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BICORNUATE UNICERVICAL UTERUS AND PREGNANCY: A CASE REPORT

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ABSTRACT
Pregnancies in the bicornuate uterus are generally considered high-risk due to their association with various adverse reproductive outcomes, including recurrent pregnancy loss, cervical insufficiency, low birthweight, preterm birth, malpresentation, cesarean delivery, and uterine rupture. The bicornuate uterus is a relatively common uterine malformation, accounting for approximately half of all uterine abnormalities, with an estimated frequency of 1 to 4% in the general population. Despite its prevalence, conception and successful term pregnancies in this condition are rare. Diagnosis during pregnancy can be challenging, especially in settings with limited access to prenatal care and ultrasound technology. Therefore, early detection through ultrasound is crucial for appropriate management and optimizing pregnancy outcomes in women with this malformation. We are presenting a 32-year-old gravida I para I lady, with a bicornuate unicervical uterus and associated pelvic kidney. This case will allow us to discuss the embryogenesis of this anatomical entity, its incidence, complications, and treatments.

KEYWORDS: Bicornuate unicervical uterus, pregnancy, breech presentation, embryogenesis.

INTRODUCTION
A uterine malformation (UM) represents a congenital anomaly resulting from disruption of female reproductive system development during embryogenesis. Establishing the incidence of uterine malformations is complex and varies among studied populations, whether fertile or infertile. Depending on the series, its incidence is estimated between 1 and 10% in the general population, but it can reach 5 to 30% in patients with a history of miscarriage (early or late), and 2 to 8% within a population of infertile patients.[1-2] The pathophysiological mechanisms are complex. During embryogenesis, UM results from anomalies in the differentiation, migration, fusion, or resorption of Müllerian ducts. The diversity of these mechanisms explains the wide range of uterine and vaginal malformations (UMV) and the variety of clinical presentations. Various classifications have been developed to characterize these anomalies. Diagnostic and therapeutic management, whether related to infertility or not, requires specific expertise. The advent of new diagnostic imaging methods (three-dimensional ultrasound[3D], hysterosonography, magnetic resonance imaging [MRI]) has enabled the development of updated diagnostic criteria.[3-4] In this article, we report the case of a patient with a unicervical bicornuate uterus who carried her pregnancy to term.

OBSERVATION
A 32-year-old patient, gravida II Para I, with a history of early spontaneous miscarriage, was diagnosed with a bicornuate unicervical uterus and an associated pelvic kidney. This anatomical anomaly was discovered two years earlier during an evaluation for pelvic pain. A pelvic ultrasound revealed the presence of a pelvic kidney, which was subsequently confirmed by MRI along with the diagnosis of a unicervical bicornuate uterus (Figure 1, 2 and 3). Despite this anatomical condition, the patient successfully carried a spontaneous pregnancy to term, with the fetus located in the right horn. The fetus remained in breech presentation throughout the entire third trimester. Delivery was performed by cesarean section at 37 weeks of gestation (Figure 4).

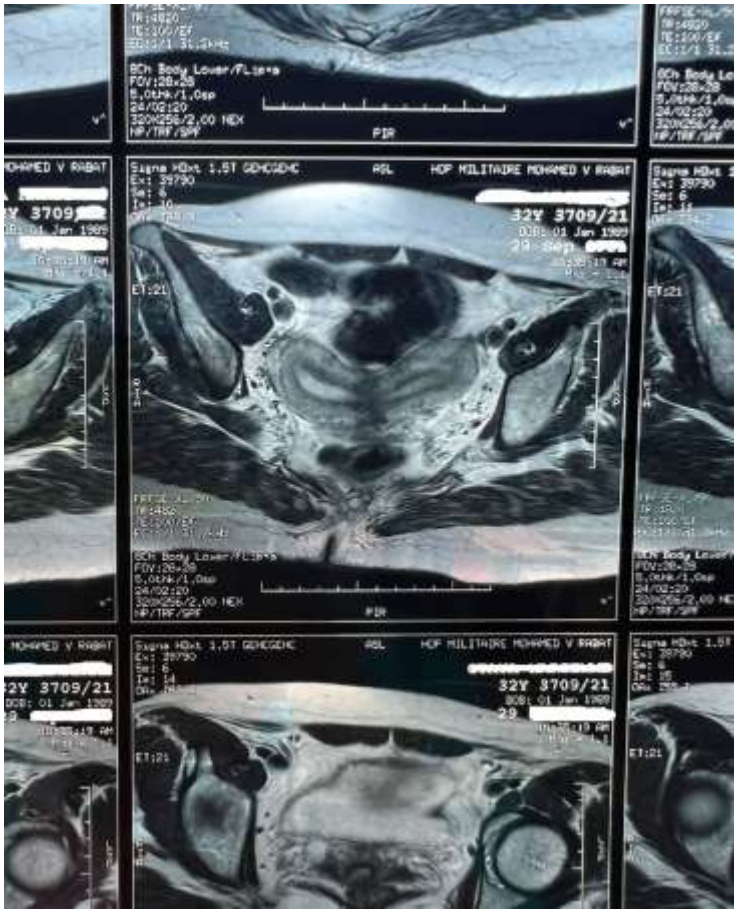

Figure 1: Axial MRI slice showing the bicornuate uterus.

