

Role of Congenital Uterine Anomalies in Adverse Pregnancy Outcome

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Abstract

Objective: To study the role of congenital uterine anomalies in adverse pregnancy outcome

Materials and methods: Retrospective analysis of case sheets of patients with uterine anomalies at government maternity hospital, Tirupati from January 2014 to December 2015 was done. The information was collected in standard format and adverse maternal and fetal outcome analysed.

Results: Incidence of uterine anomalies was 0.36% with most of them having bicornuate uterus (35%) followed by septate uterus (29%). Most common presentation among the study group was breech 47.36% followed by cephalic presentation (38.1%). Recurrent miscarriages were noted in 35.1% and ectopic pregnancies in 2 women. 20.8% women had preterm deliveries. Postpartum complications were noted in 7.8%.

Conclusion: Uterine anomalies can be asymptomatic and can have normal obstetric outcome. However, they may present with life threatening complications. Awareness and high index of suspicion for uterine anomalies in the reproductive age group along with early interventions help to prevent dreaded complications and improve obstetric outcome in these women.

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I. Introduction

Congenital uterine anomalies are common but their effect on reproductive outcome is unclear¹. Congenital uterine anomalies result from abnormal formation, fusion or resorption of mullerian ducts during fetal life². 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 cases⁴. 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^{5,6,7,8,9}. 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 tract¹⁰. 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 anomalies¹¹.

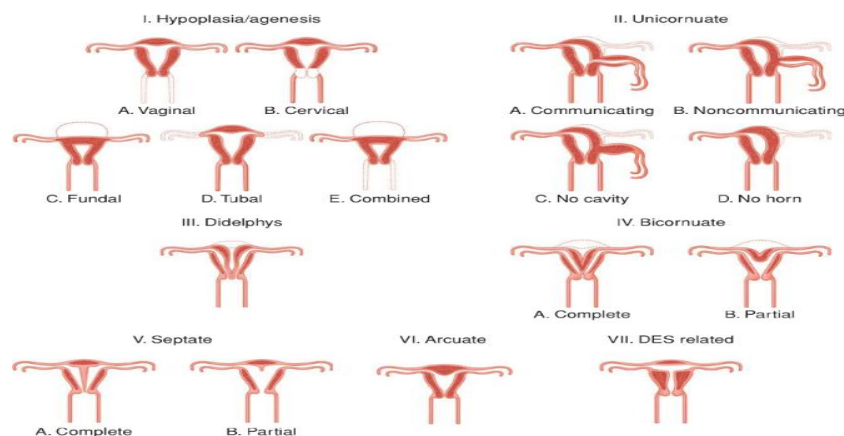


Figure 1: American Fertility Society Classification of Mullerian Anomalies

The total number of deliveries are about 12,000 per year at Government maternity hospital, Tirupati. The current study is undertaken to analyse the incidence of Mullerian anomalies and outcome of pregnancy with uterine anomalies at government maternity hospital, Tirupati. As there is no data available in this region regarding the incidence of Uterine anomalies with outcome.

II. Objectives

1. To study the types of uterine anomalies that results in adverse pregnancy outcomes.
2. To study the various types of fetal outcome.
3. To study the relationship between the type of uterine anomalies with the type of fetal outcome.

III. Material And Methods

3.1 Design: Retrospective study

3.2 Setting: Government Maternity Hospital, Tirupati

3.3 Subjects: January 2014 to December 2015 case sheets will be reviewed after the approval of ethical committee.

3.4 Inclusion criteria:

1. Uterine Anomalies With Singleton pregnancies
2. H/o recurrent miscarriages
3. H/o malpresentations
4. Preterm birth
5. H/o previous C/S
6. Uterine rupture

3.5 Exclusion criteria

1. Multiple pregnancies
2. Fetal anomalies
3. Uterine fibroid/s or polyps distorting the uterine cavity.
4. Pregnancies with ART.

3.6 Methodology

Data will be collected on standardized proforma from case sheets with uterine anomalies with adverse pregnancy outcomes in GMH, S.V. Medical college, Tirupati. It will be reported and analysed through MS Excel (2007) and Epi info.

