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Case Series

Puerperal Hematoma: About 5 Cases Managed in the Gynaeco-Obstetrics II Department of the CHU Hassan II of Fez and a Review of the Literature

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Abstract

Puerperal hematoma is a rare complication of childbirth, with a serious morbidity and mortality risk.

The use of good surgical technique and attention to hemostasis in episiotomy and laceration repairs are one of the preventive measures that limit the occurrence of this complication. However, puerperal hematomas are not inevitable. Due to insufficient information on management protocol in the literature, the management protocol has not yet been codified. Treatment depends on the volume of the hematoma, the hemodynamic state, the availability of interventional radiology and, above all, the habits of the obstetric teams. There are three approaches to care: expectant management, surgical evacuation or embolization of the uterine artery.

We report a series of 5 cases of puerperal hematoma (Table 1), 3 of which were treated surgically and two with expectant care, together with a review of the literature.

Keywords: *Puerperal Hematoma; Genital Thrombus; Post-Partum Hemorrhagic*

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Age	19	39	20	30	22
Parity	P1	P4	P1	P2	P2
Mode of delivery	Vaginal delivery + episiotomy	Home birth vaginal delivery	Vaginal delivery + episiotomy (right)	Vaginal delivery + episiotomy (left)	Vaginal delivery + episiotomy (left)
Birth weight	3600g	Not specified	3500g	3800g	3400g
Diagnostic criteria	-Hemodynamic instability -Perineal pain	-Tenesmus -bleeding	-Perineal pain	-Perineal pain -Hemodynamic instability	A chance discovery
Location and size of puerperal haematoma	6 cm left vulvovaginal hematoma	7-8 cm left vulvo-vaginal swelling	Vulvar swelling of 6 cm on the left side opposite the episiotomy	Giant right vulvar swelling opposite the episiotomy	7 cm right vaginal swelling
Biology	Hb of 9 vs 10, Correct clotting profile	Hb of 11 Correct clotting profile	Hb of 7 Correct clotting profile	Hb of 6 Correct clotting profile	Hb of 7 vs 10 Correct clotting profile

Management	-Medical treatment -Transfusion -Surgical drainage -Closing of the episiotomy -Surgical packing (24h)	-Medical treatment - Surgical drainage -Surgical packing (24h)	-Medical treatment (Antibiotic prophylaxis) -Pain reliever -Transfusion)	-Medical treatment -Surgical drainage +surgical packing (6H)	-Medical treatment -Surgical abstention - Followed by drainage after spontaneous evacuation and hemorrhage

Table 1*: Summary of the 5 medical histories of our patients.*

Introduction

Post-partum hemorrhage is still the leading cause of maternal mortality worldwide [1]; It can be caused by a number of factors, including retained placenta, uterine atony, placental insertion anomalies, and genital tract tears [2].

Puerperal hematoma (or genital thrombus) is a rare but serious post-partum hemorrhagic complication that can be life-threatening for the mother. It is the detachment of para-vaginal, para-cervical, or parametrial connective tissue by vascular lesions, generally due to direct trauma during childbirth. The vascular rupture is often venous in the vaginal walls [3].

In vulvovaginal forms, the diagnosis of genital thrombus is usually straightforward in the presence of pathognomonic symptoms. We report 3 cases of puerperal hematoma of the immediate postpartum period treated surgically in our clinic, together with a review of the literature.

Case Presentation

Patient and medical history

Medical history 1

Mrs. X, aged 19, primiparous, with no known pathological history, who was admitted for delivery of a full-term pregnancy, with the discovery of high blood pressure during the peripartum period at the very beginning of labor (latency phase).

She progressed harmoniously until complete dilatation with vaginal delivery of a healthy girl weighing 3600 grams after non-operative vaginal delivery and episiotomy, which was repaired without incident after an active placenta delivery; she was then monitored.

Two hours later, she presented with hemodynamic instability and, on perineal examination; a large left vulva hematoma measuring approximately 06 cm in diameter and 8 cm in length, accompanied with signs of cutaneous distress and moderate bleeding (Figure 1). She was immediately resuscitated and monitored (monitoring of vital parameters, oxygen therapy, and second intravenous access). A blood test revealed a low hemoglobin level of 9.7 g/dl versus 10.6 g/dl.

