A BICORNUATE UTERUS COMPLICATED BY TORSION DIAGNOSED DURING CESAREAN DELIVERY: A CASE REPORT

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ABSTRACT

BACKGROUND: Congenital uterine anomalies (CUAs) arise from abnormal fusion or resorption of the Müllerian ducts during embryonic development, leading to structural abnormalities that can negatively affect fertility and pregnancy outcomes. A bicornuate uterus results from partial failure of the Müllerian ducts to fuse and is often associated with obstetric complications such as fetal malpresentation, recurrent miscarriage, and preterm birth. A rare but serious complication of a bicornuate uterus is uterine torsion, defined as rotation of the uterus greater than 45° along its longitudinal axis.

CASE PRESENTATION: A 23-year-old woman at 33 weeks of gestation underwent an emergency cesarean section for placental abruption and breech presentation. Intraoperatively, a bicornuate uterus with a 180° levorotation was identified. A 1,400-gram female neonate with intrauterine growth restriction (IUGR), respiratory distress, and early-onset sepsis was delivered. Both mother and neonate recovered well.

CONCLUSION: This case underscores the importance of anatomical awareness during cesarean delivery and highlights the need for preconceptional and early antenatal diagnosis of Müllerian anomalies. Advanced imaging and structured antenatal care can facilitate timely referral and delivery planning, thereby reducing maternal and neonatal morbidity.

KEYWORDS: Congenital uterine anomaly, Bicornuate uterus, Neonatal outcome, Preterm birth, Uterine torsion

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INTRODUCTION

Congenital uterine anomalies (CUAs) occur when the Müllerian ducts fail to fully fuse or resorb during embryonic development, resulting in structural abnormalities that may compromise reproductive outcomes[1,2]. Among these, the bicornuate uterus poses significant obstetric challenges due to its association with miscarriage, preterm delivery, and malpresentation. It is categorized as a Class IV anomaly under the American Society for Reproductive Medicine (ASRM) classification[3,4]. When the fusion occurs below the isthmus, the uterus has two distinct endometrial cavities but shares a single cervix and vagina—an arrangement that complicates diagnosis and increases obstetric risks.

Uterine torsion—defined as a rotation of the uterus exceeding 45 degrees around its longitudinal axis—is a rare but potentially life-threatening obstetric emergency[5,6]. Its diagnosis is often incidental, made during cesarean section, as clinical signs are typically nonspecific and may include abdominal pain, fetal distress, or vaginal bleeding[4,7]. While torsion can occur in anatomically normal uteri, its occurrence in congenital anomalies such as bicornuate uterus is exceedingly uncommon and not well understood, with few cases reported globally[8,9].

The mechanism behind torsion in anomalous uteri likely involves altered ligamentous support, asymmetrical distribution of uterine mass, or mechanical distortion caused by fetal positioning[10,11]. Previous reports emphasize the diagnostic and intraoperative challenges of such cases, underscoring the importance of surgical vigilance and thorough anatomical understanding[12,13].

Case Presentation

A 23-year-old woman, gravida 2 para 0 with one previous first-trimester abortion, at 33 weeks of gestation (based on early ultrasound), presented with crampy lower abdominal pain and upper abdominal discomfort for three days, followed by continuous bright red vaginal bleeding for two hours. She had been receiving antenatal care at a private clinic, where she was informed of having a congenital uterine anomaly, though no further details were provided. She was referred to Adama Hospital Medical College, Ethiopia.

One week prior to referral, she experienced elevated blood pressure but no symptoms suggestive of preeclampsia. She denied leakage of fluid, pushing-down pain, convulsions, or systemic illness. On examination, her blood pressure was 160/110 mmHg, pulse 110 bpm, and temperature normal. The uterus corresponded to 32 weeks' size, with a longitudinal lie but unclear presentation. The fetal heart rate was 152 bpm.

Ultrasound revealed a single live fetus in breech presentation, posterior fundal placenta, and estimated fetal weight of 1,490 grams (<3rd percentile). Vaginal examination showed active bleeding, a single vaginal canal with a closed cervix, and a high presenting part. A diagnosis of antepartum hemorrhage secondary to placental abruption was made, along with possible preeclampsia with severe features, breech presentation, and intrauterine growth restriction.

Laboratory findings were: WBC 13.98 × 10^3/μL, hemoglobin 11.1 g/dL, platelets 101 × 10^3/μL, proteinuria +3, AST 149.6 U/L, ALT 134 U/L, and serum creatinine 1.1 mg/dL. Screening for HIV, HBsAg, HCV, and syphilis was negative. Blood group: O positive.

The patient received a loading dose of magnesium sulfate and oral methyldopa for blood pressure control. Dexamethasone was administered to promote fetal lung maturity. Informed consent was obtained for an emergency cesarean section due to antepartum hemorrhage (placental abruption), active bleeding, and breech presentation.