IV. Results

The incidence of uterine anomalies was 154 in three years among 42,555 (0.36%) Most of them, 126 (87.5%) subjects were between 19-25 years age group. 11 women (7.1%) between 26-30years, 10 were less than 18 years (6.5%) and 7 were aged more than 30 years(4.5%).

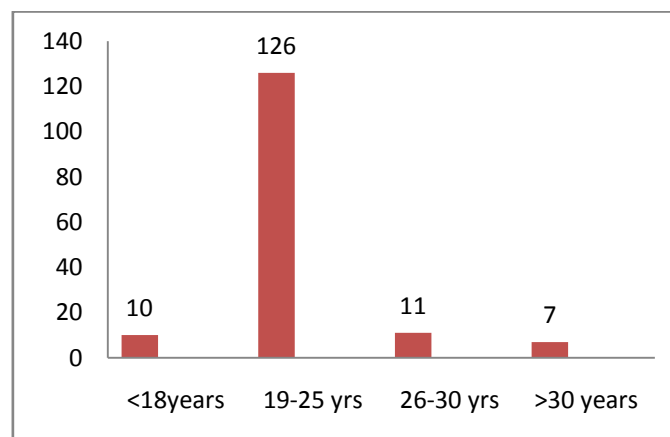


Figure 2: Age distribution among the study group

54 subjects had bicornuate uterus (35%), 44 had septate uterus (28.6%), arcuate uterus was found in 30 (19.5%), 25 women had unicornuate uterus (16.23%), and one had didelphys uterus(0.6%).

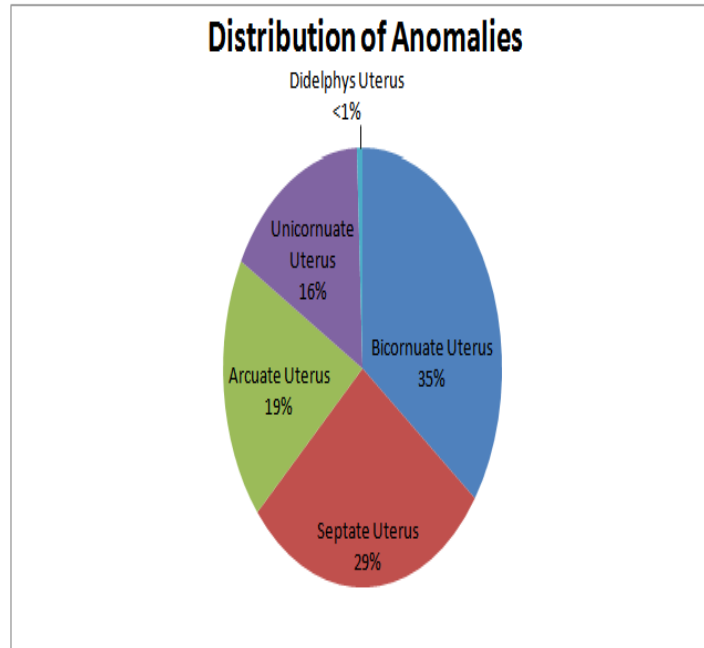


Figure 3: Distribution of anomalies among the study group

86 (55.8%) women were primigravida, 48 belonged to second gravida (31.1%), 16 women (10.4%) were third gravida and 4 of them were fourth gravida (2.6%).