The decision was made to carry out surgical drainage given the hemodynamic instability and associated deglobulisation following the blood work: Upon reopening of the episiotomy, the hematoma was not extensive, and there was no active hemorrhage after its evacuation. The episiotomy was then closed in 3 layers followed by suturing of the vaginal tears in the left vaginal wall, the surgical packs were removed 24 hours later. The patient was transfused with packed red blood cells and given prophylactic antibiotics and analgesics. The patient was discharged two days later. Weekly follow-up was uneventful, with complete remission after ten days.

Figure 1: *Immediate vulvar haematoma.*

Medical history 2

Mrs M, a 39 year old multiparous mother, who had a vaginal delivery at home. The immediate post-partum period was characterized by the onset of tenesmus, which prompted her to consult for further treatment.

Upon general examination at admission, the patient was hemodynamically and respiratory stable. The gynecological examination revealed a perineal swelling measuring approximately 08 cm occupying the left hemi-vulva, extending towards the gluteal fold behind and into the posterolateral left part of the vagina, with the presence of a left lateral vaginal breach involving the mucosa and muscularis propria, measuring approximately 3 cm and leaking a significant quantity of blood (Figure 2A). The skin was shiny and tensed with pain on palpation, making exploration difficult.

Given this clinical presentation, the diagnosis of a post-partum vulva hematoma was made. An assessment of the impact of the hematoma and the patient's full blood count was requested and was uneventful. The patient was immediately taken to the operating theatre due to the abundance of hemorrhage.

Under spinal anesthesia, we performed a uterine revision and also carried out a thorough lesion assessment, particularly a rectal examination, which revealed an extended hematoma into the pararectal space. We then evacuated the hematoma, without any clear evidence of active bleeding, and inserted a surgical (hemostatic pack), followed by closure of the vaginal mucosa and insertion of a vaginal tampon for compressive purposes, which was removed 24 hours later (Figure 2).

An angioscan was performed after evacuation, revealing a residual hematoma in the posterior perineal soft tissues lateralized to the left, measuring 48x38x92 mm, with no extravasation of contrast material.

Post-operative follow-up was uneventful, with complete resorption of the residual hematoma on the 8th day.

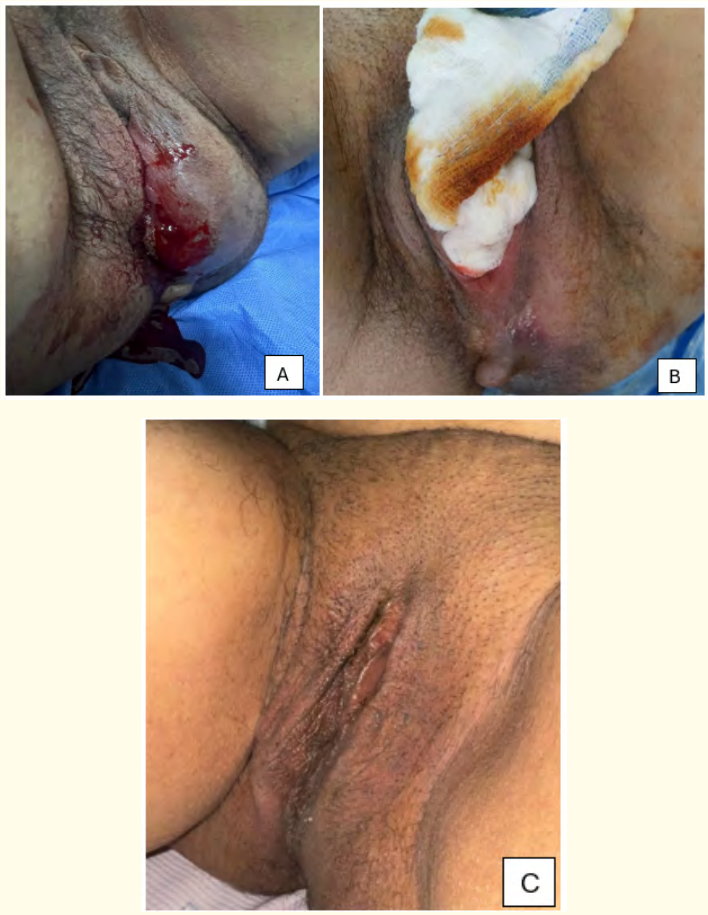


Figure 2: *(A) Puerperal hematoma before drainage. (B) Immediately after drainage. (C) Complete resorption on the 8th day.*

