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Rare uterine malformation, responsible for intrauterine growth restriction

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Abstract: ***Objective****: To assess the impact of uterine malformations on pregnancy outcomes.* ***Methods:*** *Case report of a patient who gave birth in our maternity unit in August 2024.* ***Clinical presentation:*** *The patient was 21 years old and had suffered two early miscarriages. She was admitted for management of severe intrauterine growth restriction with doppler abnormalities, not related to pre-eclampsia, and underwent a caesarean section during which a uterine malformation was discovered.* ***Conclusion:*** *Uterine malformations increase the risk of prematurity, low weight for gestational age, intrauterine growth restriction, pre-eclampsia, non-apex presentation and the caesarean section rate.*

Keywords: *Unicornuate uterus, miscarriage, prematurity, intrauterine growth retardation (IUGR)*

1. INTRODUCTION

Congenital abnormalities of the uterus, or congenital mullerian abnormalities, are malformations of the uterus resulting from an abnormality in the formation, fusion or resorption of the mullerian ducts during foetal life. These malformations can lead to difficulties in procreation, but can also influence the normal course of pregnancy and cause complications such as miscarriage, premature delivery, intra-uterine growth retardation and breech presentation.

2. CLINICAL CASE

A 21 year old pregnant woman in good health, Gravida 3 Para 0, who had suffered two early spontaneous miscarriages at 1 month of pregnancy, did not smoke and had no history of congenital or hereditary disease, was admitted for management of a decreased uterine height in relation to the gestational age of her current pregnancy estimated at 28 weeks of amenorrhoea and 4 days..

Clinical examination revealed a conscious, normotensive patient with a negative labstix and no oedema of the lower limbs. On obstetrical examination, the fundal height was lower than the gestational age in a patient who was not in labour. La patiente a été hospitalisé en matérnité, pour bilan étiologique et surveillance materno-foeale

The foetal monitoring was oscillating and reactive

The patient underwent an obstetric ultrasonography showing a monofetal pregnancy in evolution, breech presentation, homogeneous fundal placenta, normal quantity of amniotic fluid and biometries:

- BDP: 62mm :<P3
- HC: 244.8mm: P10-P50
- AC: 206mm:<P3
- FL: 48.8mm: P3-P10
- EFW: 849g: <P3

DOPPLERS:
- Umbilical Doppler: Absent end-diastol flow
- Doppler of the middle cerebral artery: normal
- Right and left uterine Doppler normal

The patient underwent an aetiological work-up:

- Haemoglobin:11.2g/dl
- Platelet: 254 000 u/mm3
- WBC 9080 u/mm3
- Liver enzymes: correct
- Renal function
- Lactate deshydrogenase 199u/l,
- Haptoblin 0.21g/l
- 24 hours proteinuria: 0.19g/24h,
- TORCH serology : negative
- Blood Type: O-, **Research of irregular antibodies** : negative

In the light of the clinical, ultrasound and biological data, we were dealing with severe intrauterine growth retardation.

In the absence of immediate signs of maternal and foetal extraction, we opted for a conservative attitude with close ultrasound and electrical monitoring in order to administer antenatal corticosteroid therapy.

Elle a bénéficié d'une corticothérapie faite de 4 injections de 6mg de dexamethasone /12heures

She received corticosteroid therapy consisting of 4 injections of 6mg dexamethasone every 12 hours.

During her hospital stay, 8 hours after her last dose of dexamethasone, the patient went into labour spontaneously and the decision was made to perform a caesarean section, the indication for which was prematurity with a seat presentation associated with growth restriction.

Surgical exploration:

- Podalic extraction of a newborn male, APGAR 08/10 at the first minute, then 10/10 at the tenth

minute, birth weight 1100g

- Discovery of a right hemi-uterus with the right adnexa in normal position.
- The left adnexa (tube and ovary) inserted at the level of the left uterine isthmus.
- Concluding a U4 uterine malformation without rudimentary horn, with adnexa inserted at the level of the isthmus of the ESHRE classification.

Figure1: uterine exploration after realization of fetal extraction

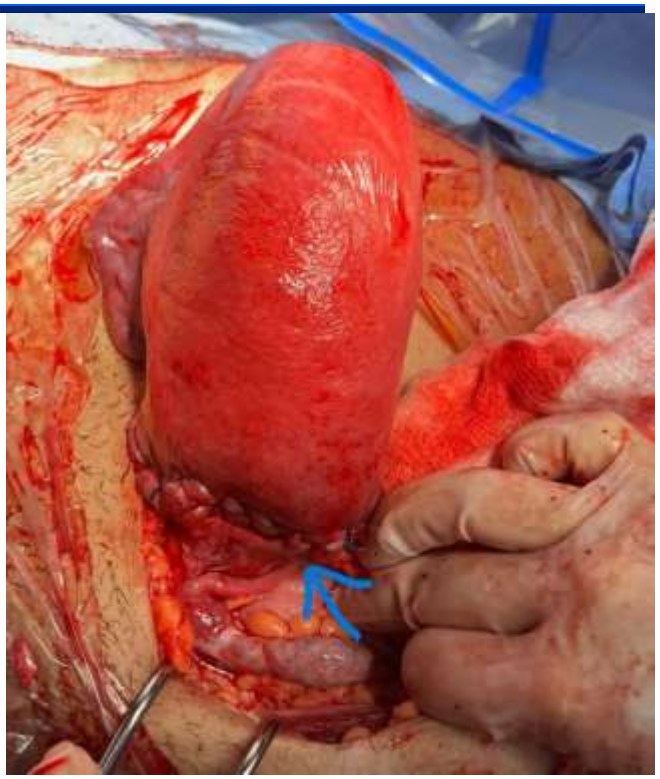

Figure 2: Uterine exploration showing insertion of the left adnexa

Newborn:

- Male, APGAR 08/10 at the first minute, then 10/10 at the tenth minute, birth weight 1100g.
- Initial clinical examination revealed a pink, conscious, reactive, slightly hypotonic newborn with weak sucking reflex, respiratory distress 4/10 with SaO2 on room air 70%, and 94% on 3l O2, heart rate 130bpm, no marbling, Glycémia 0.95, malformative assessment negative, he was admitted to neonatology for treatment of his respiratory distress.
- He was put on CPAP, 90% saturated on 70% fio2, with a repeat chest X-ray showing stage 3 hialine membrane disease, leading to intubation with two instillations of surfactant.
- Respiratory distress improved, with saturation at 96% in ambient air.
- The newborn was handed over to the family after being hospitalised for 06 days.