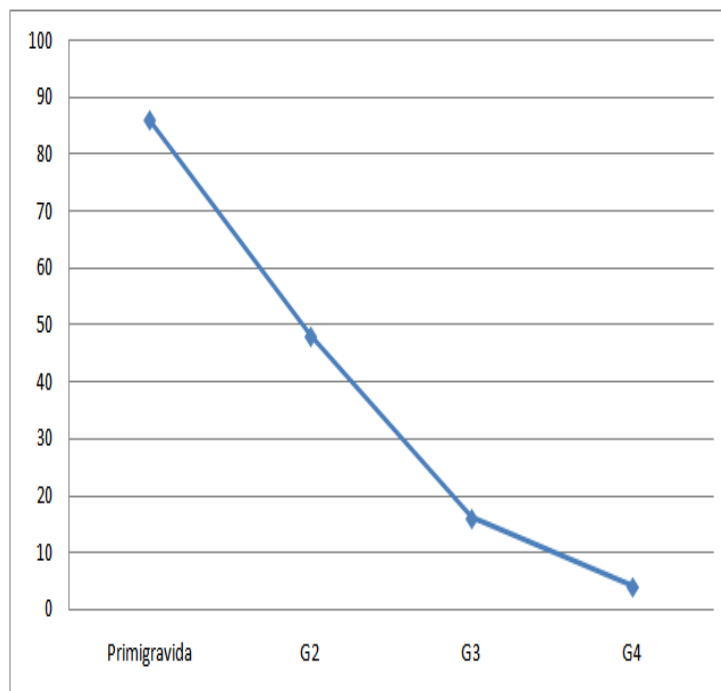


Figure 4: Parity among different women in the study group

2 cases had ectopic pregnancy. Among the remaining 152 cases, only 58 (38.1%) had cephalic presentation and 72 (47.36%) of them had breech presentation. 11 women had transverse presentation (7.2%) and 5 cases (3.2%) had hand prolapse. 6 of the subjects had twin gestation, out of which one had uterine didelphys, 4 belonged to arcuate category and one had septate uterus.

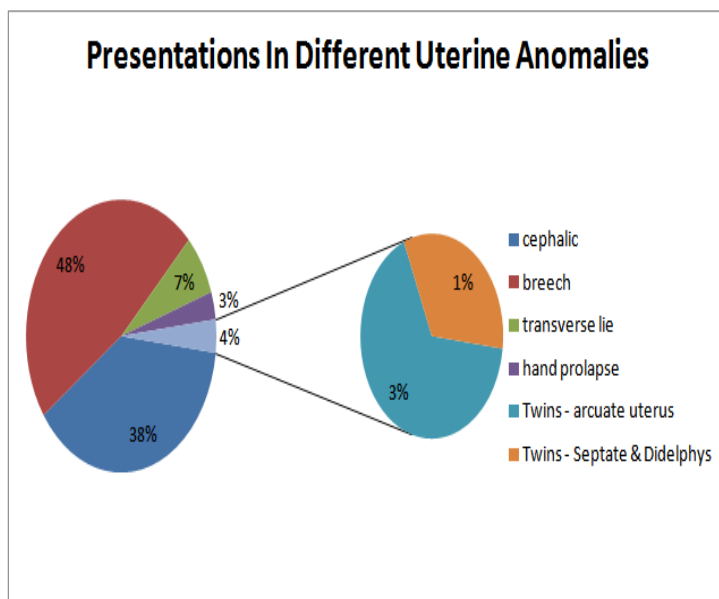


Figure 5: Fetal presentations in different uterine anomalies

On analysing the obstetric outcome, recurrent miscarriages were noted in 54 women (35.1%) among which 46 (29.9%) had recurrent second trimester abortions. 2 women with bicornuate uterus had ectopic pregnancies; both of them rupture of rudimentary horn at 5months of gestation. 32 women had preterm deliveries (20.8%). 22 subjects (14.3%) had PROM. IUGR was noted in 8 babies (5.2%). Post partum complications like PPH and retained placenta were identified in 12 (7.8%) and 4 women (2.6%). One woman with septate uterus and three women with unicornuate uterus were taken up for LSCS because of obstructed labour.

