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# A prospective study of Feto maternal outcome in pregnancies with reproductive tract anomalies

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***Abstract***---Introduction: Congenital uterine anomalies are common but their effect on reproductive outcome is unclear. Congenital uterine anomalies result from abnormal formation, fusion or resorption of mullerian ducts during fetal life. The overall frequency of uterine or mullerian anomalies is 4%. In general fertile population the frequency of mullerian anomalies is 5%, in infertile population 3%. Recurrent miscarriages occur in 5-10% of cases. Materials and methods:A hospital based cross-sectional analytical study was conducted among the pregnant women with uncorrected reproductive tract anomalies in the Shaheed NirmalMahto Medical College, Dhanbad, Jharkhand. All the pregnant women with uncorrected uterine anomalies, diagnosed by transvaginal ultrasound and/or hysterosalpingography admitted through emergency or OPD basis. The study was conducted for a period of two years from September 2018 to August 2020. Results: A total of 31 pregnant women with uterine anomalies were included in the study. Bicornuate uterus was the most common uterine anomaly (45.2%) followed by arcuate uterus (19.3%). Cesarean section was conducted in 72.6% of the pregnant women and its major indication was fetal malpresentation (breech). Maternal complications were present in 55% of the pregnancies and fetal complications in 52% of the newborns. Conclusion: The current study has shown a significant association between uterine anomalies and maternal and fetal complications including premature rupture of membranes, fetal malpresentation and increased caesarean section rate. Further studies involving bigger sample size will help in understanding the problem more and hence in the prevention of the complications in future.

***Keywords***---congenital uterine anomalies, hysterosalpingography, maternal, fetal complications.

## Introduction

Congenital uterine anomalies are common but their effect on reproductive outcome is unclear. Congenital uterine anomalies result from abnormal formation, fusion or resorption of mullerian ducts during fetal life.[1] The overall frequency of uterine or mullerian anomalies is 4%[3].In general fertile population the frequency of mullerian anomalies is 5%, in infertile population 3%. Recurrent miscarriages occur in 5-10% of cases.[2] In many patients, these uterine anomalies have been related with infertility either primary or secondary, recurrent pregnancy loss, prematurity and other obstetric complications like spontaneous abortions, ectopic pregnancies, malpresentations, intra uterine growth retardation, prematurity, fetal mortality, intrapartum uterine rupture which increase morbidity and mortality rates of fetus, where as in others, these malformations are asymptomatic and have normal reproductive performance.[3]

These are mainly due to diminished muscle mass, abnormal blood flow and cervical insufficiency In 1979, Buttram and Gibbons proposed a classification system based on the type and degree of failure of normal development of the female genital tract. Subsequently it is revised by American Society for Reproductive Medicine in 1988 allowing for physicians, to more accurately codify and therefore treat patients with Mullerian anomalies.[4] With the advent of better diagnostic and treatment modalities like transvaginal sonography, hysteron-salpingography and laparoscopy, the reproductive outcomes have improved in cases of congenital uterine anomalies.[5] However, mullerian anomalies remain an incidental diagnosis in majority of cases in India. This may be accounted to the limited resource setup in India and lack of health seeking attitude amongst infertile and reproductively challenged couples. Hence this study was undertaken to determine the perinatal outcomes in pregnant women with uncorrected reproductive tract anomalies in Shaheed NirmalMahto Medical College, Dhanbad, Jharkhand.

## Materials and Methods

A hospital based cross-sectional analytical study was conducted among the pregnant women with uncorrected reproductive tract anomalies in the Shaheed NirmalMahto Medical College, Dhanbad, Jharkhand. All the pregnant women with uncorrected uterine anomalies, diagnosed by transvaginal ultrasound and/or hysterosalpingography admitted through emergency or OPD basis. The study was conducted for a period of two years from September 2018 to August 2020.

### Inclusion criteria

Inclusion criterion for current study was pregnant women with uncorrected uterine anomalies with singleton pregnancies.

### Exclusion criteria

Exclusion criteria for current study were patients with previously corrected uterine anomalies, multiple pregnancies, known congenital and/or chromosomal fetal anomalies and those not willing to participate in the study.

