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# A Rare Case: Rupture of Internal Pudendal and Uterine Artery in a Vaginal Delivery

Novera G. Chughtai and Raheela Mohsin Rizvi

## ABSTRACT

The management of puerperal hematomas after normal delivery has always been challenging for obstetricians. Vulvar, vulvovaginal, or paravaginal hematomas are common. On the other hand, retroperitoneal hematomas are uncommon and can be life-threatening. The diagnosis of vascular injury is rarely made preoperatively as atonic or traumatic postpartum hemorrhage (PPH), uterine rupture and amniotic fluid embolism are more common differential diagnoses. Injury to internal pudendal and uterine vessels is extremely rare in cases of vaginal delivery and, therefore, the literature on this topic is very scarce. We present a rare case of both internal pudendal and uterine artery rupture in a normal vaginal delivery, which led to massive postpartum hemorrhage. The diagnosis was made on Magnetic Resonance imaging (MRI) and arterial embolization was performed. This case stresses on the need for careful post-delivery monitoring for revealed postpartum hemorrhage. Vascular injury is a rare life-threatening cause of obstetric shock, and active; and timely operative intervention can prevent morbidity and mortality.

**Key Words:** *Postpartum hemorrhage. Maternal mortality. Hematoma. Internal pudendal artery rupture. Uterine artery rupture. Vaginal delivery. Complication.*

## INTRODUCTION

Massive postpartum hemorrhage is one of the most feared complications of vaginal delivery. Uterine atony, retained placenta, and vaginal and cervical tears are the common causes. Hematomas due to arterial rupture are rare and their insidious nature may delay the diagnosis and cause severe hemorrhagic shock and even death.<sup>1</sup>

During pregnancy and postpartum period, rupture of uterine vessels is a rare life-threatening condition. The risk of maternal and perinatal mortality is reported as high as 40 and 30%, respectively.<sup>2</sup> Spontaneous rupture of uterine vessels has been reported in literature, more frequently in the antenatal and less commonly in the postpartum period. The broad ligament is the most common site being involved in 75% of cases.<sup>3</sup>

In cases of massive postpartum hemorrhage, when mainstay methods of suture and packing fail, arterial embolization becomes an excellent alternative to definitive treatment, laparotomy.<sup>4</sup>

This case report describes the above rare complication in a vaginal delivery of a primipara.

## CASE REPORT

A 22-year primipara was referred to our hospital emergency services with complaints of heavy bleeding

immediately post normal vaginal delivery of a 5 lbs baby two hours back. On admission, she was tachycardiac and hypotensive. Per abdominal examination revealed no abnormality. On pelvic examination, she was found to have a right sided vulval hematoma, sized approximately 8x10 cm with massive vaginal bleeding. Hematological investigations showed severe anemia with a hemoglobin of 3 gm/dl and deranged coagulation profile. She was immediately taken for examination under anesthesia (EUA) and to proceed accordingly. EUA revealed a right sided vulvo-vaginal hematoma, which was drained; active bleeding was also seen from right lateral cervical tear. Hemostasis was secured by repair of cervical tears, few sutures were applied at hematoma base and vaginal packing. Patient was given packed cells and blood products to prevent disseminated intravascular coagulation (DIC).

During her postoperative recovery, she was found to be hemodynamically stable; but despite multiple transfusions, her hemoglobin remained below 8 gm%. An initial diagnosis of DIC was made and conservative treatment given; but in view of her deteriorating condition with active vaginal bleeding and recurrence of lateral vaginal wall hematoma of 10x10 cm, internal hemorrhage from uterine/pudendal artery was thought of. MRI angiogram was planned, which showed active breach in the right uterine artery and the right internal pudendal artery and a large vulvo vaginal hematoma (Figure 1).

The case was discussed with radiology interventionist and an angio-embolization was performed. The vaginal pack was retained for 24 hours and the patient was kept in the special care ward. She remained well and was

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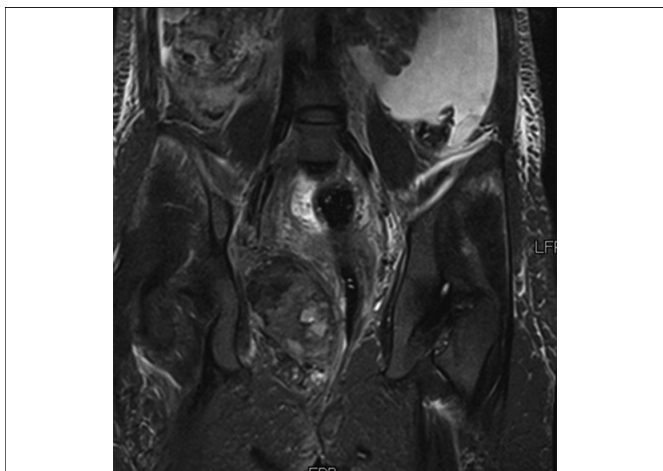


Figure 1: Coronal MRI image of the vulvo-vaginal hematoma.

discharged on the sixth postoperative day. Her subsequent visits in gynecology clinics showed smooth and uneventful recovery with resumption of normal menstrual cycle.

### DISCUSSION

Many cases of puerperal hematomas, secondary to uterine artery rupture, have been described in literature, both in pregnancy and postpartum period; but there has been no report of both the uterine and internal pudendal arterial rupture in normal delivery to date.

Puerperal hematoma is an uncommon complication of childbirth with a potential for serious morbidity and possible mortality. Their incidence is 1 or 2/1,000 deliveries. Puerperal hematomas, however, are not unavoidable.<sup>5</sup>

The initial conservative treatment options in the management of vulvo-vaginal hematomas include suturing and vaginal packing. This is similar to what was done in this case which was initially managed conservatively by examination under anesthesia and vaginal packing. Serial complete blood count and coagulation profile were performed, which showed a continuous drop in hemoglobin and warranted further investigation including MRI. Guerririo *et al.* describe the sonographic follow-up of vulvo-vaginal hematoma with MRI correlation. The authors concluded that MRI provides a detailed mapping of the lesion and excludes retroperitoneal involvement.<sup>6</sup>

Case series on the management of retroperitoneal hematomas after vaginal delivery have reported various methods, including conservative approach and surgical interventions, such as laparotomy and evacuation of the hematoma, pelvic arterial embolization,<sup>7</sup> and even hysterectomy.<sup>1</sup>

Embolization of the bleeding artery can be considered when surgical interventions cannot guarantee success. The bleeding artery can be localised through digital

subtraction angiography.<sup>8</sup> An interventional radiologist can then embolize the bleeding vessel supplying the site.<sup>8</sup> Pelvic arterial embolization is a good option in the management of puerperal hematomas, if the patient is hemodynamically stable and the necessary equipment and staff are available. If both of these conditions are not met, as in this case, then laparotomy is indicated.<sup>9</sup>

Ligation of the internal iliac artery has been successfully used in postpartum hemorrhages for more than five decades. It provides a reduction of 85% in pulse pressure and a 50% reduction in blood flow in the distal vessels, including uterine artery, internal pudendal artery and middle rectal artery.<sup>10</sup> Internal iliac artery ligation is an effective technique that requires surgical skill.

Rupture of internal pudendal and uterine artery in a vaginal delivery is a rare diagnosis and this is the first case report in this context. In cases of massive postpartum hemorrhage refractory to conservative measures, and facilities available, then MRI and pelvic angiogram are useful diagnostic tools for diagnosis of arterial rupture; though expensive, but timely angio-embolization can prevent morbidity and loss of a precious life.

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