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Bicornuate Uterus with Successful Term Pregnancy: A Rare Occurrence

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Abstract

Background

Bicornuate uterus is a rare congenital uterine malformation and structural abnormality that affects less than 0.5% of women. Resulting pregnancies are rarely carried to term and commonly result in pregnancy complications such as spontaneous abortion, IUGR, preterm delivery, and fetal malpresentation.

Case report

This was a case of a 27-year-old patient with an undiagnosed bicornuate uterus discovered intraoperatively. There was a viable pregnancy in one of the uterine horns that was carried to term after three previous failed pregnancies. The foetus was delivered by caesarean section on account of bad obstetric history and breech presentation, weighing 2.6 kg with APGAR scores of 7 and 9 in the 1st and 5th minutes, respectively.

Conclusion

A successful term pregnancy is achievable in patients with a bicornuate uterus. In resource-constrained communities, it is essential to have a high index of suspicion and make early referrals for suspected congenital uterine anomalies in patients with a history of recurrent second and third-trimester pregnancy losses. The use of imaging modalities can help diagnose and monitor suspected cases before and during pregnancy.

Keywords: bicornuate uterus, uterine malformation, mullerian duct, breech presentation, preterm delivery

Introduction

A bicornuate uterus is one of the congenital anomalies and malformations of the uterus that occur as a result of the non-fusion or impaired fusion of Mullerian ducts.[1] The Mullerian ducts, also referred to as paramesonephric ducts, are important embryological structures for the development of the genital system.[2] The development of the ducts is highly regulated by a

wide array of signaling molecules and gene expression, including PAX2, EMX2, HOXA13, Wnt, and LIM1.[2,3] According to the American Society for Reproductive Medicine, classifications of uterine anomalies have been made which include: Uterine agenesis (Class 1), unicornuate uterus (Class II), didelphys (Class III), bicornuate (Class IV), which is divided into IV-A (partial) and IV-B (complete) bicornuate uterus, septate uterus (Class V), arcuate uterus (Class VI), uterine anomalies related with the use of diethylstilbestrol (Class VII), and others (Class VIII).[2,4] The incidence of uterine malformations is estimated to be between 3-5% in the general population, while the incidence of bicornuate uterus is estimated to be between 0.1-0.6%.[4] The bicornuate uterus can be divided into bicornuate unicollis and bicornuate bicollis based on the partitioning of the cervix.[1,5]

A bicornuate uterus is a major cause of recurrent pregnancy loss (25%), fetal malpresentation, preterm deliveries (15-25%), placenta abnormalities, ectopic pregnancies, and low birth weight babies.[5,6,7] As such, pregnancies in this group of women are categorized as high-risk.

The diagnosis of uterine malformations, such as a bicornuate uterus, requires radiologic diagnostic modalities like ultrasound (preferably 3-D ultrasound), magnetic resonance imaging (MRI), hysterosalpingography (HSG), and saline sonohysterography for an accurate diagnosis.[6,9] Sometimes the diagnosis is made during surgical procedures like caesarean section or laparotomy/laparoscopy for ectopic pregnancies and other gynaecological procedures. [3,7.]

Here, we present a case of a 27-year-old multipara with a bicornuate uterus who had a viable pregnancy in one of the uterine horns and delivered a live male neonate at term by caesarean section performed for breech presentation with a bad obstetrics history.

Case Report

The patient was Mrs. ST, a 27-year-old G4P2^{+1}, A0 woman with a primary level of education who was not sure of her last menstrual period, but pregnancy was said to be term. She was on self-referral on account of previous pregnancy losses. The index pregnancy was spontaneously conceived, with no vaginal bleeding or drainage of fluid per vaginum throughout the pregnancy. She had no known medical condition, and her marriage was not consanguineous.

Her first pregnancy was 4 years before presentation. It was carried to about 20 weeks of gestation. Pregnancy was not booked. She had a spontaneous abortion with no post-abortal complications. Her second pregnancy was 3 years before presentation. She had preterm prelabour rupture of membranes at about 29 weeks of gestation. She was admitted to a Primary Health Care Centre for conservative management, but subsequently went into labour and delivered a preterm baby who died a few minutes later. There were no puerperal complications.

