

Surgical management of a large non-obstetric vulvar hematoma: A case report

Vjosa A Zejnnullahu, Valon A Zejnnullahu, Ernad Kosumi

ABSTRACT

Introduction: Non-obstetric vulvar hematomas are rare emergencies and there are no guidelines with defined recommendations for the treatment. They constitute up to 0.8% of all gynecological admissions and occur as a result of perineal trauma when compression of soft vulvar tissues against the osseous planes causes damage to the vulvar vascular complex.

Case Report: We present a case of a non-obstetric vulvar hematoma in a 19-year-old woman resulting from the blunt trauma of the vulvar region.

Conclusion: Our experience suggests that surgical intervention, in the setting of an expanding vulvar hematoma, reduces length of hospital stay and minimizes associated morbidity.

Keywords: Drainage, Evacuation, Surgical approach, Trauma, Vulvar hematoma

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Vjosa A Zejnnullahu^{1,2}, Valon A Zejnnullahu³, Ernad Kosumi¹

Affiliations: ¹Department of Obstetrics and Gynecology, University Clinical Center of Kosovo, 10000 Prishtina, Kosovo; ²Faculty of Medicine, University of Prishtina "Hasan Prishtina", Prishtina, Kosovo; ³Department of Abdominal Surgery, University Clinical Center of Kosovo, 10000 Prishtina, Kosovo.

Corresponding Author: Vjosa A Zejnnullahu, PhD, Department of Obstetrics and Gynecology, University Clinical Center of Kosovo, 10000 Prishtina, Kosovo; Email: vjosazejnnullahu@gmail.com

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INTRODUCTION

Vulvovaginal, paravaginal, and retroperitoneal hematomas are common in obstetric settings whereas non-obstetric vulvar hematomas are very rare. Puerperal hematomas occur as a complication of vaginal or perineal bleeding lacerations, episiotomy, after a spontaneous injury to a blood vessels during delivery and after vaginal instrumental delivery [1].

The reported incidence of puerperal hematomas ranges from 1:300 to 1:1500 deliveries [2].

Non-obstetric vulvar hematomas occur as a result of perineal trauma when compression of soft vulvar tissues against the osseous planes causes damage to the vulvar vascular complex [3]. Therefore, vulvar trauma may result in hematomas or external bleeding. Main contributors to this complication are a rich vascular supply of the perineum and vulva as well as valveless, thin-walled female pelvic veins [4]. Numerous anastomoses with the large pelvic venous plexuses and low endurance of subcutaneous fatty tissue permit hemorrhage or massive hematomas [4].

Traumatic vulvar hematomas constitute up to 0.8% of all gynecological admissions [5] and have a reported incidence of 3.7% [6]. They may be caused by car or bicycle accidents [3], fall onto a metal object, fall from a height [7] insertion of a foreign body, sexual assault, consensual intercourse [6, 8, 9] and vulvar surgery [10].

Vulvar hematomas with or without lacerated injuries caused by snowboarding were also reported in the literature [11].

Although, trauma is the main cause of non-obstetric vulvar hematoma, one study reported vulvar hematoma secondary to spontaneous rupture of the internal iliac artery [12] and another study reported a case of vulvar hematoma with rupture of pseudoaneurysm of pudendal artery in absence of trauma [13].

Non-obstetric vulvar hematomas are common in children, pre-pubertal girls and postmenopausal women.

In adult women, large fat deposits of the labia majora, protect the vulva against traumatic injury [14]. Lack of this protection in children and pre-pubertal girls is a main cause of hematoma formation after injury. Similarly, postmenopausal women because of estrogen deficiency, vulvar atrophy, and changes in skin barrier functions are more prone to hematoma formation following trauma [15].

The main symptom of vulvar hematoma is pain, described by the patient as a perineal, abdominal or buttock pain. Other symptoms include neurological, urological symptoms, difficulty walking or sitting [7, 12]. Vulvar hematomas usually present as a tender compressible mass covered by skin with purplish discoloration [16].

Initial evaluation of the patient should include prompt identification of a hematoma, assessment for vaginal, urethral, anal and bony pelvis injuries, patient resuscitation and individualized treatment [17].

We present a case of a vulvar hematoma in a 19-year-old woman resulting from the blunt trauma of the vulvar region.

CASE REPORT

A 19-year-old woman presented to the Emergency room at the Obstetrics and Gynecology Clinic with a large vulvar hematoma following an accidental fall on a wooden object after a short episode of postural syncope. The patient was hospitalized in our Clinic due to the sudden-onset unilateral swelling, associated with severe pain and difficulty walking (Figure 1). Her personal medical history was unremarkable and she was not on any medication. She denied any history of prior sexual intercourse or sexual assault. The patient showed moderate distress on admission, because of local pain.

