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# Concealed paravaginal hematoma spreading in the anterior abdominal wall - a case report

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## Abstract

**Objective:** 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.

**Case(s):** 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 hemodynamics, 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.

**Conclusion:** 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, postpartum haemorrhage, tamponade, uterine balloon

## 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(s)

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

The first period of labour took four hours, and

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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. Around 150 ml of blood 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 haematoma bed was examined immediately, and 1150ml of blood clots were manually evacuated. The hematoma has spread upward and anteriorly into the pelvic tissue. A uterine balloon catheter was placed in the haematoma bed and filled with 300 ml warm crystalloid. One by one, two Foley catheters were placed under the uterine balloon catheter to protect it from expulsion, filled with 60 ml each. The haematoma bed was tamponated tightly. Two interrupted sutures were used to close the previous incision site and fix the catheters. The haematoma bed was dreined by a uterine balloon drainage channel. Where there was unremarkable sanguineous discharge from the haematoma site, the bleeding was stopped immediately. 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.

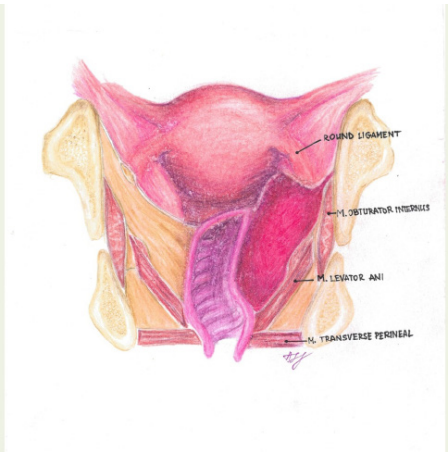


**Fig 1.** Supralevator hematoma

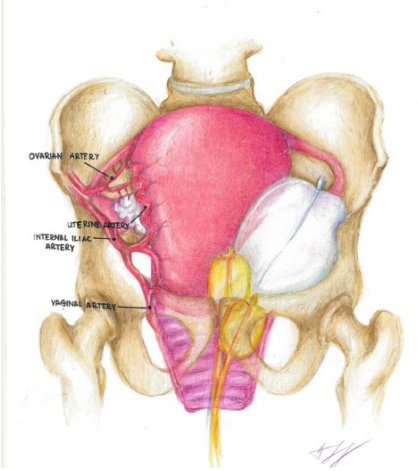


**Fig 2.** Hematoma bed tamponade with uterine balloon and Foley catheters

## 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.[5–7]

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. Underestimated clinical picture, unfamiliarity with the situation, and timing failure are the leading causes of bad outcomes.[6,9] The approach can be divided into expectant, surgical, and treatment using selective arterial embolisation.

Ultrasound could be helpful for early and rapid evaluation of hematoma size and site and for monitoring patients undergoing expectant management.[9–11] Ultrasound-assisted drainage can quickly treat supralevator hematomas.[12] CT scan is helpful for emergency assessment if ultrasound imaging is challenging or when dealing with a supralevator hematoma.[13] Angiography can be used when ultrasound results are inconclusive and can help identify pelvic aneurysms.[14] However, diagnostic tools and guidelines for managing the issue are limited and must be standardised across institutions.[5]

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.[3] 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.[9,15,16]

Hematoma management depends on location, size, symptoms, and available medical resources.[17,18] The most challenging issue in clinical practice is choosing the strategy for treating large hematomas in hemodynamically unstable patients. Usually, the choice is based on shock index, platelet count, and fibrinogen level in the context of visual findings. For venous origin and small hematomas, 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. These clinical findings are typical for hematomas of arterial origin. Large hematomas require surgery, as conservative management can lead to more extended hospital stays, antibiotic use, blood transfusion, and eventual surgery.[9,19] The surgeon must find and ligate the bleeding vessel using absorbable hemostatic sutures. The abdominal approach through the perivesical space to ligate vaginal blood vessels needs an expertise level, but suturing by vaginal route for haematomas spreading into the subperitoneally is impossible.

In the clinical situation we described, maternal collapse required immediate resuscitation and bleeding control, so tamponade was used. Haematoma bed tamponade helps to achieve hemostasis by pressing vaginal and paravaginal blood vessels and cervical plexus against the pelvic wall, decreasing the blood flow in the pelvis.[9,20,21] Our clinical case shows that Foley and uterine balloon catheters can be combined to tamponade the haematoma bed and control the bleeding without advanced surgical skills and invasive radiological treatment. 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.[7,9,19,21] Tamponade must be removed after 12 to 24 hours.

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] 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.[23] Prophylactic antibiotics to prevent secondary infection and placement of the urinary catheter for diuresis control should be considered.

## 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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