Trans-Arterial Embolization On A Catastrophic Primary Postpartum Hemorrhage Due To Arterial Aneurysm With Arteriovenous Fistula At Bilateral Lower Vagina: A Case Report

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Case report

Keywords: Post-partum hemorrhage (PPH), arterial aneurysm, arteriovenous fistula (AVF), Trans-arterial embolization (TAE)

Posted Date: July 27th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-714094/v1>

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Abstract

Background: Failure of the primary management at controlling the post-partum hemorrhage (PPH) is occasionally encountered. A catastrophic cause of PPH as vagina arterial aneurysms with AVF is rare and not reported in English literature.

Case presentations: We present a 34-year-old woman of arterial aneurysms with arteriovenous fistulas (AVF) at bilateral lower vagina causing intractable PPH with aggressive bleeding. By trans-arterial embolization (TAE) the bleeding is successfully controlled, and patient then could recover smoothly.

Conclusion: These vascular anomalies being fierce culprit of the PPH would result in primary management failure. Knowledge of the possible etiology of post-partum hemorrhage is crucial for treatment management. This case report aims to point out a pivotal role of TAE at detecting and treating this unusual cause of PPH.

Introduction

Postpartum hemorrhage is a major cause of maternal morbidity and mortality, worldwide(1). PPH is often clinically assessed by the care givers, particularly at the emergent situation(2). The usual etiologies of PPH include genital tract laceration, uterus atony, uterine rupture, placenta retention, coagulopathy(3–5). Of these, the vascular injury and anomalies such as aneurysm, arteriovenous fistula (AVF) and arteriovenous malformation (AVM) are fierce culprits(6), and vagina arterial aneurysms with AVF in this presented case is rarely seen. Trans-arterial embolization (TAE) is an effective and minimally invasive procedure in managing the PPH(3, 4). Here, we present a case of lower vaginal arterial aneurysm with AVF causing aggressive PPH successfully controlled by TAE after failure of the primary management.

Case Report

A 34-year-old woman with obstetric history of G3P0AA2 was 38 + weeks pregnant and otherwise healthy. She was admitted for vaginal delivery after spontaneous rupture of the amniotic membranes. Primary post-partum hemorrhage (PPH) occurred after delivery; initial medical management was ineffective. After blood transfusion and vaginal packing with surgical pads, she returned to normotensive status temporarily. As vaginal bleeding persisted, angiography was performed by which arterial aneurysms with AVFs (Fig. 1) fed by the internal pudendal arteries (Fig. 2) were discovered at the bilateral lower vagina. Hemostasis was achieved by TAE of the aneurysms with metallic coils at each of the distal internal pudendal artery. After 5 days of hospitalization, she recovered well, and a rechecked angiography 3 months later revealed obliteration of the vascular lesions (Fig. 3).

Discussion

The usual etiologies of PPH include genital tract laceration, uterus atony, uterine rupture, placenta retention, coagulopathy(3–5). Vascular injury or anomalies such as aneurysm, AVF and AVM are fierce

culprits(6), and vaginal arterial aneurysm with AVF in this presented case is rarely seen. The clinical diagnosis of our presented case is pregnancy-related arterial aneurysms with AVFs at the lower vagina which contributes to the intractable primary PPH. Vaginal arterial aneurysm with AVF as a cause of PPH was not previously reported in English literature, and would render primary treatment methods ineffective. The diagnosis was made by angiographic picture of arterial aneurysms with early draining veins in the lower vagina. Anatomically, there are some arteries that supply the vagina; the anterior and lateral surfaces of the vagina are fed by the vaginal artery; the middle portion by the inferior vesicular artery; the lower part by the internal pudendal artery; and the posterior surface by the middle rectal artery(4).

The routine primary management for PPH includes resuscitation, blood transfusion, uterus controlling such as administration of uterotonic drugs, uterine compression, and intrauterine balloon tamponade. If the primary management fails, an intervention of TAE or surgical management should be initiated without any delay(6). The TAE was reported to be effective with a high success rate and was recommended to be first-line therapy to control PPH(3). The most commonly used embolic material in TAE for PPH was gelatin sponge, and bail-out material could be metallic coils or N-butyl cyanoacrylate(4). At this uncommon condition of vaginal arterial aneurysms with AVFs causing PPH, small particle and liquid embolic material should be meticulously used in TAE, as they may increase the risk of IVC and pulmonary embolism owing to embolic material migration through the arterio-venous shunting.

Conclusion

Vascular anomaly of arterial aneurysms with AVFs at the bilateral lower vagina as a cause of PPH is rare and would make primary treatment unsuccessful. The obstetrician should be aware of the unusual lesions. TAE is especially important in detecting and treating this uncommon culprit.

Declarations

1. Ethical Approval and consent to participate: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. For this type of study formal consent is not required. Informed Consent for the percutaneous transarterial embolization was obtained from the patient. This case report has obtained IRB approval from “Chang Gung Medical Foundation Institutional Review Board” and the need for informed consent was waived
2. Consent for Publication: Consent for publication was obtained for every individual person’s data included in the study
3. Availability of data and materials: Not applicable. It is a routine procedure encountered in our daily practice.
4. Competing Interest: The authors have no competing interest to be declared
5. Funding: This study was not supported by any funding.

6. Authors' contributions: The authors have made substantive and specific intellectual contributions to this article and assume full responsibility for its content. Case reviewing by: Cheng-Hsien Wu, Yon-Cheong Wong, Patricia Wanping Wu, Ho-Yen, Chueh. Journal research and reviewing by Cheng-Hsien Wu, Yon-Cheong Wong. Draft writing by Cheng-Hsien Wu, Patricia Wanping Wu. Clinical data collection and certification by Ho-Yen, Chueh.
7. Acknowledgements: We want to thank the work of our radiological colleagues and all the staff at Chang Guang Memorial Hospital involved in the management of the case.
8. Authors' information (optional): as above mentioned

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Figures

Figure 1

Pelvic angiography shows arterial aneurysms (arrows) with arteriovenous shunting to early draining veins (arrowheads) at both sides of the lower vagina.

Figure 2

A. Selective angiogram of the right internal iliac artery clearly shows arterial aneurysm (arrow) with early drainage veins (arrowheads) fed by the internal pudendal artery. Similar findings are seen in the left internal iliac arteriogram B. Selective arterial embolization at the distal internal pudendal arteries with coils as presenting in this left internal pudendal artery.

Figure 3

A. Metallic coils (arrowheads) are deployed in the aneurysms involving both sides of the lower vagina. The inferior mesenteric artery (arrows) is pronounced and goes distally abutting to the vascular lesions.

B. A followed-up angiogram arranged three months later, by which the vascular lesions totally obliterated and the inferior mesenteric artery regressed are disclosed.