The patients were subjected to detailed history and clinical examination. Detailed history included age, menstrual history, parity, history of previous pregnancies (recurrent abortions, preterm delivery etc), family history, gestational age, uterine scar from caesarean section etc. Ultrasonography and/or hysterosalpingography findings were recorded (ectopic pregnancy, abnormal placentation, malpresentation etc). The patients were then followed up till delivery to know the final outcome- abortion, preterm delivery, PROM, obstructed labour, vaginal delivery or cesarean section, malpresentation, IUGR etc.

**Results**

A total of 31 pregnant women with uterine anomalies were included in the study. The mean age of the participants was 27.2 years with a minimum of 19 years and a maximum of 40 years. 38.7% of the pregnant women were primi and 9.7% were grand multipara (Table 1). Period of gestation was ≤37 weeks in 41.9% of the pregnant women. Recurrent abortions were noted in 12.9% of the study participants. Among the 31 pregnant women with uterine anomalies, there were 14 cases of bicornuate uterus (45.2%), 6 cases of arcuate uterus (19.3%), 5 septate uterus (16%) cases, 4 cases of unicornuate uterus (12.9%) and 3 uterus didelphys (9.6%) cases. 48.4% of the fetuses presented in breech while 38.7% were in cephalic presentation. Transverse lie was noted in 12.9% of the cases. Nearly 3/4th (75%) of the cases delivered by caesarean section.

Table 1
Obstetric characteristics of the study participants (N=31)

| Obstetric characteristics | Frequency (%) |
|---|---|
| Parity | |
| Primi | 12 (38.7) |
| Multi | 16 (51.6) |
| Grand multi | 3 (9.7) |
| Gestation in weeks | |
| ≤37 | 13 (41.9) |
| >37 | 18 (58.1) |
| Abortions | |
| Nill | 15 (48.38) |
| 1-2 | 12 (38.70) |
| ≥3 | 4 (12.90) |

Table 2
Maternal complications among the study participants (N=31)

| Maternal complications | N | % (95% CI) |
|---|---|---|
| Yes | 17 | 55(43.3-68.8) |
| No | 14 | 45(31.2-56.7) |

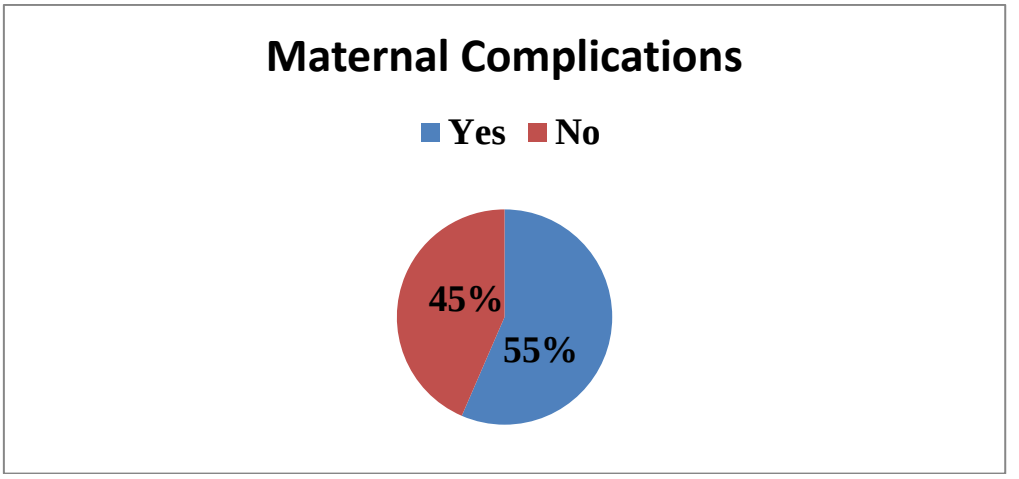


Figure 1. Maternal complications

Table 3
Fetal complications among the study participants (N=31)

| Fetal complications | N | % (95% CI) |
|---|---|---|
| Yes | 16 | 52(43.3-68.8) |
| No | 15 | 48(31.2-56.7) |

