

An obstetric emergency case: vulvovaginal hematoma – our four-year results

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Abstract:

Objective: Vulvovaginal hematomas after vaginal delivery are rare but among the life-threatening complications. Though hematomas are related with episiotomy or operative delivery, those may occur in the absence of incision or laceration due to pseudoaneurysm or traumatic arteriovenous fistula.

Methods: Demographic and obstetric data, symptom and examination findings, hematologic and biochemical parameters and findings of 52 vaginal deliveries without vaginal hematoma were compared in 52 cases who were intervened due to vulvovaginal hematoma between 2010 and 2013 at Zekai Tahir Burak Maternal Health Training and Research Hospital. Cost analyses were calculated by reviewing delivery room work periods, compliance with personnel and relationship with shifts.

Results: In a total of 31,163 vaginal deliveries, incidence of vulvovaginal hematoma was found to be 0.16% with 52 cases that were all infralevator. Moreover, all patients with vulvovaginal hematoma had pharmacological induction, 37 of the women were delivered with episiotomy and 13 women (23%) had compliance problem with personnel during labor and delivery. The initial symptoms of the developing hematoma were pain in vulva and perineal region. Hematoma was detected in 31 patients (59.6%) within the first 6 hours after delivery. Transfusion was needed in 37 patients (71.2%) and 35 of them (96.2%) were applied two and more erythrocyte suspension transfusion. It was understood from the medical records that it was tried to determine bleeding focus by opening hematoma area in all cases during general anesthesia, and laparotomy was performed afterwards in one patient. Hospital cost and duration of hospitalization were found to be increased significantly.

Conclusion: Early diagnosis of vulvovaginal hematoma is established by meticulous check of birth canal during delivery and by a meticulous examination again immediately in vulvar and perineal pain complains after delivery. Labor induction should be practiced in absolute indications.

Keywords: Obstetric emergency, vulvovaginal hematoma.

Özet: Obstetrik bir acil durum: Vulvovajinal hematom – Dört yıllık sonuçlarımız

Amaç: Vajinal doğum sonrası vulvovajinal hematomlar az rastlanan ancak yaşamı tehdit edebilen komplikasyonlardır. Hematomlar sıklıkla epizyotomi ya da operatif doğum ile ilişkilendirilirse de insizyon ya da laserasyon olmaksızın da psödoanevrizma, travmatik arteriovenöz fistüle bağlı olarak da görülebilir.

Yöntem: Zekai Tahir Burak Kadın Sağlığı Eğitim ve Araştırma Hastanesi'nde 2010–2013 yılları arasında vulvovajinal hematoma nedeniyle müdahale edilen 52 olgunun demografik, obstetrik verileri, semptom ve muayene bulguları, hematolojik ve biokimyasal parametreleri, vajinal hematoma gelişmemiş 52 vajinal doğuma ait bulgular ile karşılaştırıldı. Doğum salonu çalışma dönemleri, personel ile uyum ve vardiya ile ilişkileri gözden geçirilerek maliyet analizleri çıkarıldı.

Bulgular: Toplam 31.163 vajinal doğumda, hepsi infralevator olan 52 olgu ile, vulvovajinal hematoma insidansı %0.16 olarak bulundu. Vulvovajinal hematoma bütünü hastaların farmakolojik indüksiyon aldığı, 37'sinin doğumunun epizyotomi ile gerçekleştiği, hastaların %59.6'ında eylem ve doğum sırasında personel ile uyum sorununun dosya kayıtlarında yer aldığı belirlendi. Hematom gelişen hastaların ilk bulgularının vulvada ve perinede ağrı olduğu ve 31 hastada (%59.6) doğumdan sonra ilk 6 saat içinde hematomun tespit edildiği görüldü. 37 hastada (%71.2) transfüzyon gerektiği ve bu hastaların 35'ine (%96.2) iki ve üzeri eritrosit süspansiyon transfüzyonu uygulandığı görüldü. Dosya bilgilerinin değerlendirilmesinden, olguların hepsinde genel anestezi altında, hematoma alanının açılarak kanama odağının belirlenmeye çalışıldığı, bir hastada laparotomiye geçildiği anlaşıldı. Maliyet ve hastanede kalış süresinin anlamlı olarak arttığı belirlendi.