Medical history 3

Mrs S, primigravida, 20 years old, with no particular history, referred from the health centre for delivery of a pregnancy which was said to be full term, which progressed harmoniously until dilation followed by an eutocic vaginal delivery associated with episiotomy of a male newborn weighing 3500g with an Apgar score of 10/10, who had active placental delivery with episiotomy repair on the right side of the vulva. The evolution was characterized by the appearance of a left vulva swelling contralateral to the episiotomy at H3 of her delivery, which progressively increased in volume and became very painful. Upon clinical examination, the patient was conscious, hemodynamically and respiratory stable, with BP 130/90 mmHg, HR 88 Bpm, T=37.2, and a slightly discolored conjunctivae. Inspection of the vulva revealed a clean episiotomy scar on the right with no active bleeding. On the left side: a bulging, bluish swelling which was painful at palpation and measured 05- 06 cm wide extending to the gluteal fold and behind the anus (Figure 3). In addition, a good safety globe, supple calves, minimal lochia, and the rest of the post-natal examination was uneventful.

Pelvic ultrasound revealed: a globular uterus related to the postpartum period, with a vacuity line running all the way to the bottom, no effusion. Abdomino-pelvic angioscan (Figure 4), showed no extravasation of the contrast product at any of the different stages, with the presence of a large pelvic hematoma centred on the lateral wall of the vagina, fusing at the level of the perineal soft tissues towards the left

vulva. There was also a small intra-peritoneal effusion associated with hematic densities. The patient was transferred to the observation ward with a follow-up hemoglobin level of 7 g/dl and a correct clotting profile. Two packed red blood cells were transfused, resulting in a control hemoglobin of 9.2 g/dl. Antibiotic prophylaxis and local care were started. The patient stayed in our clinic for 7 days with strict monitoring of the volume of the hematoma, heart rate, blood pressure and conjunctival condition, along with a daily blood count. A favorable evolution was noted on day 7 (See figure 3B).

Figure 3: *Initial puerperal haematoma (A) with spontaneous improvement on day 7 (B).*

Medical history 4

The patient was Mrs K, 30 years old, pauciparous, with no notable history, admitted for delivery of a pregnancy that was said to be at term; marked by the delivery with episiotomy of a newborn male weighing 3800g, Apgar 10/10; with an uneventful episiotomy repair after active placental delivery, and the discovery of some tears in the lateral walls of the vagina. During the post-natal examination, the patient reported intense perineal pain. On clinical examination, the patient was pale and asthenic, hypotensive, and tachycardic at 125 beats/min. On inspection of the vulva, we objectified a swelling of the right hemivulva lateral to the inguinal fold and inferior to the gluteal fold. The swelling was purplish-pink and oval-shaped (See figure 4), painful at palpation, and measured approximately 20 cm in height. The diagnosis of post-partum valvular hematoma was then made. The patient was anemic with 6 g/dl upon investigative analysis and was admitted to the operating theatre due to hemodynamic instability.

Under spinal anesthesia, we performed a thorough lesion assessment, which revealed two tears and an extended hematoma to the right lateral wall of the vagina. One of the tears communicated with the Douglas pouch, while the other was 2 cm away from the vestibular bulb. The vaginal mucosa was weak.

