CASE REPORT

Atypical Second Trimester Uterine Rupture in a Patient with Bicornuate Uterus: A Case Study of Misdiagnosed Ectopic Pregnancy and Its Management

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Article History

Received: 18th December, 2024
Acceptance: 21th May, 2025

Online Access

DOI: 10.70250/mjpahs211

Abstract

Introduction: Müllerian duct anomalies, such as the bicornuate uterus (BU), occur in 0.1% to 3% of women and can lead to serious complications, including uterine rupture.

Case Presentation: A 51-year-old multiparous woman presented with abdominal pain and vomiting, misdiagnosed as a ruptured ectopic pregnancy. Imaging revealed massive hemo-peritoneum. Laparotomy found a dead fetus in an intact sac and a ruptured left rudimentary horn of a BU. An obstetric hysterectomy and bilateral salpingo-oophorectomy were performed.

Conclusion: This case highlights the need for increased awareness of uterine anomalies and routine screening in antenatal care to improve maternal outcomes.

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Introduction

Müllerian duct anomalies, occurring in 0.1% to 3% of women, are associated with reproductive complications such as miscarriage, preterm labor, uterine rupture, and malpresentation.[1] The bicornuate uterus (BU), resulting from incomplete fusion of the Müllerian ducts, affects 0.4% of the general population and 1.1% to 4.7% of women with miscarriage or subfertility.[2,3] The pregnancy rate in the rudimentary horn of a BU is 1 in 40,000, with a rupture risk exceeding 50%, especially after the first trimester.[1]

BU increases the risk of spontaneous abortion, cervical insufficiency, and uterine rupture, particularly during the second and third trimesters.[1,4,5] Contributing factors include prior uterine incisions, grand multiparity, fetal macrosomia, and labor complications.[6] Diagnosis typically involves hysteroscopy or laparoscopy, though non-invasive methods like 3D ultrasound and MRI are effective. Many are identified incidentally during pregnancy.[7]

This case highlights a second-trimester rupture of the rudimentary left horn of BU, initially misdiagnosed as a ruptured ectopic pregnancy, emphasizing the need for thorough antenatal care and proper investigations.

Case History

A 51-year-old female patient from a rural area presented to Galkot Nagar Hospital, a primary health center located approximately 48 kilometers west from Baglung, on September 2nd, 2024, with a three-day history of lower abdominal pain and vomiting. She reported no vaginal bleeding, and her last menstrual period (LMP) was on May 24, 2024. Her menstrual cycles had been irregular prior to this. Based on her LMP, her gestational age was estimated to be 16 weeks. She was a P5 L5 woman, with a history of normal deliveries, the most recent being 14 years ago. The patient had been on antidepressants for five years but had discontinued them six months ago, without prior consultation.

The patient was initially admitted to Galkot Nagar Hospital, where tests revealed a hemoglobin level of 10.9 g/dL, a leukocyte count of 18,700, and a positive pregnancy test. She was diagnosed with a urinary tract infection, unintended pregnancy, and depression, and treated with antibiotics, fluids, and analgesics. However, her condition worsened the following day, with abdominal distension and pallor. A follow-up

How to Cite this Article in Vancouver Style:

Banstola B, Dhungana A, Acharya S, Ojha B, KC R. Second Trimester Uterine Rupture in Bicornuate Uterus: A Case report of Misdiagnosed Ectopic Pregnancy and Its Management. Med. J. Pokhara A. Health Sci. 2025;8(1):89-91.

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hemoglobin test showed a significant drop to 3.2 g/dL, raising suspicion of a ruptured ectopic pregnancy. She was urgently referred to Dhaulagiri Hospital for further management.

Upon arrival at Dhaulagiri Hospital, the patient was unresponsive and severely pale, with a pulse of 148 bpm and blood pressure of 80/40 mmHg. Abdominal examination revealed distension and absent bowel sounds. Local examination showed cervical motion tenderness and fullness in all fornices on per vaginal examination. Blood investigations confirmed severe anemia, with a hemoglobin level of 3 g/dL.

Initial management involved aggressive fluid resuscitation, blood transfusion, and intravenous (IV) analgesics. An emergency abdominal ultrasound was performed, revealing massive hemoperitoneum, confirmed by diagnostic tap. The scan showed a dead fetus with an intact sac separate from the uterus, free fluid in Morrison's pouch, and in the pelvis. An exploratory laparotomy was urgently planned under general anesthesia.

During surgery, approximately 2.5 liters of hemorrhagic fluid were removed from the peritoneal cavity. The uterus was identified as bicornuate with a ruptured left rudimentary horn. The left horn was attached to the right horn by a fibromuscular tissue stalk, and only the base of the left horn remained, with continuous bleeding noted. The left fallopian tube and round ligament were also involved, while the right structures appeared intact. Due to ongoing massive hemorrhage and the inability to repair the uterus, an obstetric hysterectomy with bilateral salpingo-oophorectomy was performed. Placental tissues and a fetus with an intact sac were also removed. Three units of fresh blood were transfused intraoperatively to manage the significant blood loss.

Postoperatively, the patient was transferred to the Intensive Care Unit for monitoring. She received a total of six pints of fresh blood, along with IV antibiotics, analgesics, and oxygen support. A Foley catheter was placed for bladder rest, and her blood pressure was stabilized with norepinephrine, which was gradually tapered. By the eighth postoperative day, her sutures were removed, and she was discharged on oral medications. A follow-up one month later confirmed an uneventful recovery, emphasizing the importance of timely intervention in cases of uterine anomalies.