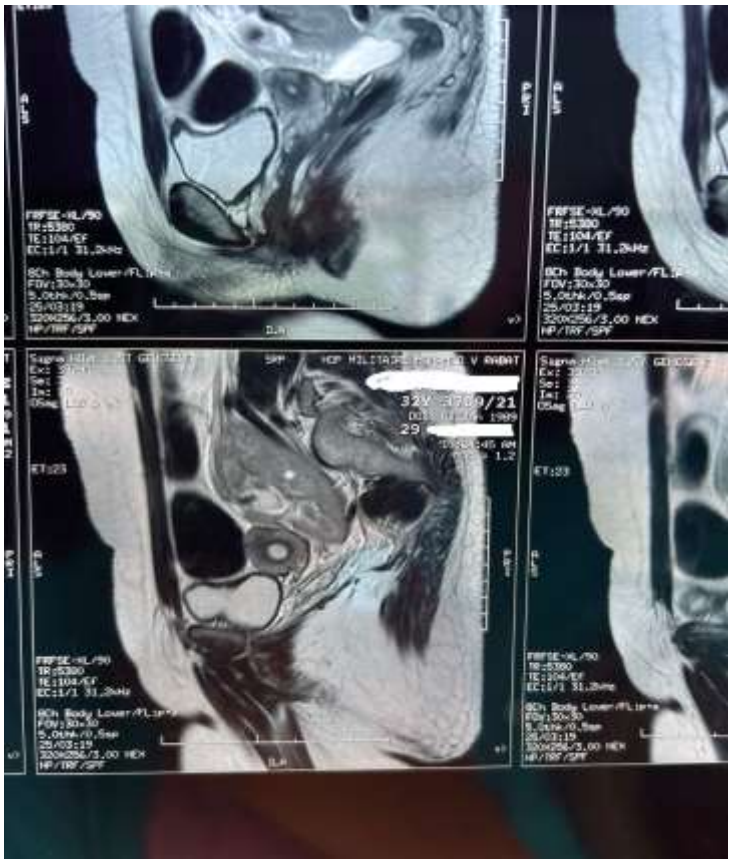

Figure 2: Sagittal MRI slice showing the pelvic kidney.

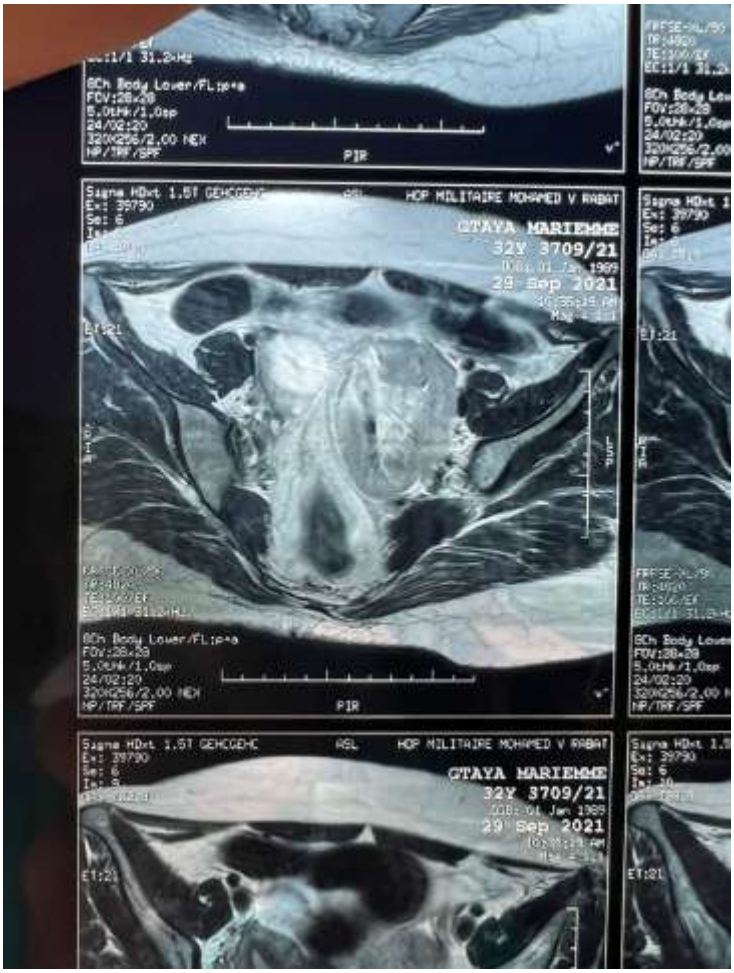

Figure 3: Axial MRI slice showing the pelvic kidney.