After this examination, the diagnosis of vulvovaginal puerperal hematoma was confirmed. We applied digital pressure to the swelling, followed by enlargement of the tear located 2 cm from the vestibular bulb to drain a 760 ml hematoma, which revealed active bleeding in the deep layer of the right lateral vaginal wall. We used X-shaped sutures until hemostasis was achieved, then repaired the remaining tears. We went ahead to repair the removed sutures on the episiotomy which had removed due to speculum examination during the lesion assessment. We packed the vagina with surgical packs soaked in Exacyl to ensure a perfect hemostasis of the micro-lesions that could not be sutured. At the end of the procedure, the vulva had regained its normal form. The surgical pack was removed 6 hours after the procedure. The patient was started on a general course of antibiotics (clavulanic amoxicillin at a dose of 1g/8 hours for 10 days) and a local antiseptic with 3 vaginal wipes a day. The patient was seen on the 7th day after surgery, with an uneventful local examination.

Figure 4: *vulvovaginal hematoma (A) and evolution after drainage on day 7 (B).*

Medical history 5

Patient aged 22, pauciparous, without defects, having given birth vaginally (birth weight at 3 kg 400); non-instrumental delivery with left episiotomy then referred at H2 following the discovery of a hematoma. Clinical examination upon admission was uneventful, with normal blood pressure and normal heartbeat rhythm and a good safety uterine globe. Examination of the genital tract revealed a voluminous hematoma at right vaginal wall with the long axis measuring approximately 4 cm which prevented further exploration. There was no active hemorrhage. Biological work-up showed anemia of 10.2, clotting profile was correct.

An angioscan was performed to determine the extent of the hematoma, revealing a large intravaginal hematoma measuring 108x102x128 mm in diameter with non-optimal enhancement of the right lateral wall of the vagina, with no evidence of extravasation of the contrast material, associated with moderate pelvic hemoperitoneum.

The decision was made to abstain from surgery and proceed with medical treatment (antibiotics, analgesics), and clinical and biological monitoring. During monitoring, she showed slight hemodynamic instability on day 1, with continuously decreased red blood cells (Hb 7 versus 10), which led to the prescription of a new CT scan with no extravasation of contrast material, leading to the decision for a transfusion and close monitoring.

The evolution was characterized by a spontaneous evacuation of the hematoma on the 8th day, associated with minute hemorrhage, which led to the decision to carry out surgical drainage, which exposed a non-bleeding tear of around 2 cm in the right lateral vaginal wall, hence the need for surgical packing.

Follow-up was uneventful, the surgical packs were removed within 24 hours, and the patient was discharged with a weekly review.

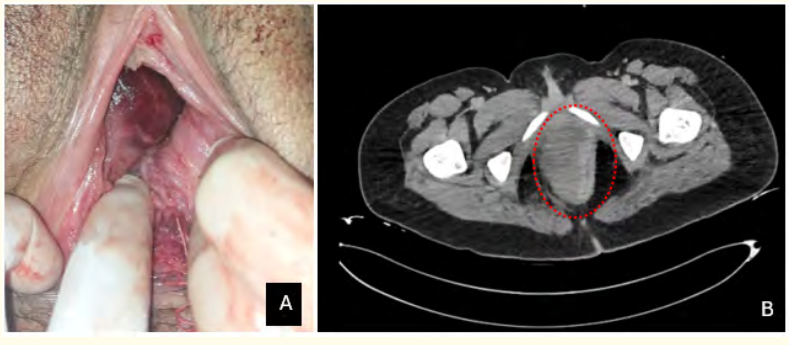


Figure 5: *Clinical aspect of vaginal hematoma (A) VS radiological aspect (B).*

Discussion

Perigenital hematoma, also known as puerperal haematoma (PH) or incorrectly as 'genital thrombus', is a peculiar type of postpartum hemorrhage with a variable incidence in the literature, which is estimated at 1/1000 deliveries [2]. Outside pregnancy, a few unusual cases have been reported concerning trauma caused by a straddle genital fall and coitus [3].

The PH forms in a para-vaginal, para-cervical or parametrial connective detachment after vascular lesions; the collection spreads into the loose adipose tissue with the possibility of extending upwards into the base of the broad ligament and the retroperitoneum, making for a multitude of clinical presentations. Although the pathogenesis is still debated, it seems to be caused by intra-pelvic rotation of the fetal head, which could either be spontaneous or manual. PH is unilateral because the spread is limited by the median raphe, and is most often right-sided due to the greater frequency of right cephalic posterior presentation than left [2,4].