Table 1: Outcome of pregnancy in women with uterine anomalies

S.No.	Outcome	Number of Subjects	Percentage
1	Recurrent Miscarriage	54	35.1%
2	Second trimester miscarriage	46	29.9%
3	Cornual Ectopic in rudimentary horn	2	1.3%
4	PROM	22	14.3%
5	IUGR	8	5.2%
6	Pre Term Labour	32	20.8%
7	PPH	12	7.8%
8	Retained placenta	4	2.6%
9	Obstructed Labour	6	3.9%

V. Discussion

Congenital Mullerian defects are a fascinating clinical problem encountered by obstetricians. The true incidence in the general population is hard to determine for two main reasons: most data are derived from studies of patients presenting with reproductive problems, and accurate diagnosis and complete assessment of the uterine morphology has not always been performed. In addition an analysis of the reproductive performance of the malformed uteri needs to take into account not only those presenting with reproductive failures, but also those asymptomatic with normal reproductive outcome. In this study we have found that the frequency of uterine malformations is 0.36%. Depending upon the method of patient selection the incidence of uterine anomalies is 0.1 – 10% in previous studies (1). The difference is probably because only hospital statistics especially those with adverse pregnancy outcome were included in this study. The American Fertility Society (1988) classification of uterine malformations was employed in this study (2). Class I abnormalities were not documented because our data collection was based on women desiring a pregnancy during their reproductive span while class I defects are more often seen in paediatric and endocrine clinics because of primary amenorrhoea. In addition, exposure to DES was very seldom documented in the study population, but this observation is not relevant because it is an induced malformation dependent on the use of a medication in a given country.

When class I and class VII uteri are thus ruled out, it was observed that septate and bicornuate uteri represented ~63.6% of the malformations, while the arcuate, didelphys and unicornuate uteri constituted the remaining 36.3%. This picture is of clinical interest because of the fact that the former malformations can be easily managed by hysteroscopy, while the latter need more complicated procedure or have no surgical solution

High incidences of preterm labor, malpresentations and fetal growth retardation (FGR) rates have been reported by many investigators. Our study supports these findings. Four etiological theories have been suggested to explain the poorer obstetric outcome in patients with uterine anomalies: (a) Abnormal anatomy of the uterine cavity prevents correct rotation of the fetus to cephalic presentation; (b) Abnormal uterine blood flow which caused by an absent or abnormal uterine or ovarian artery might explain FGR; (c) Cervical incompetence; and (d) Diminished muscle mass of the hemi-uterus. We found cervical incompetence in 4% of the patients with uterine anomalies compared to 30% in other studies [3,4]. Ectopic pregnancy in rudimentary horn was seen in 1.3% of cases in our study which was high compared to frequently quoted figure of 1/76000 to 1/140000 pregnancies [5].

Fetal malpresentation was the most common indication for caesarean section in women with uterine anomalies. Incidence of history of miscarriages was 35.1% which is higher when compared to 26% [6]. The incidence of miscarriages suggest that the uterine malformations cannot only create a problem of space, but also that there might be local defects that interrupt normal early embryo development after implantation. In our study incidence of preterm deliveries was 20.8%, less than other studies 36% [7] and 40% [8]. This study confirmed a strong association between congenital uterine anomalies and adverse pregnancy outcomes. Metroplasty should be offered to all women with subseptate uterus with history of recurrent miscarriage. [9]

The routine use of three dimensional ultrasound can't be justified at present. However this technology will facilitate further research into congenital uterine anomalies and improve our understanding and treatment of these conditions. In a women with history of recurrent miscarriages or infertility where an association between congenital uterine anomaly and adverse pregnancy outcome is likely to be stronger, three dimensional ultrasound is more cost effective and accurate than invasive diagnostic procedures.[2] So, three dimensional ultrasound is the method of choice for the evaluation of uterine morphology. In spite of dreaded complications like ruptured ectopic pregnancy in rudimentary horn, obstructed labor & retained placenta, maternal mortality was fortunately nil in our study due to timely intervention and availability of blood bank facilities at our institute

VI. Conclusion

Incidence of uterine anomalies is underreported as many women are asymptomatic and can have normal obstetric outcome. They may present with life threatening complication. Statistics show improvement in pregnancy rate and decrease abortion rate following corrective surgery. Awareness, high index of suspicion for uterine anomalies in the reproductive age group and early interventions help to prevent dreaded complications and improve obstetric outcome in these women.

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