invasive options such as laparotomy, iliac artery ligation or angiographic embolisation may be required. It is important to note that angiographic embolisation could be a life-saving option if surgery fails. However, it requires highly qualified invasive radiologists and institutional resources, has its complications and clear indications to use embolisation as a first-line treatment strategy are absent [9,20,21].

The most challenging issue in clinical practice is choosing the strategy for significant hematoma treatment in hemodynamically unstable patients. Usually, the choice is based on shock index, platelet count, and fibrinogen level in the context of visual findings. In a high-resource setting, an increase in shock index, low platelet count, and fibrinogen level could be a cut-off for invasive radiological treatment and the initiation of massive bleeding protocol [4].

In most of the cases, complete recovery after vulvovaginal hematoma is seen. Usually, patients are ready to mobilise on the first or second day and are discharged without additional/ secondary complications [22].

Conclusion

Large concealed vaginal hematoma is a rare postpartum complication. No clinical trials or retrospective studies have been conducted on a reliable management algorithm. It is imperative to closely monitor vital signs and patient complaints when active vaginal bleeding is not visible. Failure to do so could result in the spread of hematoma to internal tissues, which could lead to severe complications. Transperineal ultrasound can be used as a diagnostic tool in case of a suspicion of vaginal hematoma, but mainly the decision is based on clinical signs. After manual revision of a large paravaginal hematoma, for conservative management, a Foley catheter can be combined with a uterine balloon catheter for vaginal tamponade. Management strategies are primarily based on physician experience and equipment availability. Regular team training is essential to manage acute postpartum bleeding and prevent hemodynamic instability that can occur due to vaginal hematomas.

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