Under general anesthesia, a sub-umbilical midline incision was made. Upon entering the peritoneal cavity, the surgical team identified a bicornuate uterus with separation extending up to the isthmus. The right horn, which contained the pregnancy, along with its ovary and fallopian tube, was twisted 180° at the vesico-uterine junction. The uterus was carefully exteriorized and untwisted before incision. The non-pregnant left horn and its adnexa were found deep within the pelvis.

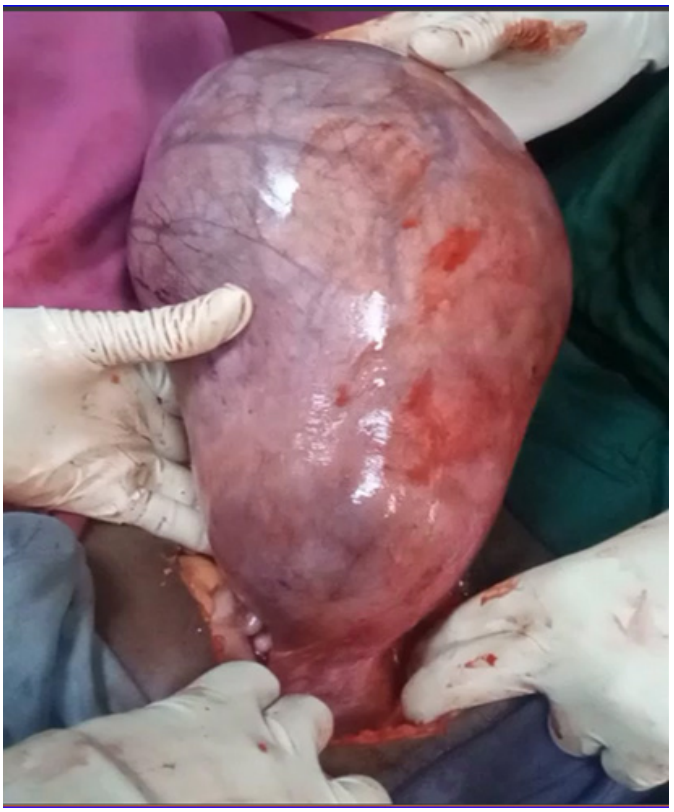

Figure 1: Intact gravid uterus delivered before incision was made (Partially detorsed before exteriorizing the uterus).

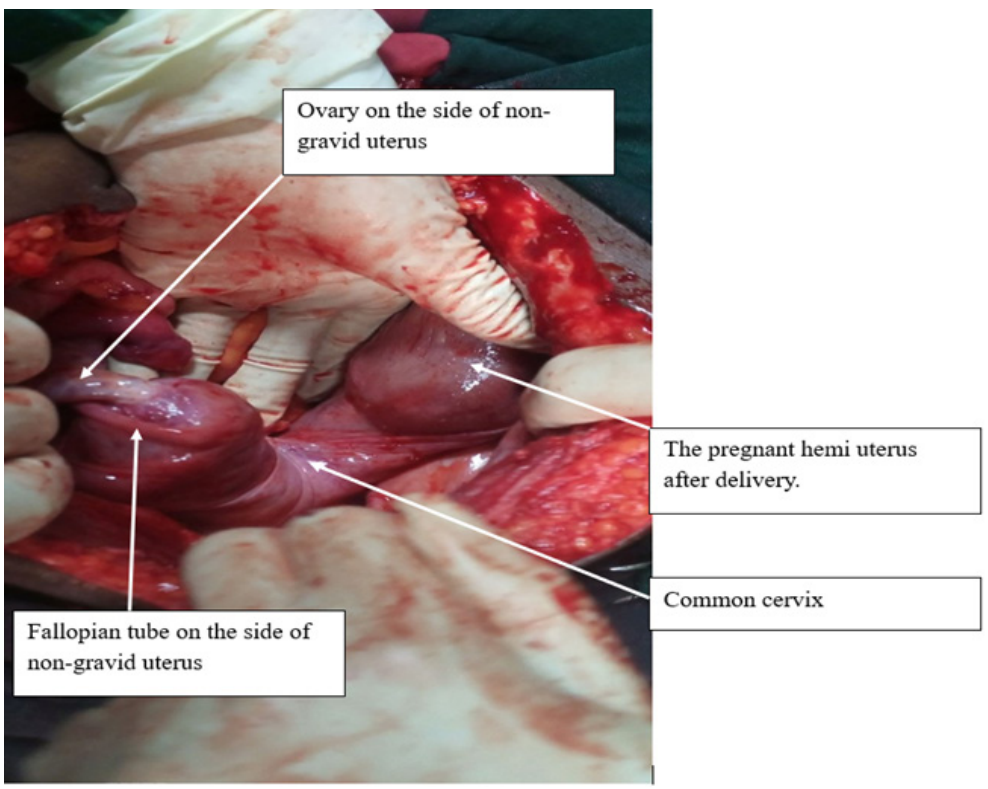

Figure 2: After hysterotomy, closed and replaced.