Pictures

Fig 1: massive hemoperitoneum with ruptured portion of rudimentary horn of BU

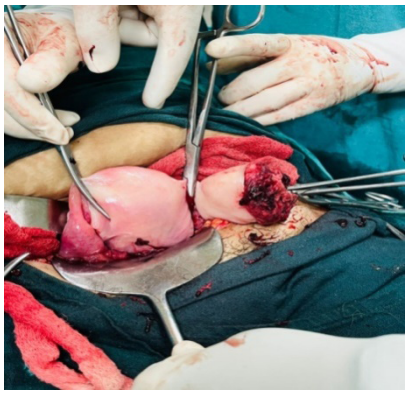

Fig 2: Image taken while undergoing obstetric Hysterectomy. Clamp was placed at the base of rudimentary horn to control bleeding

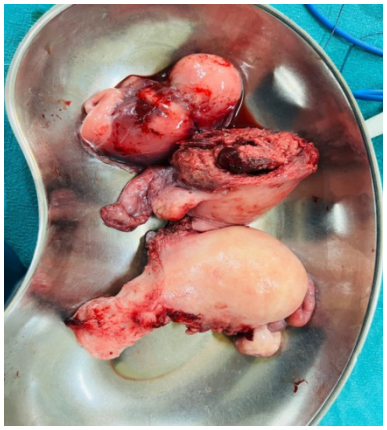

Fig 3: Image of the specimen after surgery consisting of ruptured left rudimentary horn of bicornuate uterus of multiparous woman with dead fetus inside intact sac.

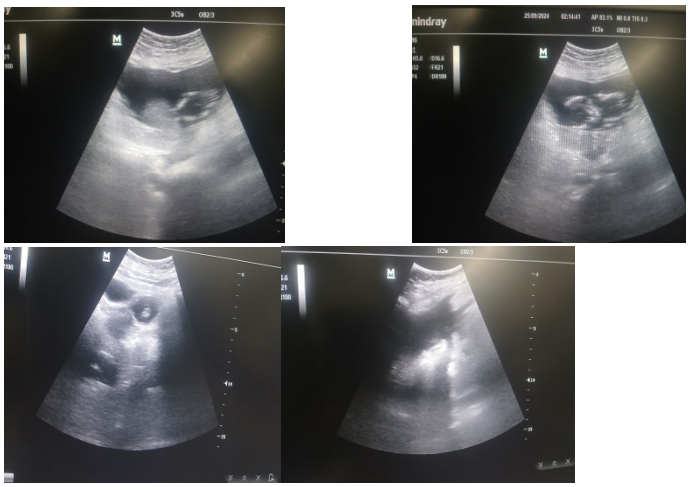

Fig 4: Bedside USG images showing massive hemoperitoneum and dead fetus with intact sac

Discussion

Uterine rupture in a bicornuate uterus (BU) is a rare but significant obstetric challenge arising from the incomplete fusion of the Müllerian ducts.[2,3,7,8] The incidence is approximately 1 in 3,000

women, with pregnancies in a rudimentary horn occurring in about 1 in 40,000 cases.[9] The risk of rupture is highest during the late first and early second trimesters due to the rudimentary horn's inability to accommodate an expanding pregnancy.[1,9] In current study, rupture of one of the bicornuate horn occurred at 16 weeks of gestation. This finding is in contrast to the study by Agu PU et al, where ruptured of one horn of primigravid female occurred at 20 weeks of gestation.[1] Similarly, Taware et al studied a mortality case as a complication resulting from ruptured horn of primigravid uterus at around 12 weeks in their study.[9]

Clinical presentations often mimic other acute abdominal conditions, such as ectopic pregnancy, complicating timely diagnosis. Patients in study by Kurniawati et al, Nitzsche B et al, and Dars S et al had exhibited severe abdominal pain, vaginal bleeding, and signs of hemorrhagic shock similar to symptoms shown by the patient in current study.[6,7,10] Ultrasound and MRI are useful for identifying BU but may be underutilized, delaying recognition until complications arise.[1,10] In the current study, bedside Ultrasonography was done after development of hemoperitoneum, so the chance of diagnosing Bicornuate Uterus became poor.

Management requires immediate surgical intervention, typically excising the ruptured horn as mentioned in the case reported by Tochie JN et al.[5] This is in contrast to the current study where hysterectomy was performed rather than just excising the ruptured horn because of deteriorating hemodynamic parameters and ongoing bleeding. The decision to repair the uterus versus performing a total hysterectomy depends on the patient's stability and desire for future fertility.[4] For women with a history of BU, careful monitoring in future pregnancies is vital, including serial ultrasounds and considering elective cesarean sections.[3,4]

Ectopic pregnancy, particularly in the late first or early second trimester, is a common cause of acute abdominal pain and hemorrhagic shock, typically presenting with lower abdominal pain, vomiting, and severe anemia. In this case, the patient's symptoms initially suggested a ruptured ectopic pregnancy, which is a typical presentation in such cases. However, the possibility of a ruptured rudimentary horn of a bicornuate uterus was considered as a differential diagnosis.

Conclusion

This case highlights the importance of early pregnancy USG as uterine anomalies, especially the bicornuate uterus, can be diagnosed earlier during pregnancy. Early detection via sonographic imaging is crucial to help in elective management with full preoperative preparation without significantly increasing morbidity and mortality. It also prevents life threatening complications like uterine rupture. Routine screening for uterine anomalies in premarital and antenatal care can improve awareness and preparedness for timely intervention.

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