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Case Report

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Acute Dissection of External Iliac Artery Aneurysm in a Postpartum Woman: A Case Report and Lessons Learned

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Abstract

Arterial aneurysm and dissection in young individuals are extremely rare clinical entities, particularly in the absence of predisposing factors, such as connective tissue disorders, trauma, or known vascular disease. Nevertheless, these conditions are often acute and may rapidly lead to life-threatening complications. This article aimed to report a rare case of acute external iliac artery aneurysm dissection in a young pregnant woman. The patient, with no significant medical history or evidence of inherited connective tissue disease, presented to the emergency department with sudden and severe abdominal pain. Initial clinical assessment and routine investigations were nonspecific, which contributed to diagnostic difficulty. Following further imaging studies, a ruptured external iliac artery aneurysm with dissection was diagnosed. Immediate multidisciplinary management was required due to the high risk of maternal and fetal mortality associated with vascular rupture during pregnancy. The physiological, hormonal, and hemodynamic changes of pregnancy—such as increased blood volume, cardiac output, and vascular wall stress—may contribute to the development and progression of arterial aneurysms and dissections, even in young patients without known risk factors. This case highlights the importance of considering rare but catastrophic vascular causes in the differential diagnosis of acute abdominal pain during pregnancy. Although arterial dissection is uncommon in younger populations, clinicians should maintain a high index of suspicion for vascular pathology when pregnant women present with unexplained acute pain in any region of the body. Early recognition, timely imaging, and rapid intervention are essential to improve clinical outcomes and prevent fatal complications. This case emphasizes the need for increased awareness of pregnancy-associated vascular emergencies and contributes to the limited literature on iliac artery aneurysm dissection in young pregnant women.

Key words: Dissecting aneurysm, Iliac aneurysm, Pregnancy, Ruptured aneurysm, Vascular diseases

Introduction

Once the common iliac artery branches off from the aorta, it divides into the external and internal iliac arteries (1). Aneurysm of the common iliac artery is moderately common, but an aneurysm of the internal or external iliac artery alone is rare. Unfortunately, this disease becomes symptomatic and fatal very quickly (2). The term aneurysm refers to the pathological dilation of the normal diameter of the aorta. The most common causes are inflammation of the vessels, hereditary factors, and hemodynamic factors, which occur mainly in middle-aged individuals (3). In young people, it occurs following connective tissue diseases, such as Marfan syndrome, though its incidence is very low. Dissection of an aneurysm during pregnancy, albeit rare, poses significant risks to the health of both the mother and fetus (4). Physiological changes associated with pregnancy, such as changes in blood pressure (BP) and vascular layer density, can aggravate pre-existing, relatively small aneurysms and lead to complications, such as aneurysm dissection or compression of surrounding organs (2).

Pregnancy causes significant hemodynamic changes, especially in the third trimester, and elevates the risk of aneurysm dissection due to increased blood volume and cardiac output (5).

Many cases of aneurysm dissection are associated with preexisting conditions such as connective tissue disorders that may have remained undiagnosed before pregnancy (6). Hormonal fluctuations, especially estrogen, may contribute to the formation and dissection of aneurysms, especially cerebral ones (7, 8). Early diagnosis and appropriate management are crucial to improve outcomes. Aortic aneurysms rarely occur in young women and are often associated with congenital heart disease, Marfan syndrome, a bicuspid heart valve, and aortic coarctation (9). In this article, we present a case of an iliac artery aneurysm dissection in a young postpartum woman.

Case presentation

A 26-year-old woman with a body mass index of 29 presented one week postpartum (spontaneous vaginal delivery) with acute retrosternal chest pain, generalized abdominal pain, lower limb numbness, sweating, and shortness of breath. The pain was severe enough to prevent ambulation. Over the seven days post-delivery, she reported weakness, intermittent sweating during breastfeeding, and polydipsia. No previous history of hypertension was documented during this period. She had no smoking history and received complete prenatal care. Past obstetric history included two spontaneous abortions of unknown etiology, the first occurring 19 months prior to 14 weeks of gestation. Her only known medical history was an umbilical hernia. She had no significant familial history.

On admission to the emergency department, the patient appeared ill, with vital signs as follows: BP 110/70 mmHg, respiratory rate 18 breaths/min, pulse 104 bpm. Physical examination revealed pale conjunctiva and generalized abdominal tenderness. The electrocardiogram demonstrated a normal sinus rhythm without ischemic changes. Initial abdominal ultrasonography of the liver, gallbladder, and appendix was unremarkable except for free fluid in the cul-de-sac and recto-vaginal space. Laboratory data showed mild anemia; complete blood count, erythrocyte sedimentation rate, C-reactive protein, amylase, lipase, and venous blood gas were within normal limits. Standing and supine abdominal radiographs showed no abnormalities. Subsequently, the patient developed a generalized tonic-clonic seizure managed with phenytoin.