After carefully detorsing the pregnant uterus, a low vertical incision was made between the fundus and cervix to effect the delivery of a baby girl weighing 1400 grams, with APGAR scores of 6, 7, and 8 on the APGAR scale at one, five, and ten minutes, respectively. Third stage was managed actively and upon delivery of the palcenta there was 30% retroplacental clot. The uterine incision was closed in two layers. The newborn was then taken to the neonatal intensive care unit (NICU) for additional care, while the mother was transferred to the maternity ward for postoperative management and follow-up.

Postoperative Course

Following the surgery, the mother was closely monitored in the ward and had an uneventful postoperative recovery. All follow-up laboratory results were within normal ranges except for mild anemia (hemoglobin 10.1 g/dL). She was discharged in stable condition after four days of observation, with counseling on follow-up and delivery options for future pregnancies. Although she was counseled on postpartum contraception, she declined any immediate method and remained non-pregnant at her six-month follow-up visit.

The newborn was admitted to the NICU with diagnoses of moderate preterm birth, very low birth weight (VLBW), appropriate for gestational age (AGA), respiratory distress syndrome (RDS), early-onset neonatal sepsis (EONS), and hypothermia. The infant showed steady clinical improvement and was discharged after one month of hospitalization, weighing 1,450 grams. At 208 days of age, she was thriving, weighing 6.8 kg with a head circumference of 42 cm and a mid-upper arm circumference (MUAC) of 12 cm—values within the normal range for her age.

DISCUSSION

Uterine torsion in the context of a bicornuate uterus is an exceptionally rare but serious obstetric emergency that requires rapid diagnosis and surgical intervention grounded in sound anatomical understanding. A bicornuate uterus results from incomplete fusion of the paired Müllerian ducts and is classified as a Class IV anomaly by the American Society for Reproductive Medicine[1]. This anomaly is associated with various adverse pregnancy outcomes, including fetal malpresentation, recurrent miscarriage, preterm labor, and obstructed delivery, primarily due to its asymmetric uterine configuration[3,4].

In this case, a 180° uterine levorotation was observed, distorting the usual anatomical landmarks and making access to the lower uterine segment challenging. Such a degree of torsion, especially in a congenitally anomalous uterus, increases the risk of vascular compromise and placental abruption. The decision to perform a low vertical uterine incision was appropriate, providing safe access to the uterine cavity while minimizing the risk of extension into engorged vessels—an especially important consideration in anatomically distorted uteri[5,6]. Literature supports the use of vertical incisions in cases involving uterine anomalies or malpresentation, particularly when the lower uterine segment is underdeveloped or rotated. Detorsion of the uterus before hysterotomy is recommended to restore normal orientation and avoid inadvertent entry through the posterior wall, which is often congested and friable[4,7].

Although uterine torsion can occur in a normally shaped uterus, its occurrence in a bicornuate uterus is extremely rare and not fully understood. Recent Ethiopian case reports have contributed valuable regional insights. Moltot et al. (2023) described a successful post-term delivery in a scarred bicornuate uterus, emphasizing the importance of individualized surgical planning. Areys et al. (2024) reported a second-trimester rupture in an unscarred bicornuate uterus, illustrating the diagnostic complexity and urgency of management in such

cases[14]. Similarly, Worku and Abdilahi (2024) presented a near-miss rupture in mid-pregnancy, underscoring the value of early detection and preparedness for emergency surgical intervention[15]. These regional experiences echo broader findings across sub-Saharan Africa. Aliyu (2021) noted that congenital uterine anomalies often remain undiagnosed due to limited access to advanced imaging and structured antenatal care[16]. Leke et al. (2023) highlighted significant gaps in early detection and emergency preparedness, calling for improved training and infrastructure to enhance maternal and neonatal outcomes[17].

In such scenarios, a strong grasp of pelvic anatomy and adaptable surgical techniques—such as uterine exteriorization and the use of a low vertical incision—are critical for optimizing outcomes. In this case, the presence of a single cervix and vagina confirmed a bicornuate uterus fused below the isthmus, which can appear normal externally and thus evade antenatal detection. Thorough surgical documentation is therefore essential to guide the management of future pregnancies. Given the uterine anomaly and prior vertical incision, elective cesarean delivery is recommended in subsequent pregnancies to mitigate the risk of uterine rupture and ensure maternal and fetal safety[18].

Conclusion

This case reinforces the importance of anatomical awareness during cesarean delivery and the value of preconception and early antenatal diagnosis of Müllerian anomalies. The integration of advanced imaging modalities and structured antenatal protocols can reduce maternal and neonatal morbidity by facilitating timely referral, risk stratification, and individualized delivery planning.

Consent for Publication

The patient provided verbal consent for publication of this case report, agreeing to share her clinical details and related imaging findings with assurance of complete anonymity.

Conflict of Interest

The authors declare no competing interests.

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