Sonuç: Vulvovajinal hematomun erken tanısı, doğumda dikkatli doğum kanalı kontrolü yanında doğum sonrası vulvar ve perineal ağrı yakınmalarında hemen ve tekrar dikkatli muayene ile konur. Doğum eylemi indüksiyonu, mutlak endikasyonlarda uygulanmalıdır.

Anahtar sözcükler: Obstetrik acil, vulvovajinal hematoma.

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Introduction

Puerperal vulvovaginal hematomas are obstetric emergencies that may threaten life with an incidence between 1/300 and 1/1500.^[1,2] There is an increased vascularity in the uterus, vagina and vulva of pregnant woman. Therefore, traumas that will occur during delivery may easily lead to hematoma development. The risk factors for the development of postpartum vulvovaginal hematomas are nulliparity, episiotomy practices, vacuum forceps practices, breech deliveries, births above 4000 g, preeclampsia, prolonged second stage of labor, distinctive vulvar varicose veins, and coagulopathies.^[3–5] Postpartum vulvovaginal hematomas may be seen due to pseudoaneurysm and traumatic arteriovenous fistule without any incision or laceration.^[6] It is also referred in the literature as a cause of severe morbidity/mortality associated with maternal deaths and near misses.^[7]

Methods

A retrospective, cross-section case-controlled study was planned between 2010 and 2013 and by reviewing the records of 52 postpartum vulvovaginal hematoma cases, 52 vaginal delivery cases chosen randomly from the computer system within the same period were compared. The study approval was obtained from Ethics Committee 7 of Zekai Tahir Burak Maternal Health Training and Research Hospital for this study.

Demographic data of patients were evaluated. The duration of first stage of labor was considered from a cervical dilatation of 4 cm and/or an effacement of 70 percent to complete cervical dilatation; while the duration from complete cervical dilatation to the expulsion of the fetus was considered as stage II. The presence of episiotomy, forceps and vacuum practices, compliance problem of pregnant woman with personnel during delivery were extracted from data. Each patient having cooperation and compliance problem during delivery at our hospital is visited by a psychologist and it is noted to patient file. Newborn weight was recorded. Since delivery service at our hospital is offered for 24 hours, 365 days uninterruptedly as eight-hour shifts, the hours for deliveries were evaluated in three groups which were 08:00–16:00, 16:00–00:00 and 00:00–08:00. Also it was recorded if deliveries were carried out during weekdays or weekends. The first finding of hematoma, the duration from the delivery up to the first detection and mean size were recorded.

The difference between the hemoglobin value measured during the first admission of patients with hematoma and the hemoglobin value found when hematoma was detected was recorded. Cost per patient was calculated with the developing complications, the amount of blood transfusion performed and total hospitalization period.

The statistical evaluation of the data obtained was done with SPSS for Windows 11.5 (SPSS Inc., Chicago, IL, USA). T test was used for the comparisons of independent samples in two-category cases with normal distribution for variables determined by measurement and one-way variance analysis and Bonferroni test in cases with more than two categories, Mann-Whitney U test was used in two-category cases for variables without normal distribution and Kruskal-Wallis one-way variance analysis for cases with more than two categories, chi-square test was used for the comparison of qualitative variables, and Pearson and Spearman rank correlation analyses were used to determine correlation between the variables determined by measurement. As the descriptive value, frequency and percentage were used for categorical data, arithmetical mean±standard deviation for the variables determined by measurement, and median (minimum–maximum) value was used for those without normal distribution. Statistical significance level was considered as 0.05.

