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Original Research Article

Frequency and Types of Uterine Anomalies during Caesarean Section Done for Abnormal Presentation

Manideepa Roy[1], Mandira Brahma[2], Bashirul Islam[3*], Afjalur Rahman[4]

[1]Assistant Professor, Department of Obstetrics and Gynaecology, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam, India
[2]Registrar, Department of obstetrics and Gynaecology , Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam, India
[3]Post Graduate Student, Department of Obstetrics and Gynaecology, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam, India
[4]Post Graguate Student, Department of Obstetrics and Gynaecology, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam, India

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***Corresponding author:** Dr. Bashirul Islam
Post Graduate Student, Department of Obstetrics and Gynaecology, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam, India

Abstract

Background: Congenital uterine abnormalities are caused by abnormal fusion or canalisation of the mullerian duct during embryonic development. Congenital uterine abnormalities affect about 2% to 4% of women in reproductive years, and 5 to 25% of women who have had a difficult pregnancy. Ultrasonography, magnetic resonance imaging, hysterosalpingogram, and hysterolaparoscopy are some of the diagnostic modalities used to diagnose uterine anomalies. This observational study is conducted to determine the frequency and types of congenital uterine anomalies discovered during Caesarean section done for abnormal presentations. ***Aims and Objectives:*** 1) To determine the frequency and types of congenital uterine anomalies during caesarean section done for abnormal presentations. 2) To find out relationship between abnormal presentation and uterine anomaly. ***Material and Methods:*** This is a retrospective observational study conducted in the Department of Obstetrics and Gynaecology, FAAMCH Barpeta. A total number of 176 cases were included in the study over a period of 1 year. Patients who underwent Caesarean section due to abnormal presentation were included in the study. After delivery of the foetus and the placenta, uterus was examined for the presence or absence of congenital malformations by digital palpation of the uterine cavity and inspection of fundus of uterus after exteriorisation. Demographic characteristics and obstetric outcomes were noted**.** ***Results***: Out of 176 patients, 24 (13.63%) were diagnosed with uterine anomalies and 152 (86.36%) patients had normal uterus. Majority of the patients with uterine anomalies who underwent Caesarean section were primigravida (79.16%) and majority of them belonged to the age group of 25 - 30 years (70.83%). The most commonly observed uterine anomaly during the study period was arcuate uterus. Our study included cases only with abnormal presentation, 17 out of 24 (70.83%) had breech presentation and 6 (25%) had transverse lie**.**

Keywords: Abnormal Presentation, Uterine Anomaly, Caesarean Section, Congenital Malformation.

INTRODUCTION

Human uterus originates from paramesonephric ducts(Mullerian ducts). These ducts extend downward and then turn medially to meet and fuse together in the midline. Fusion to create the uterus begins in the middle and then extends both caudally and cephalad. With cellular proliferation at the upper portion, a thick wedge of tissue creates the characteristic piriform uterine shape. At the same time, dissolution of cells at the lower pole forms the first uterine cavity [1]. As the upper wedge-shaped septum is slowly reabsorbed, the final uterine cavity is usually formed by the 20th week. Any abnormality in the fusion of these two ducts lead to congenital uterine abnormalities. An accurate population prevalence of these is difficult to assess because the best diagnostic modalities are invasive like hysterosalpingography, laparoscopy, hysteroscopy etc [2]. Generally the prevelance rate of uterine anomaly is 0.001 -10 [3]. In a general population, the most common finding is arcuate

uterus, followed in descending order by septate, bicornuate, didelphic, and unicornuate classes [4]. Each uterine anomaly is distinctive. American fertility society separates and classifies each anomaly into groups according to their similar clinical features, obstetric outcome and treatment. This observational study is conducted to determine the frequency and types of congenital uterine anomalies discovered during Caesarean section done for abnormal presentations [5].

MATERIALS AND METHODS

The study is an observational study done on patients who got admitted to our hospital for malpresentation from 1st November 2020 to 1st November 2021.

Inclusion Criteria

1. Patients who underwent caesarean section due to abnormal presentation .

METHODS

After delivery of the foetus and the placenta, uterus was examined for the presence or absence of congenital malformations by digital palpation of the uterine cavity and inspection of fundus of uterus after exteriorisation. As there are no guidelines to diagnose uterine septum during Caesarean section, patients were considered to have septate or sub-septate uterus if there was any degree of midline projection interfering with and preventing the approximation of index and middle finger during digital uterine cavity palpation in addition to normal convex uterine fundus. Bicornuate uterus was diagnosed if there was a depression in the uterine fundus with two separate uterine cavities by digital palpation. Unicornuate uterus was diagnosed if there was single uterine cavity with single interstitial portion of fallopian tube. Arcuate uterus was diagnosed if there was fundal indentation with no interfering septum. Didelphys was diagnosed if there were two well-formed uterine cavities, each with single interstitial portion of fallopian tube. Detailed record of delivery notes or abortions was noted. All complications and interventions were noted.