3. DISCUSSION

Uterine malformations result from the abnormal formation, fusion or resorption of the ducts of Müller during foetal life. A unicornuate uterus is a rare congenital malformation of the uterus where it develops from a single Müllerian duct, instead of the usual two ducts. This leads to a smaller, asymmetric uterus, often horn-shaped. It can be associated with complications during pregnancy, including intrauterine

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growth restriction.

3.1 Types of uterin malformations:

In most cases, the classification of uterine anomalies follows the ESHRE classification of Müllerian anomalies.

In some cases, uterine anomalies fall into two categories and are classified as hybrid or complex.

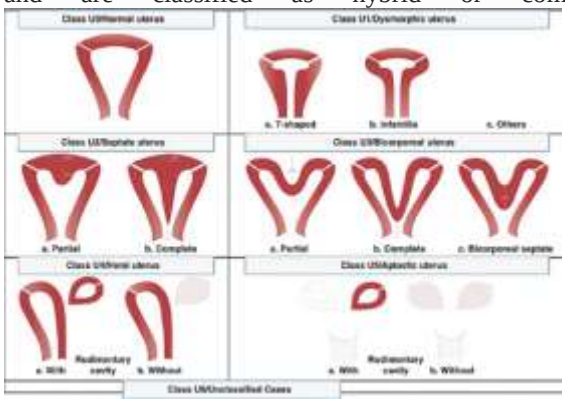

Figure 3: Classification of müllerian duct anomalies according to European monitoring of Medically Assisted Reproduction (ESHRE)

3.2 DIAGNOSTIC TECHNIQUES

The gynaecological examination is an important step, although in many cases of genital malformations it cannot be carried out completely, or does not allow the diagnosis to be made.

It is necessary to complete the investigations with two-dimensional or three-dimensional ultrasound.

MRI, contrast hysterosalpingography or X-ray hysterosalpingography will then be requested.

This is followed by video hysteroscopy and video laparoscopy.

3.3 Traitement:

Certain mullerian malformations are treated surgically, and the success of the treatment depends on an accurate diagnosis, a good knowledge of the patient's condition and the choice of the best technique.

- **The unicornuate uterus** only requires surgical correction if there is a rudimentary uterine horn with a non-communicating cavity that needs to be resected because of the pain caused by impeding menstrual flow. In some cases, its muscle mass is reduced, causing cervico-isthmic incompetence which may require cerclage in a future pregnancy.
- **The didelphys uterus** has a good reproductive prognosis and requires no intervention.
- **The bicornuate uterus** is not a cause of difficulty in conceiving, but rather of recurrent miscarriage during the 2nd trimester of pregnancy and premature delivery.
- **The septate uterus** is the most common Müllerian malformation, with the worst prognosis for reproduction, associated with miscarriage in the first and second trimesters, although treatment is relatively easy. The chosen treatment is hysteroscopic metroplasty, with good results.

3.4 Management of a pregnancy with a unicornuate uterus and IUGR:

- Ultrasound monitoring: Foetal growth must be monitored regularly to detect any growth retardation. Frequent ultrasound examinations can monitor the progress of the foetus, the amount of amniotic fluid and the position of the placenta.
- Uterine artery Doppler: This technique can be used to assess blood flow to the uterus and foetus, enabling early placental insufficiency to be detected.
- Monitoring foetal growth: If the growth retardation is severe, more intensive monitoring with tests such as cardiotocography (foetal heart rate monitoring) may be necessary to ensure that the foetus is not under stress.
- Delivery planning: In cases where IUGR is severe or accompanied by other complications, premature delivery may be considered, either by induction or caesarean section.
- Neonatal management: Babies born with intrauterine growth restriction may require specialised neonatal management, especially in cases of prematurity or low birth weight.

3.4 Comparison with literature

In the NATHAN study (1), we found that in patients with uterine malformations, the risk of complications during pregnancy was high in patients with minor fusion anomalies (arched, septate and t-shaped), and even higher in patients with major fusion anomalies (unicornuate, bicornuate and didelphic).

These malformations resulted in premature birth, both spontaneous and induced, low birth weight, PAG, pre-eclampsia, non-apex presentation and caesarean delivery.

Other researchers have shown that patients with uterine anomalies have an increased risk of these complications.

A recent study by Hua et al (5) used a single centre ultrasound database and compared outcomes in 203 patients with uterine anomalies with 66,753 unexposed patients. Hua et al. found that uterine anomaly was associated with prematurity, caesarean section and IUGR.

CONCLUSION

Patients with a uterine malformation are at increased risk of numerous complications during pregnancy, including prematurity, spontaneous or induced, low weight for gestational age, intrauterine growth retardation, pre-eclampsia, non-apex presentation and caesarean delivery.

The management of a pregnancy with a unicornuate uterus and

IUGR requires close monitoring to minimise the risks for both mother and child. Multidisciplinary follow-up involving obstetricians, foetal medicine specialists and neonatologists is often necessary to ensure the best outcome.

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