Due to unstable hemodynamics, computed tomography angiography was not feasible; therefore, laparotomy was performed, revealing an aortic intramural hematoma with a 0.5 cm tear near the aortic bifurcation and a left external iliac artery hematoma involving approximately half its length. Notably, a 23-year-old sister presented nine months later with dissection of a celiac artery aneurysm, underwent surgery, and was discharged in good condition, suggesting a possible familial vascular pathology.

Discussion

Aneurysm and vascular dissection, despite low incidence, are of concern due to their high mortality. In pregnancy, the diameter of the aorta grows significantly, even in normal women. Most aortic dissections involve the ascending aorta and occur before delivery. Multiparity is associated with a higher incidence of aneurysm dissection, particularly in the splenic artery, which complicates diagnosis due to overlapping symptoms with obstetric conditions. Most of these patients present with flank pain and are sometimes mistakenly treated for renal colic or muscle pain.

In one case, a healthy young woman presented with acute chest pain in the early second trimester of pregnancy with a diagnosis of a thoracic aortic aneurysm dissection causing hemothorax, and underwent emergency endovascular repair under general anesthesia (10). There are also other cases reporting dissection of splenic artery aneurysm during pregnancy, resulting in maternal death (11). In another study, a bilateral aneurysm of the internal iliac artery occurred following hysterectomy in a multiparous woman, which was fortunately diagnosed and treated promptly (12).

These patients share a common denominator of pain that is unresponsive to conventional treatments. Importantly, most dissections occur in the third trimester or in the early postpartum period; therefore, high diagnostic suspicion and prompt intervention are critical to improve maternal and fetal outcomes at these times (5). In this case, given the occurrence of a celiac aneurysm in the patient's sister, the possibility of familial background and connective tissue disease is proposed.

Lessons Learned from This Case

This patient was referred to the hospital from a rural area far from the city center due to hemodynamic decline and progressive pain. Despite the patient's pain not improving and the presence of free fluid in the abdominal space, the

physician suspected rare and serious causes, such as aneurysm dissection.

Overall, this article highlights the need for physicians to be aware of the potential risks associated with vascular aneurysms anywhere in the body in pregnant and postpartum women, as these conditions are rare but can have serious consequences if not detected early. Therefore, it is suggested that preventive imaging examinations be performed first for pregnant women with specific risk factors, such as a history of vascular or connective tissue problems or a similar family history. This preventive approach can lead to early detection and management of aneurysms. Of course, it should be kept in mind that, as indicated in the cases, a patient can develop this condition without any underlying disease or known family history. Thus, it is better to state that imaging should be considered in pregnant or postpartum patients with severe pain anywhere in the body (head, abdomen, flank, etc.) without specific clinical findings, to rule out or confirm the presence of an aneurysm and dissection.

Secondly, it emphasizes the importance of hemodynamic changes in patients and the physician's special attention to this finding. Just as the physician at the primary center correctly referred the patient with this justification, the physician at the secondary center also conducted extensive evaluations of the patient for the same reason.

Multidisciplinary approach: The authors also emphasize the importance of an interdisciplinary team in managing complex cases, such as this one. Collaboration between specialists can improve outcomes for both the mother and fetus. For example, in this case, the clear cooperation between the dispatch team, the emergency medicine physician, the surgeon, and the radiologist helped diagnose the condition.

Conclusions

Although arterial dissection is rare in young populations, it remains a critical diagnostic consideration in pregnant women presenting with pain in any part of the body. A high index of suspicion is essential to ensure timely diagnosis and management because a missed diagnosis can lead to severe maternal and fetal complications.

Ethics Approval and Consent to Participate

Oral informed consent was obtained from the patient for participation in this case report.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Data Availability Statement

All data generated or analyzed during this study are included in this published article.

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Authors' Contribution

AE had the main idea and was a major contributor in writing the manuscript. NM was the co.author in writing the manuscript. All authors read and approved the final manuscript.

Conflict of Interest

The authors declared no conflicts of interest.

Declaration of generative AI in scientific writing

During the preparation of this study, the authors used Chat Perplexity to improve readability. After using this tool, the authors reviewed and edited the content as needed and took full responsibility for the publication's content.

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