Results

Incidence of vulvovaginal hematoma was found to be 0.16% in a total of 31,163 vaginal deliveries with 52 cases between 2010 and 2013. **Table 1** provides age, gravidity, parity, length of stage I stage II of the labor, presence of episiotomy, neonatal birthweight and duration of hospitalization in both groups. There was neither vacuum nor forceps delivery. Notes showing that these patients had compliance problem with personnel during labor was detected in the files of 12 patients (23%) who developed hematoma.

When both groups were evaluated in terms of the delivery day and shift periods, it was seen that 38 patients (73.1%) in the group developed hematoma and 41 patients (78.8%) in the control group had their deliveries during weekdays and there was no statistical significance ($p=0.6$) between the groups.

When shift periods were compared, it was seen that 21 (40.4%) patients in the group with hematoma deliv-

ered during the shift period 08:00–16:00, 12 (23.1%) patients delivered during the shift period 16:00–00:00, and 19 (36.5%) patients delivered during the shift period 00:00–08:00. In the control group, it was seen that 17 (32.7%) patients delivered during the shift period 08:00–16:00, 14 (26.9%) patients delivered during the shift period 16:00–00:00, and 21 (40.4%) patients delivered during the shift period 00:00–08:00. When the shift periods in which deliveries were carried out were compared, it was found that there was no statistical difference between the two groups ($p=0.7$).

While the most significant finding in the clinical diagnosis of hematomas varies depending on the localization, mass, perianal pain and the rectal pressure are the main signs and symptoms that can be detected within the first 24 hours.^[2] In our study, we found that hematomas were detected mostly due to pain in the vulvar and perianal area within 6 hours.

If hematomas are large, hemodynamics can be spoiled as much as requiring blood product transfusion. In our study, we understood that mean hemoglobin decrease was 2.8 g/dl and transfusion was required in 37 (71.2%) patients.

In the treatment of vulvovaginal hematomas, conventional approach is recommended with ice bags, methods that will provide pressure and analgesia for hematomas smaller than 5 cm and not growing;^[8] however, surgical procedure should be considered for hematomas expanding or larger than 5 cm. If possible, incision should be made within the vagina, and bleeding focuses should be repaired with eight-shaped absorbable sutures. It may be required to place drain into hematoma space which will stay there at least for

24 hours, tampon into the vagina and Foley catheter.^[9] In our study, drainage was applied to 52 hematoma cases during general anesthesia to find bleeding focus. Drain was not placed in any patient.

It was seen that 48 (92%) patients in the group developing hematoma were evaluated due to pain and bleeding in vulva and perineum, hematoma was found in 31 (59.6%) patients within first 6 hours after delivery and that mean hematoma size was about 65 mm (between 40 and 150 mm). It was understood that hemoglobin decrease was 2.8 ± 1.5 g/dl during diagnosis, transfusion was needed in 37 (71.2%) patients and erythrocyte suspension transfusion was applied to 35 (96.2%) of these patients for two and more times, and coagulopathy was detected in two patients right after the delivery. In all of the cases, hematoma area was opened during general anesthesia to find bleeding focus and hemostasis was established. It was found that laparotomy was performed in a patient by considering the pre-diagnosis of supravaginal hematoma.

It was seen that infection developed during puerperal period in 6 (11.5%) patients and 39 (75%) patients took antibiotics. It was found that cost per patient in those with hematoma was 1,167 TL according to the prices provided in the Communiqué of Social Security Institution.

Discussion

Puerperal vulvovaginal hematomas are serious obstetric complications that may be life threatening. External genital region is fed by a vascular structure rich with internal and external pudental arteries. Damages occurring in this vascular network may easily lead to hematoma for-

Table 1. Demographic and clinical data of the patients.