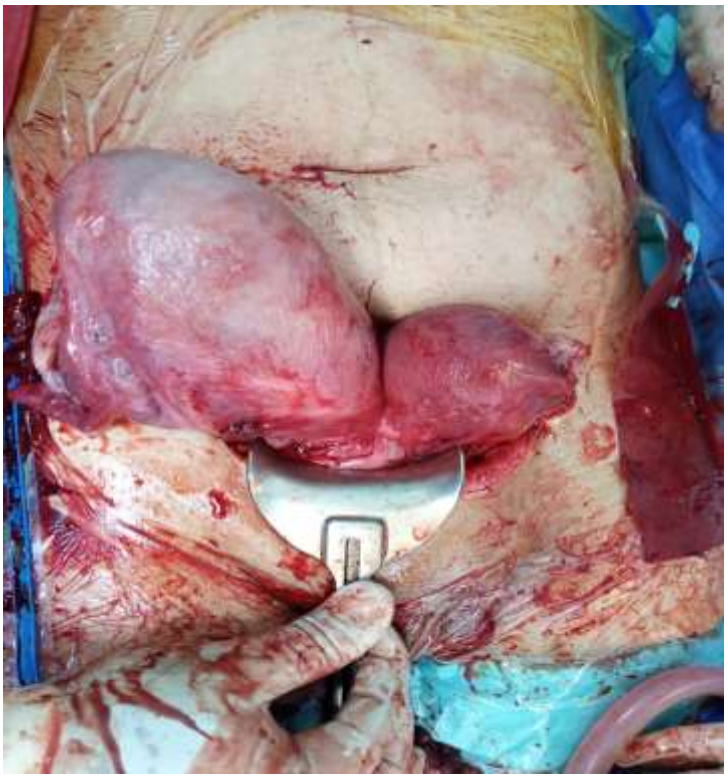

Figure 4: Per operative image, during cesarean section, after the delivery, showing the bicornuate uterus with a big right horn, that contained the baby.

DISCUSSION

The bicornuate uterus is a congenital uterine anomaly resulting from incomplete fusion of the Müllerian ducts between 10 and 12 weeks of pregnancy.[5] Its prevalence in the population is estimated between 1 and 4%.[1] Pregnancy carried to term in a malformed uterus is relatively rare.[6] Organogenesis of the genitourinary tract occurs in four phases, with the third phase involving the joining of the two Müllerian canals. Malformations are associated with the timing of teratogenic agent exposure during organogenesis, leading to fusion defects of the Müllerian ducts and the formation of two-horned uteri.[1] The most commonly used classification in European countries is "Classification European Society of Human Reproduction and Embryology/European Society for Gynaecological Endoscopy (ESHRE/ESGE, 2013)". It is widely used by sonographers on a daily basis to make the diagnosis of UM.[2]

Congenital uterine anomalies, such as the bicornuate uterus, have been linked to various pregnancy complications including recurrent pregnancy loss, low birth weight, preterm birth, malpresentation, cesarean delivery, and uterine rupture.[7–8] Despite previous beliefs associating the bicornuate uterus with infertility[9], recent studies have shown that fertility is unaffected, but gestational capacity is impaired due to a high incidence of spontaneous abortions and preterm deliveries.[10,11] In cases where one or two abortions occur, metroplasty is debatable, with cervical cerclage often attempted to prevent second-trimester abortion or premature delivery.[10] However, women with repeated pregnancy losses and a bicornuate uterus may benefit more from metroplasty.[12] Fetal malpresentation associated with the bicornuate uterus may be explained by inadequate room for rotation.[13] Studies indicate a correlation between neonatal limb deformities and viable fetus delivery, possibly due to prolonged pressure on the limbs in the limited space within the uterine horn where fetal development occurs.[14,15]

In the case of our patient, she experienced an early spontaneous miscarriage before being diagnosed with a unicervical bicornuate uterus. Enlargement metroplasty was not proposed before she became pregnant. Her pregnancy was carried to term without cervical cerclage. However, the fetus was in breech presentation, likely due to the uterine malformation.

Transvaginal 3-D ultrasonography (US) is highly accurate for diagnosing and classifying congenital uterine anomalies, surpassing office hysteroscopy and MRI.[16] Experienced hands can reproducibly diagnose uterine anomalies, particularly septate and bicornuate uterus, using 3-D US for preoperative planning.[17] Traditional 2-D TVS techniques are less reliable in differentiating bicornuate and septate uterine anomalies. Ideally, the angle between the two endometrial cavities is around 105° for a bicornuate uterus and 75° for a septate uterus. A notch of more than 1 cm indicates a bicornuate uterus, while a notch of less than 1 cm suggests a septate uterus.[18] In the presented case, the indentation depth was 4 cm, and the indentation angle was around 120 degrees, confirmed by intraoperative measurement using calibrated forceps.

CONCLUSION

A bicornuate uterus may not always result in obstetric complications and can support pregnancies to full term, including twins. However, diagnosing this condition can be challenging, particularly in regions with limited resources. Early ultrasound screening at the onset of pregnancy is crucial for proactive management, ensuring optimal conditions for fetal extraction before complications arise. In cases of uterine malformation, cesarean section is typically recommended as the preferred delivery method.

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