Clinical examination revealed a hemodynamically stable patient (blood pressure 110/80 mmHg, heart rate 80 bpm, arterial blood oxygen saturation of 99%, and an oral temperature of 37.2°C).

Genital examination revealed a tender, swollen area of approximately 12×7 cm on the entire right vulvar region. The labia was displaced to the left thus considerably deforming her genital anatomy. The patient did not present skin or mucosal wounds as well as vaginal bleeding at the moment of admission. Catheterization was performed because of the urinary retention, caused by progressive labial swelling and local pain; 650 mL of clear urine was drained.

A preoperative laboratory assessment showed complete blood count levels within normal ranges (RBC $3.69 \times 10^6/\text{mm}^3$, hemoglobin level 11.6 g/dL, hematocrit 32.8%, WBC $10.8 \times 10^3/\text{mm}^3$, and platelet count $197 \times 10^3/\text{mm}^3$, bleeding time 1 minute, 30 seconds, clotting time 5 minutes, 45 seconds).

Ultrasound examination of the area revealed a large blood collection in the right labia. Because of the increased pain severity despite parenterally administered pain relievers and acute expansion of the hematoma on physical

examination, a decision for surgical management was made, 1 hour later (Figure 2). Prior to intervention patient consent for surgery was obtained.

Under spinal anesthesia, a vertical incision was performed over the point of maximal protrusion on the right labia, in order to evacuate hematoma. After evacuation of multiple blood clots (>500 mL) the space created by hematoma was reapproximated using five interrupted sutures (polyglactin 910) without draining or packing the hematoma cavity. No sign of further bleeding was observed (Figure 3).

Patient reported a significant decrease of the pain and distress few hours after the surgery. Patient received intravenous crystalloids, broad-spectrum antibiotic, analgesics and had an uneventful postoperative clinical course. She was discharged on the fifth postoperative day (Figure 4).

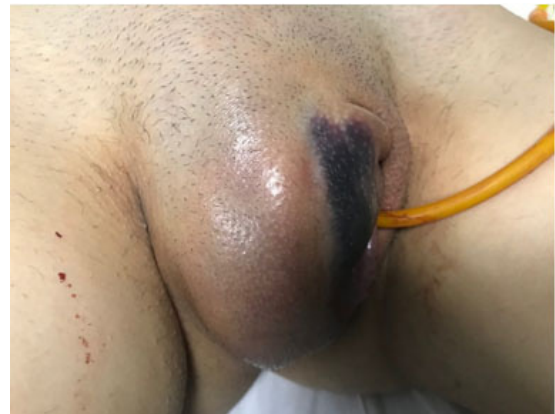


Figure 1: Preoperative image of right vulvar hematoma.

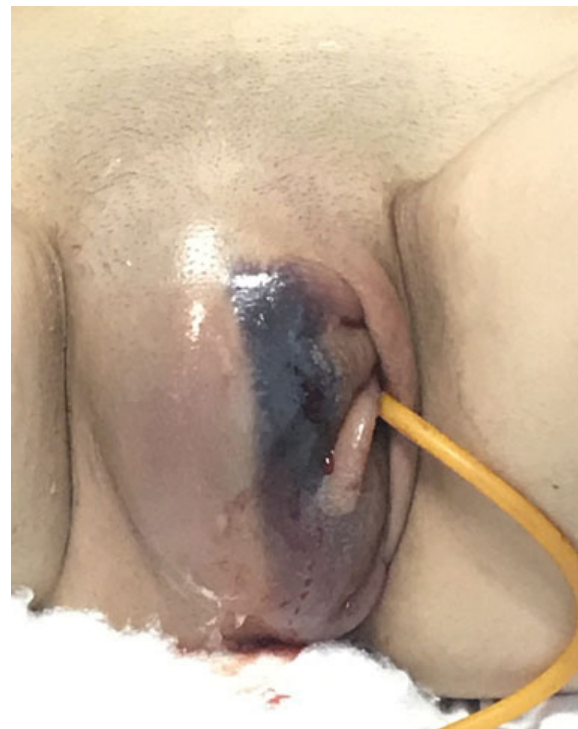


Figure 2: Preoperative image 1 hour later with increased swelling and bleeding, labial deformation to the left.



Figure 3: Intraoperative image of blood clot evacuation and primary closure.



Figure 4: Postoperative image (fifth postoperative day).