	Hematoma exists n=52	No hematoma n=52	p
Age*	25.48±5.04	24.36±4.65	0.4
Gravida†	1 (1–4)	1 (1–5)	0.2
Parity†	0 (0–2)	0 (0–4)	0.3
Stage I (min.)*	427.50±196.47	283.88±189.87	0.001
Stage II (min.)*	22.23±2.58	19.46±1.88	0.4
Presence of episiotomy n (%)	37 (71.15%)	40 (76.92%)	0.2
Birth weight (g)*	3396.78±392.14	3281.15±376.15	0.9
Hospitalization period (day)†	3 (1–17)	1 (1–3)	0.000

*Mean±standard deviation, †Median (minimum–maximum)

mation.^[10] Rarely, hematomas developing without any obstetric trauma were also reported.^[11] Puerperal hematomas can be seen in vulvar, vaginal, paravaginal and retroperitoneal localizations. Hemorrhagic shock and infection may develop in cases where the diagnosis and appropriate treatment for puerperal vulvovaginal hematomas are delayed and may even lead to maternal death.^[12]

When the risk factors were analyzed in terms of hematoma development, no significant difference was found between two groups in terms of gravida, parity, stage II of labor, newborn birth weight and presence of episiotomy. However, we found by comparing two groups that stage I of labor was significantly longer in the group developing hematoma ($p=0.001$).

We could not find a significant difference between two groups when we analyzed the day and shift periods when hematoma developed. This result indicates that personal factors are more effective in the development of vulvovaginal hematoma than the attention and practices of healthcare professionals.

While the most significant finding in the clinical diagnosis of hematomas varies depending on the localization, there are mass, pain and the feeling of rectal pressure, and it can be detected within the first 24 hours.^[2] In our study, we found that hematomas were detected mostly within 6 hours due to pain.

If hematomas are large, because of the deterioration of hemodynamics, blood and blood product transfusion may be required. In our study, we found that mean hemoglobin decrease was 2.8 g/dl and transfusion was required in 37 (71.2%) patients.

Patients requiring five or more units of blood or erythrocyte transfusion are defined as near-miss cases.^[7] As 13 (25%) patients had more than 5 units of blood product transfusion in our study, it should not be ignored that there are patients with high morbidity of vulvovaginal hematomas.

In the treatment of vulvovaginal hematomas, conventional approach is recommended with ice bags, tamponade methods (such as Bakri balloon, Sengstaken-Blakemore tube) that will provide pressure and analgesia for hematomas smaller than 5 cm and not growing in patients with stable hemodynamics;^[8,13,14] but surgical procedure should be considered for hematomas expanding or larger than 5 cm.

If possible, incision should be made within the vagina, and bleeding focuses should be repaired with eight shaped absorbable sutures. It may be required to insert a drain into hematoma space which will stay there at least for 24 hours. Insertion of a tamponade into the vagina and urinary dwelling Foley catheter may also be necessary.^[10] While surgery is performed usually under general anesthesia in hematomas, regional or local anesthesia may also be applied. In our study, drainage was applied to 52 hematoma cases under general anesthesia in an attempt to find the bleeding vessel. It was not needed to place drain in any patient. Laparotomy may be required there is a suspicion of retroperitoneal expansion of vulvovaginal hematomas. In our study, only one patient had laparotomy due to the suspicion of retroperitoneal expansion.

Infection developed during puerperal period in 6 (11.5%) patients and 39 (75%) of the patients were administered antibiotics. Cost per patient was found as 1,167 TL in patients with vulvovaginal hematoma. This cost equivalents to two times of the cost of a delivery without any complication.

Conclusion

As postpartum vulvovaginal hematomas may result with serious morbidity and also mortality even rarely, hemodynamic findings and pain complaints in perineal and vulvar region of all cases should be carefully monitored for 24 hours; when hematoma is detected, applying early active surgical drainage by considering the hemodynamics will decrease morbidity and hospital costs.

Conflicts of Interest: No conflicts declared.

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