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Emergency obstetric performance in ESHRE / ESGE class U4 female genital tract anomalies

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Abstract
Introduction: The female genital tracts develop from Mullerian ducts in the absence of AMH (Anti Mullerian Hormone), which is secreted by testicular gonads. The new ESHRE/ESGE classification system was proposed on the basis of clinical significance of anatomical deviations of the female genital tract. There are seven main classes of uterine anomaly, U0 to U6. Class U4 genital tract anomaly (Hemi uterus) is intriguing owing to the varied obstetric associations ranging from life threatening rudimentary horn rupture in early pregnancy to a term delivery.
Aims and Objectives: The objectives of the present study is to test the clinical validity of the new ESHRE/ESGE classification in U4 class: "Presence (U4a / Absence (U4b) of a functional cavity in the contralateral horn is the only clinically important factor for complication and to analyse whether the characteristics of pregnancy in the developed hemi uterus differ in classes U4a and U4b.
Material and Methods: The present study is retrospective cohort study, carried out between January 2012– May 2017 at a tertiary care teaching hospital, Pt. B.D. Sharma PGIMS, Rohtak. Emergency obstetric surgeries were analysed and characterisation of the maternal and perinatal associations of class U4 genital tract anomalies and the subclasses U4a (with rudimentary cavity) and U4b (without rudimentary cavity) was done. A p value of <0.05 was considered significant.
Results: Prevalence – female genital tract anomalies in emergency obstetric surgery 1.3%. Class U4a had a very high prevalence of breech presentation (75.8%) and prematurity (48.3%). One fifth cases were associated with FGR. Comparison between U4a and U4b classes (identified during caesarean section) did not reveal a significant difference in the maternal and perinatal outcomes. There was no cervical or vaginal malformation in any subclass. However, life threatening conditions were significantly higher in U4a class than U4b class (15.9% vs. 2.9%) and majority were identified during laparotomy (p <0.0001).
Conclusion: Life threatening events are significantly higher in class U4a, which validates the new ESHRE/ESGE classification (class U4) in our study. Obstetric outcomes are significantly unfavorable if the pregnancy occurs in the contralateral underdeveloped horn of class U4a. But there is no difference in maternal and perinatal characteristics if pregnancy occurs in the developed hemi uterus.

Keywords: Emergency obstetric, ESHRE / ESGE Class U4, genital tract

Introduction
The female genital tracts develop from Mullerian ducts in the absence of AMH (Anti Mullerian Hormone), which is secreted by testicular gonads. The XX gonad ovarian structures are developed passively due to absence of SRY gene and other TDF (Testicular determining factor) and facilitated by the antitesticular action of the genes DAX1, RSPO1 and WNT4. The female genital tract anomalies result from embryological mal development of the Mullerian ducts. They typically present with the menstrual dysfunction, pelvic pain, infertility or adverse pregnancy outcomes including obstetric emergencies. Most cases are diagnosed during evaluation for obstetric or gynaecologic problems, but in the absence of symptoms, most anomalies remain undiagnosed. The new ESHRE/ESGE classification system was proposed on the basis of clinical significance of anatomical deviations of the female genital tract. There are seven main classes of uterine anomaly, U0 to U6. Class U4 genital tract anomaly (Hemi uterus) is intriguing owing to the varied obstetric associations ranging from life threatening rudimentary horn rupture in early pregnancy to a term delivery.

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Material and Methods

The present study is retrospective cohort study, carried out between January 2012 – May 2017 at a tertiary care teaching hospital, Pt. B.D. Sharma PGIMS, Rohtak.

Emergency obstetric surgeries were analysed and characterisation of the maternal and perinatal associations of class U4 genital tract anomalies and the subclasses U4a (with rudimentary cavity) and U4b (without rudimentary cavity) was done.

Statistical analysis was done using Kruskal-Wallis and Fischer's exact test. A p value of <0.05 was considered significant.

Results

Prevalence – female genital tract anomalies in emergency obstetric surgery 1.3%. Class U4a had a very high prevalence of breech presentation (75.8%) and prematurity (48.3%). One fifth cases were associated with FGR. Comparison between U4a and U4b classes (identified during caesarean section) did not reveal a significant difference in the maternal and perinatal outcomes. There was no cervical or vaginal malformation in any subclass. However, life threatening conditions were significantly higher in U4a class than U4b class (15.9% vs. 2.9%) and majority were identified during laparotomy ($p<0.0001$).
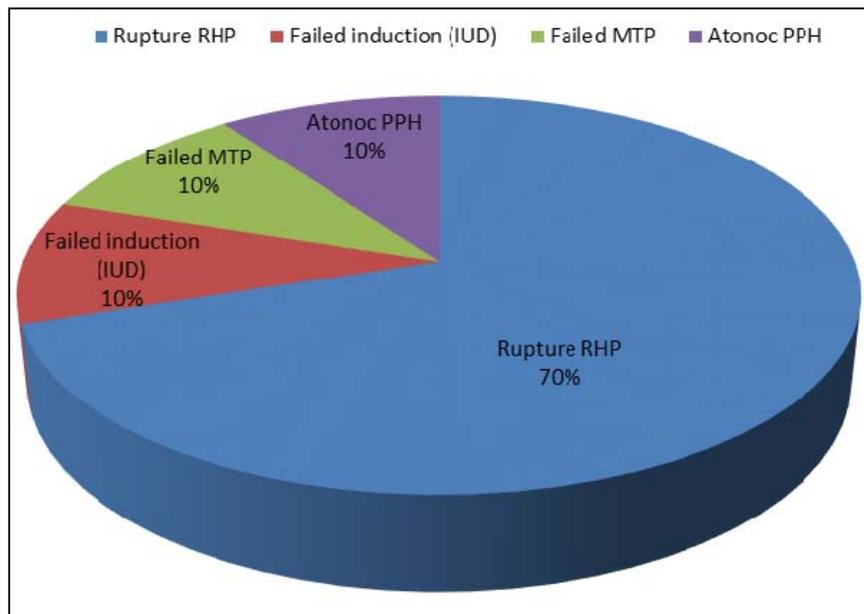
Indication for Laparotomy

Fig 1: Intraoperative Picture Class U4b

Fig 2: Class U4a-Rupture In IIIrd Trimester

Fig 3: USG Image of pregnancy In Rudimentary Horn

Fig 4: MRI Image Of Rudimentary Horn Pregnancy

Discussion
Female genital tract anomaly class U4 has a high prevalence of prematurity and breech presentation. This is explained by the narrow elongated cavity with reduced capacity. Increased perinatal morbidity (missed abortion, IUD, FGR) is due to the abnormal vasculature, deficient endometrium and blood supply. Rupture of rudimentary horn in class U4a poses grave danger and should be removed whenever encountered. One of our cases had a previous C.S., but unfortunately the horn was not removed at that time; leading to catastrophic haemorrhage in third trimester rupture in the subsequent pregnancy. A detailed first trimester USG may be useful in timely diagnosis, though sensitivity is low. MRI is more definitive for diagnosis.

Conclusion
Life threatening events are significantly higher in class U4a, which validates the new ESHRE/ESGE classification (class U4) in our study. Obstetric outcomes are significantly unfavorable if the pregnancy occurs in the contralateral underdeveloped horn of class U4a. But there is no difference in maternal and perinatal characteristics if pregnancy occurs in the developed hemi uterus.

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