DISCUSSION

Non-obstetric vulvar hematomas are rare and constitute up to 0.8% of all gynecological emergencies [5]. They usually occur as a result of accidents, sexual assault, and consensual coitus [6–9]. Patients with vulvar hematoma in absence of the external genital trauma require prompt investigation for spontaneous vessel rupture [12, 13].

The perineal region and vulva have a rich blood supply which is clinically important, especially after birth, trauma or surgical procedures. The vulva is supplied by the branches of the internal pudendal artery including small branches to the gluteal region, inferior hemorrhoidal artery, perineal artery, and artery of the clitoris [4]. The branches of the pudendal artery are located in the

superficial fascia of the anterior and posterior triangle. Therefore, propagation of bleeding is limited by Colles' fascia in the urogenital triangle and by anal fascia in the posterior triangle [14].

In the presented case, our patient fell on an object that caused contusion of the vulvar vascular network against the pelvic bones. In this area, bleeding is restricted by Colles' fascia and can progress to the skin because of low endurance of subcutaneous fatty tissue [14].

Arterial bleeding arises from the branches of the pudendal artery and usually results in hemodynamic instability while in a case of venous bleeding from multiple sites, identification and ligation of causative vessels are often difficult to achieve [14].

Initial assessment of the patient should include a detailed history of external trauma, genital examination, assessment for associated pelvic injuries, laboratory work-up, and diagnostic imaging. After physical examination, perineal sonography is a useful tool in the assessment of the location and expansion of the hematoma and can assist in the expectant management through serial bedside imaging [18]. For cases where retroperitoneal involvement, arteriovenous malformations or aneurysms are suspected, CT-angiography is recommended as more accurate imaging modality [14]. Guerriero et al. recommend magnetic resonance imaging (MRI) for a more detailed mapping of the lesion and exclusion of retroperitoneal involvement [19].

The literature is inconclusive regarding the best treatment approach for vulvar hematomas. However, there is a general consensus that conservative management with bed rest, pain relievers, cold compression, and bladder catheterization is recommended for small, nonexpanding vulvar hematomas [20]. These patients need close observation, to detect any vaginal or retroperitoneal involvement in a timely manner [14].

Expansion of the hematoma or hemodynamically unstable patient necessitates active surgical management, to prevent infection and necrosis caused by pressure [17]. In the presented case, surgical exploration with blood clot evacuation and primary closure was performed because of fast enlarging hematoma and severe pain. We have found this approach to be successful although drainage of the hematoma is also an alternative method.

Zahn et al, advised aggressive operative management and drainage for vulvovaginal hematomas complicating delivery [21]. Benrubi et al. recommended surgical approach when the product of the longitudinal and the transverse diameter is 15 cm or greater. Results from this study, found more subsequent operative intervention, increased complications and increased hospital stay for conservatively managed patients compared to the operatively managed group [22].

Selective angiographic embolization is a safe and effective alternative to surgical approach for pelvic hemorrhage and larger vulvar hematomas [12]. Yet, there is a lack of data comparing advantages and disadvantages of the two methods for the treatment of non-obstetric hematomas.

CONCLUSION

Non-obstetric vulvar hematomas are rare and they usually occur as a result of perineal trauma. Conservative management with close observation is recommended for small, nonexpanding vulvar hematomas. In the setting of a fast expanding vulvar hematomas refractory to conservative management, early surgical approach provides a rational and efficient treatment. Operative management reduces length of the hospital stay and can minimize associated morbidity.

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Author Contributions

Vjosa A Zejnnullahu – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Valon A Zejnnullahu – Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Ernad Kosumi – Interpretation of data, Drafting the work, Revising the work critically for important

intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

The corresponding author is the guarantor of submission.

Source of Support

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Consent Statement

Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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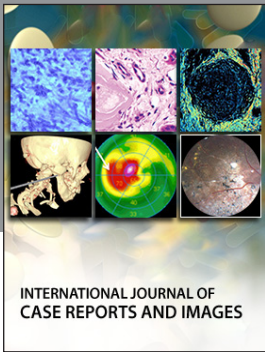
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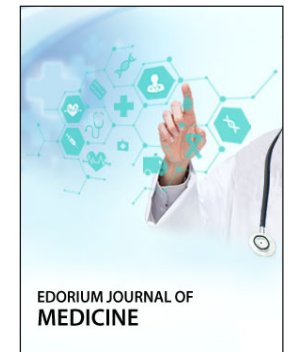
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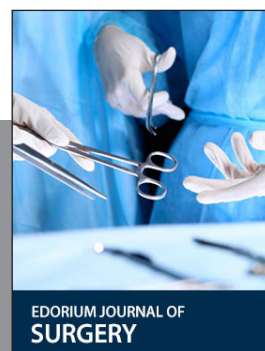
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