Vascular wounds due to tissue detachment have no tendency of hemostasis, and DIC may rapidly occur following hemorrhage [5]. The main risk factors found in the literature are: primiparity, instrumental vaginal birth, fetal macrosomia, multiple pregnancies, vulvovaginal varices, coagulation anomalies, instrumental extraction, all the more accompanied by rotation, could increase the risk of PH [5]. Other factors are more controversial, such as episiotomy, 'protective' for some, a risk factor in its own right for others (this may survive following inadequate repair of an episiotomy or a tear where the angle of the incision has not been sutured) [2].

Nonetheless, these perigenital hematomas may occur after normal deliveries without any associated risk factors. Their occurrence is therefore unpredictable.

In our case series, 3 of the patients had undergone an episiotomy. Insufficient repair was the cause of its occurrence in one of the patients, whereas episiotomy in two of our patients did not prevent the occurrence of a contralateral hematoma.

Diagnosis is primarily clinical, with immediate or delayed presenting symptoms. Different types of hematoma have been described, depending on their location, and the clinical picture will therefore vary [4], [5]:

- Vulva hematoma, vaginal hematoma, or even vulvovaginal hematoma, which is the most frequent. It presents as an intense perineal pain associated with tenesmus, or presence of a painful swelling on the labia majora or of the lateral wall of the vagina pushing back the vaginal cavity.
- Supra-vaginal or sub-peritoneal hematomas: Always severe, these result from traumatic injury to the cervix, lower segment or the posterior vaginal fornix.

Either completely asymptomatic, or a slight pain, and therefore sometimes not taken into consideration, even by the patient herself.

The diagnosis should be made in the presence of any hypovolemic shock without hemoperitoneum in the absence of external hemorrhage: postpartum retroplacental hemorrhage, and retroplacental hematoma share the characteristic of being rapidly accompanied by coagulopathy. Clinical signs can lead to the diagnosis: there is a tenderness, the uterus is deviated when the vagina is touched, and there is an arch above the crural arch.

- Uterine tenderness and deviated uterus during digital vaginal examination associated with a swelling above the crural arch.

The diagnosis is rarely misleading in vulvovaginal forms, but is more difficult in the case of subperitoneal PH and requires ultrasound to rule out hemoperitoneum, which is an emergency [4]. For vulvovaginal hematomas, imaging (MRI or CT scan) is not invaluable for diagnosis, but gives a more accurate measurement and optimal monitoring of the extent of the lesion, especially in patients where the management plan is surgical abstinence.

In the management of any postpartum hemorrhage, there is both a medical component and a lesional component. Each patient is unique, and the choice of therapeutic management is clinically peculiar to each patient. As seen in any post-partum hemorrhage, management sometimes needs to be rapid, codified, and multidisciplinary (obstetric-gynecologist, interventional radiologist, anesthetist-intensivist) [6].

The management algorithm proposed by J. Bienstman-Pailleux and C. Huissoud recommends a simple monitoring for patients with stable hematomas of less than 5 cm [4]. Medical treatment is based on the correction of hypovolemia and any coagulation disorders, as well as antibiotic prophylaxis with amoxicillin-clavulanic acid [7].

A precise lesion assessment is essential and varies according to the characteristics of the PH. The first step in management is manual uterine revision and visual examination of the genital tract to check for other causes of complications. Some teams propose simple monitoring for small PH and apply ice to hematomas of less than 5 cm [8], while Villella., *et al.* propose the same management plan for patients with hematomas of up to 8 cm [9].

The "Active" management plan of PH involves surgery and/or arterial embolization. Surgical treatment consists of incising the lesion and digital evacuation of the clots. Hemostasis is often difficult, and X-stitches with a round-bodied needle are required to limit tissue laceration. Drainage is recommended, preferably with a drainage blade, but Redon drainage is also possible. Vaginal tamponade is performed using several surgical packs left in place for 24 to 48 hours. There is no consensus on the optimal duration of vaginal tamponade. Indwelling urinary catheterization is essential during the vaginal tamponade to avoid urinary retention due to urethral compression [4].