Her third pregnancy was one and a half years before the presentation, pregnancy was not booked. She stopped perceiving fetal movement at about 33 weeks of gestation, and intrauterine fetal death was confirmed following an obstetric ultrasound scan done in a private clinic. Later, she went into spontaneous labour and expelled a macerated stillborn. There were no puerperal complications. Her age at menarche was 14 years, and her past menstrual history was uneventful. No prior blood transfusion, and she did not have drug allergies.

On examination, she was not pale, anicteric, acyanotic, and afebrile with pitting pedal oedema. Her pulse rate was 74 beats per minute, and her blood pressure was 120/70mmHg. Symphysiofundal height was 37 centimeters, with fetal head palpable at the upper pole of the uterus. The fetal heart rate was 136 beats per minute. Speculum examination revealed a grossly healthy-looking parous cervical os.

Her packed cell volume was 34%, blood group: AB+, Genotype: AA, and viral serologies were non-reactive. Obstetric USS at presentation revealed a live fetus in breech presentation with an estimated foetal weight of 2.8kg. There was no gross congenital anomaly seen, and the placenta was anteriorly located. Two units of blood were grouped and cross-matched.

Due to the bad obstetric history and breech presentation in the index pregnancy, she was counselled and scheduled for an elective lower-segment caesarean section in our facility on 28/11/2024. The caesarean section was performed under spinal anaesthesia.

Intraoperative findings were: Gravid right uterine horn with poorly formed lower uterine segment. A live male neonate in the right sacroanterior position was delivered

with a birth weight of 2.6kg and APGAR scores of 7 and 9 in the 1st and 5th minutes, respectively. No gross congenital anomaly was seen on the baby, and the placenta was delivered along with the membranes. The ipsilateral tube and ovary were grossly normal. The left non-gravid uterine horn with the tube and ovary on the left side appeared grossly normal. The cavity of the non-gravid uterine horn admitted two fingers. There was a single cervical canal for the two uteri (bicornuate unicollis). The left hemi-uterus with its ipsilateral tube and ovary were left intact (not removed). The surgery was completed by closing the uterus in two layers with Vicryl 1 sutures, while the rectus sheath and skin were closed with Vicryl 1 and 2/0 sutures, respectively.