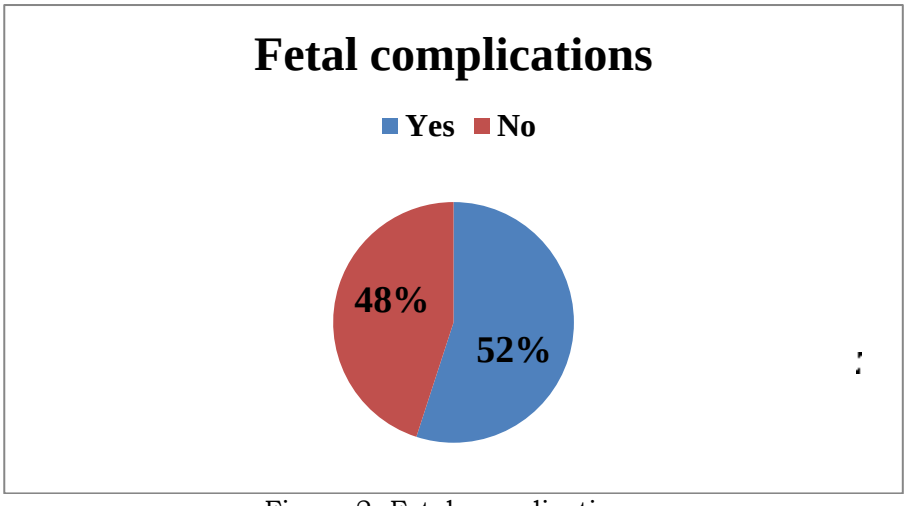


Figure 2. Fetal complications

Maternal complications was present in 55(95% CI: 43.3%-68.8%) of the pregnant women. Fetal complications were present in 52% (43.3-68.8) of the newborns. PROM was the most common maternal complication and it was noted in 22.6% of the participants followed by gestational hypertension, recurrent abortions and preterm labor which were found in 11.3%, 9.7% and 9.7% respectively. Among fetal complications, birth asphyxia and prematurity were present in 9.7%, each

among the newborns. Neonatal sepsis and meconium aspiration was present in 4.8%, each. There was no maternal or neonatal death.

## Discussion

The mean age of the participants was 27.2 years which is in line with the results of a study conducted by Vyas et al in which the maternal age was more in the age group of 21-25 years. Various other studies across the globe also have reported similar results. It could be due to the fact that the desire for pregnancy is higher during this age group and hence the attitude for seeking care for uterine anomalies.[6] About 38.7% of the fetus was in cephalic presentation and breech was noted in 48.4% while transverse lie was noted in 12.9% of the fetus. A study conducted by Hua et al and Vyas et al have shown that cephalic presentation was common and breech accounted for only around 1/4th of the participants.[7] This is contrary to our study findings where breech presentation accounted for nearly half of the study participants. One main reason could be the less sample size owing to the lesser prevalence of the condition and hence because of time constraint could not cover a larger sample. Moreover, 40.3% of the pregnant women were preterm which can be a cause of fetal malpresentation.[8]

Maternal complications was present in 55% (95% CI: 43.3%-68.8%) of the pregnant women and fetal complications was present in 52% (17.2%-40.4%) of the newborns. PROM (22.6%) was the most common maternal complication of the participants followed by gestational hypertension, recurrent abortions and preterm labor. Studies conducted by Nagarathanamma et al, Rama et al and Hua et al have reported that preterm labour was the common type of maternal complication observed in their studies.[9] A study by Zhang et al have reported that malpresentations were the common complication to be observed in their study. Similarly miscarriages were the common complication in a study conducted by Chan et al. A meta-analysis have documented that there was increased relative risk by 2.89 time of first trimester abortions in mullerian anomalies, which is in line with our study findings. The current study reported a very high rate of caesarean section rate of 72.6% and is comparable to study by Raj et al where the caesarean rate was 63.3% as compared to 34.7% in Hua et al. This high rate could be due to the reason that most of the anomalies are diagnosed incidentally during the pregnancy in most of the patients.[10]

## Conclusion

Large number of uterine anomalies are detected routinely in reproductive medicine as practiced in current times. This increase is attributed more to availability of better imaging techniques for the uterus rather than increase in prevalence of such anomalies in the general female population. The current study has shown a significant association between uterine anomalies and maternal and fetal complications including premature rupture of membranes, fetal malpresentation and increased caesarean section rate. Further studies involving bigger sample size will help in understanding the problem more and hence in the prevention of the complications in future.

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