After the operation, the most delicate stage is the removal of the surgical packs, which may lead to a recurrence of bleeding. In the event of immediate failure of surgical hemostasis or recurrence of hemorrhage, artery ligation or percutaneous vascular embolization of the hypogastric arteries and their branches most be considered. Embolization can be considered after failure of conventional treatment before surgical ligation, as it is less invasive and may guide secondary ligation [10].

No cases of embolization were reported in our series, and two patients benefited from an expectant attitude with a good outcome. Surgical drainage was performed in 3 patients, mainly because of hemodynamic instability in one patient and the large volume of the hematoma in the other patients (20 cm).

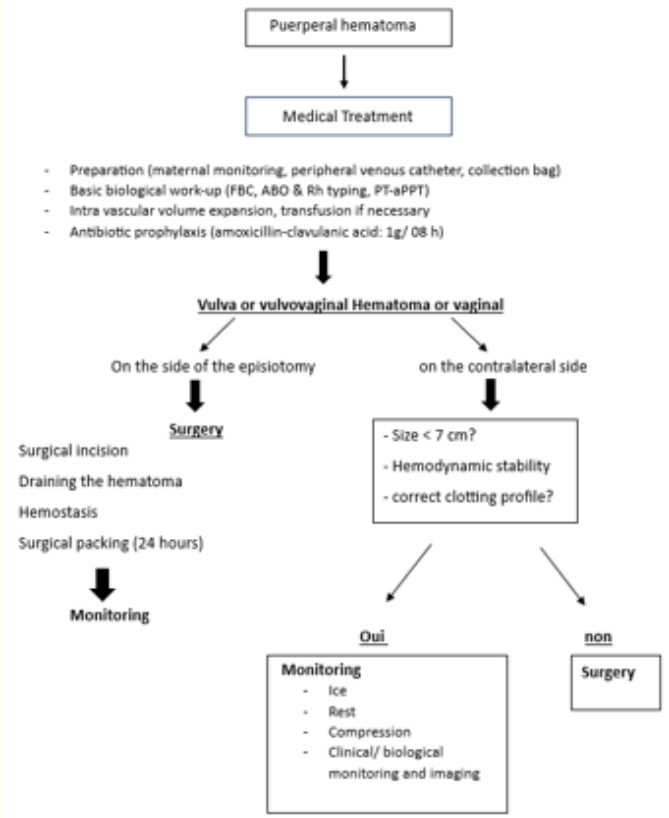
The criteria for different approaches were, firstly, hemodynamic stability, absence of active red blood cells loss after blood work, a correct clotting profile, and more so, the volume of the hematoma.

Almost no maternal mortality has been reported. On the other hand, maternal morbidity is non-negligible, at around 30%, and the most frequently reported complications are [11]: anemia and hemostasis disorders; infectious complications like abscesses in the ischiorectal fossa and difficulties in healing; recurrence of hemorrhage; pain associated with sequelae of dyspareunia; deep vein thrombosis; and recto-vesical or uterovaginal fistulas.

In our series, apart from anemia, no other complications were reported among those described in the literature.

We share the opinion of several authors who agree that the therapeutic indications for PH depend on the patient's hemodynamic stability, the biological status, the extensive nature of the hematoma, and ultimately, the management protocol of the obstetric team. And concurs the fact that management based only on the size of the hematoma is insufficient.

Nevertheless, in the light of our experience, we can propose a course of treatment that takes account of hemodynamic stability, technical resources (non-availability of emergency embolization), the size and location of the hematoma, and the biological work-up.



Figure

Conclusion

Perigenital hematoma is an unpredictable and rare but not an exceptional event, for which every obstetrician must be prepared to manage appropriately. The diagnosis is clinically obvious in vulvovaginal forms after a thorough clinical examination. It is important to rapidly treat when the hematoma exceeds 5 cm in some cases, given the severity of the prognosis of this pathology, which is dominated by hemostatic disorder. The choice of management depends on the initial lesion assessment and the technical resources available. Prevention entails careful repair of vulvovaginal-perineal tears, of episiotomies and appropriate measures in performing instrumental extractions.

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