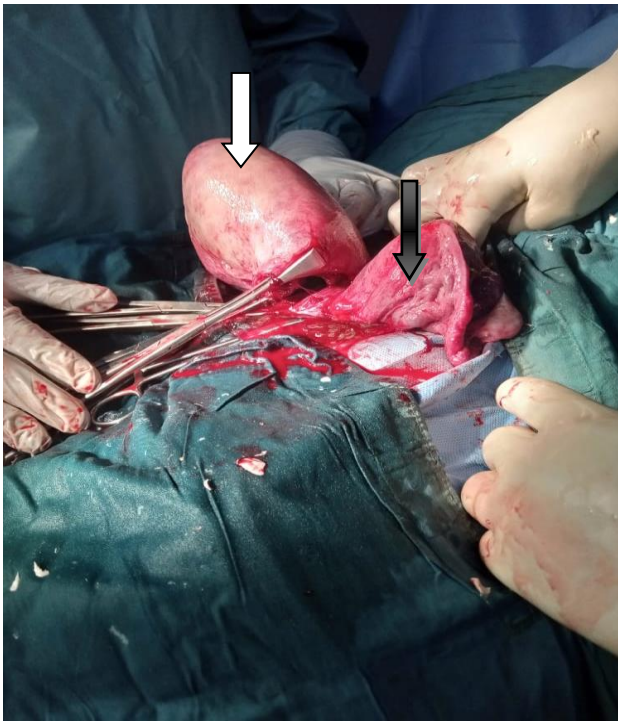

Figure 1: BICORNUATE UTERUS. LEFT (BLACK ARROW) NON-GRAVID, RIGHT (WHITE ARROW) GRAVID UTERUS

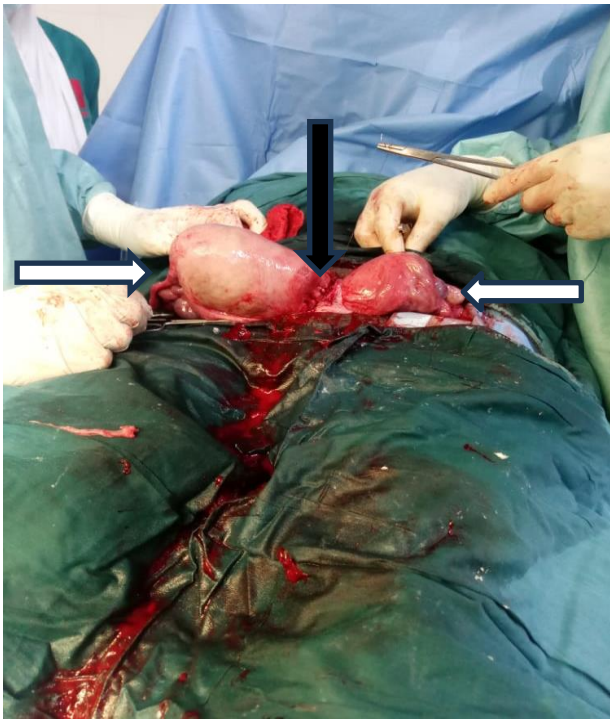

Figure 2: IPSILATERAL TUBES AND OVARIES (WHITE ARROWS) OF THE BICORNUATE UTERUS, LINE OF INCISION ON THE LOWER UTERINE SEGMENT (BLACK ARROW)

There were no intraoperative complications encountered. The patient was stable enough and was moved to the ward after the procedure. She was administered intravenous (IV) ceftriaxone 1g 12 hourly for 48 hours, IV metronidazole 500mg 8 hourly for 48 hours, and parenteral analgesia. Medications were converted to oral forms after 48 hours. The Foleys catheter was removed the following day, after which urine was passed. The wound was inspected on the 4th postoperative day. She had an uneventful postoperative recovery. Her post-operative packed cell volume was 31%. Her baby received BCG, OPV0, and Hepatitis vaccines. She was counselled on the need for contraception, and she opted for it to be provided at six weeks postpartum. She was discharged home on the fourth postoperative day and given two weeks for follow-up.

She presented for a follow-up two weeks later (11/12/2024). Her general condition was satisfactory; the wound edges were well apposed, and she was exclusively breastfeeding her baby. The patient consented to have the uterine horn that was non-gravid removed when she is out of the puerperium and following a discussion with her husband. In the sixth week (9/01/2025), she was seen with no complaints and had commenced her routine activities. The need to book for antenatal care early in her subsequent pregnancies was emphasized. She was referred to the family planning unit for contraception counselling. She opted for an implant and had it inserted the same day.

Discussion

This is a rare case of a bicornuate uterus, caused by the failure of Mullerian ducts to fuse during development. Only 0.5% of females experience this condition. [2,6]. It's

noteworthy that the pregnancy was carried to term, although recurrent pregnancy losses are common in 25% of cases involving a bicornuate uterus.[6]

A bicornuate uterus is a type of uterine abnormality that occurs when the paramesonephric ducts fail to fuse completely during fetal development, usually around the tenth week of pregnancy. This results in a duplicated uterus that consists of two symmetric horns that are fused at the bottom with a connection between the endometrial cavities, which is typically at the level of the uterine isthmus. A bicornuate uterus is estimated to account for approximately 10% of Mullerian duct anomalies.[1]

The patient mentioned above had bad obstetric outcomes in her previous pregnancies but was not properly evaluated because she did not seek medical care in facilities with qualified healthcare providers. In the current pregnancy, she visited our facility at term and underwent clinical evaluation with an obstetric ultrasound scan. Unfortunately, the presence of a bicornuate uterus was not suspected, possibly due to the patient's late presentation and the large size of the gravid uterus. Additionally, it may have been difficult to identify a uterine anomaly in this patient because a 2-D ultrasound scan was used. It's important to obtain a thorough clinical history when a woman presents with pregnancy losses, as this can help suspect congenital abnormalities in the uterus or cervix. If a woman experiences pregnancy losses at progressively later gestational ages, it may indicate the presence of uterine anomalies such as a septate or bicornuate uterus.[10] This is because the uterus expands in size with each subsequent pregnancy to accommodate the growing fetus. It is the responsibility of her healthcare providers to be aware of this and refer her to a specialist if necessary. In her first pregnancy, the patient experienced a spontaneous abortion at 20 weeks of gestation. As this was her first pregnancy, it was difficult to determine the likely cause of the abortion without radiological investigations. Second-trimester abortion can be caused by cervical insufficiency or uterine anomaly. Pregnancy loss resulting from cervical insufficiency is characterized by painless rupture of fetal membranes and expulsion of the conceptus, while that of uterine anomaly presents with pregnancy losses of increasing gestational age.[4,9] A 3-D scan or MRI done following the abortion could have identified the bicornuate uterus in this patient.[6] It is relatively uncommon for pregnancies to occur without complications in women with a malformed uterus.[6] Many women with this condition do not show any symptoms, but those with a history of recurrent miscarriages and malpresentation, like our patient, should be suspected of having it. Women with a bicornuate uterus who do not experience multiple miscarriages and are asymptomatic may go undiagnosed unless the condition is detected incidentally during routine pelvic scans or abdominal and pelvic surgeries that are typically performed post-childbearing years (i.e., hysterectomy).[1,2] Patients with bicornuate uterus may experience dysmenorrhea, infertility, recurrent abortions, ectopic pregnancy, preterm deliveries, fetal malpresentation, intrauterine fetal demise, and uterine rupture.[1] This patient presented with a second-trimester abortion, preterm birth, and intra-uterine foetal demise

The diagnosis of bicornuate uterus and other uterine anomalies requires radiologic imaging such as ultrasonography (US), magnetic resonance imaging (MRI), hysterosalpingography (HSG), and saline sonohysterography.[6,10] Magnetic resonance imaging and ultrasound should primarily be used to identify a deep fundal cleft in presentations of a bicornuate uterus, such as this case.[7] Diaouga et al stated that Ultrasound should be used as the baseline for detecting uterine abnormalities such as bicornuate uterus, making ultrasound the mainstay of initial assessment, especially in instances of associated pregnancy due to minimal risk.[6] Divergent uterine horns and separation of uterine cavities may be optimally seen on ultrasound.[6] An angle of <75° between the uterine horns suggests a septate uterus, while >105° indicates a bicornuate uterus. [2,6] Unfortunately, there is considerable overlap between the two anomalies as the majority of angles of divergence between the horns fall within these ranges..[6,8] However, MRI is considered the preferred modality due to its multiplanar capabilities and ability to evaluate the uterine contour, junctional zone, and other pelvic anatomical structures..[3,12,16] On MRI imaging, both uterine horns commonly have normal zonal anatomy.[8] The appearance of a duplicated cervix, as denoted by “owl eyes,” is seen in patients with a bicornuate bicollis uterus.[8] In patients with a bicornuate uterus, HSG commonly demonstrates opacification of 2 symmetric, fusiform uterine cavities (horns) and fallopian tubes.[8]

Pregnancy in women with a bicornuate uterus can lead to complications such as fetal limb deformity.[14] This may happen due to the limited space within the uterine horn where fetal development takes place, leading to prolonged pressure on the limbs 10. However, this complication was not observed in the baby of the index case. This highlights the fact that while pregnancy with a bicornuate uterus may be viable, there is still a risk of deformities occurring in newborns. Therefore, it is essential to closely monitor and follow pregnant patients diagnosed with a bicornuate uterus to provide them with the best possible care.

In conclusion, it is crucial for clinicians, including obstetricians, radiologists, and other medical professionals managing patients in a hospital setting, to be aware of the various symptoms that may occur in patients with a suspected bicornuate uterus. They should maintain a high level of suspicion and thoroughly investigate the patient either before or during pregnancy, as the pregnancy may be viable and carried to term.

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