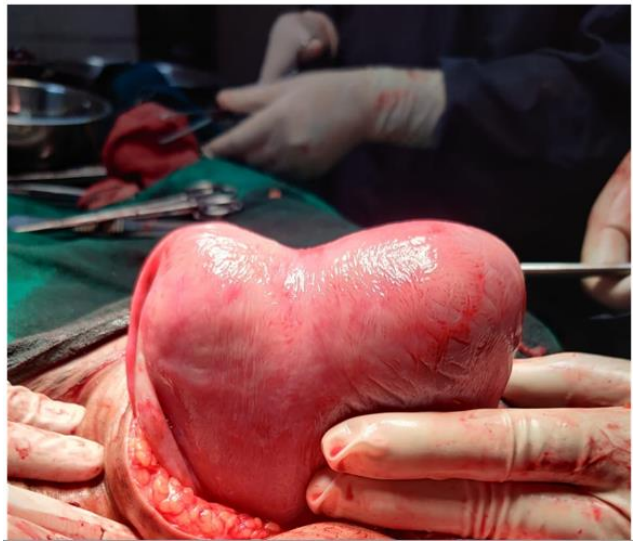

Figure showing Bicornuate uterus during LSCS

Figure showing unicornuate uterus during LSCS

RESULTS

During the study period of 1 year, 176 Caesarean sections were performed for abnormal presentation at the Department of OBG, FAKHRUDDIN ALI AHMED MEDICAL COLLEGE AND HOSPITAL, BARPETA, ASSAM. Out of 176 patients, 24 (13.63%) patients were diagnosed with uterine anomalies and 152 (86.36%) patients had normal uterus as depicted in Table 1.

Majority of the patients with uterine anomalies who underwent caesarean section were primigravida (79.16%) and also majority of them belonged to the age group of 25-30 years (70.83%) as depicted in Table 2 & 3.

The most commonly observed uterine anomaly during the study period was arcuate uterus with an incidence of 45.83%, followed by septate /subseptate uterus which was 20.83%. Bicornuate uterus also carried an incidence rate of 20.83% and the least noted was unicornuate uterus-12.50%. Uterus didelphys, a rare entity, was not found during our study period as depicted in Table 4.

Though our study included cases only with abnormal presentation, 17 out of 24 (70.83%) had breech presentation and 6 (25%) had transverse lie and 1 (4%) had oblique lie as depicted in Table 5.

Also 54.17% patients with uterine anomaly had preterm delivery & the preterm delivery rate in patients with normal uterus was lesser i.e. 36.18% as depicted in Table 6.

Table 1: Table Showing Percentage of Normal and Abnormal Uterus

	Normal uterus	Uterine anomalies	Total
Total no.	152	24	176
Percentage	86.36	13.63	100

In our study percentage of uterine anomaly was 13.63%.

Table 2: Table Showing Distribution of Parity with Uterine Anomaly.

Parity	Normal uterus	Uterine anomalies	Total
0	87	19	106
1	55	4	59
2	7	1	8
>3	3	0	3

In our study percentage of uterine anomaly in nulliparous was 79.16%, in primiparous was 16.67%, in multiparous was 4%

Table 3: Table Showing Distribution of Maternal Age

Maternal age (years)	Normal uterus	Uterine anomalies	Total cases
<18	0	0	0
19 -24	54	5	59
25- 30	80	17	97
31- 35	15	1	16
>35	3	1	4

In our study percentage of uterine anomalies for arcuate uterus was 45.83%, 20.83%(septate), bicornuate uterus was 20..83%, unicornuate uterus was 12.5%.

Table 4: Table Showing Types and Percentage of Congenital Anomalies

Types of uterine anomalies	No.	%
Arcuate	11	45.83
Septate and subseptate	5	20.83
Bicornuate	5	20.83
Unicornuate	3	12.50
Uterine didelphys	0	0

Table 5: Table Showing Types of Abnormal Presentations in Uterine Anomalies

Types of abnormal presentation	No. without uterine anomaly	With uterine anomaly	Total
Breech	123	17	140
Transverse	12	6	18
Oblique	13	1	14
Compound	4	0	4
Total	152	24	

In our study percentage of uterine anomaly with Breech presentation was 70.83%, with transverse lie 25%, with oblique lie 4%.

Table 6: Table Showing Distribution of Gestational Age

Gestational age (weeks)	Normal uterus	Uterine anomalies	Total cases
<28	0	0	0
28 – 33	10	4	14
34 – 36	45	9	54
37 – 41	95	11	106
>41	2	0	2

In our study percentage of uterine anomaly between gestational age of 28-33weeks was 16.67%, 34-36weeks 37.5%, 37-41weeks was 45.83%

Table 7: Table Showing Distribution of Birth Weight

Birth weight(gm)	Normal uterus	Uterine anomalies	Total cases
<1000	0	0	0
1000 - 1500	0	0	0
1500 - 2500	54	11	65
2500 - 4000	93	13	106
>4000	5	0	5

In our study percentage of uterine anomaly with birth weight of 1500-2500gm was 45.83%, 2500-4000gm was 54.17%.

DISCUSSION

Differentiation, migration, fusion, and subsequent canalisation of the Mullerian system are all part of the female reproductive tract's development. When these mechanisms are disrupted, uterine abnormalities arise.

During the sixth week of embryonic life, mullerian ducts are discovered in close proximity to wolffian ducts. By the fourteenth week below the implantation of the inguinal ligament, these two ducts are approaching each other. Later, the lower sections unite to form a single tube, which develops the uterus, cervix, and vaginal epithelial lining. Between 6 and 10 weeks following conception, bilateral or unilateral developmental failure can occur, resulting in the absence of internal genital organs or a unicornuate uterus. If development is halted for the next four weeks, the result is either a rudimentary horn or a bicornuate uterus. Septate or subseptate uterus is caused by failure of development following this phase. The exact cause of these developmental defects is still unknown [6].

In a study conducted in Egypt by M.A. Mohamed and M. Y. Abdelrahman (2018), aberrant presentation after caesarean sections performed for various reasons was considerably greater in women with uterine anomalies compared to normal uterus. They reported 112 malpresentations out of 622 patients with normal uterus (18%) and 10 out of 31 patients with uterine anomalies (32.3%) [7]. Another study conducted at Turkey in 1997 quoted an incidence of 6.1% (29 out of 468) of mullerian anomalies during Caesarean section in their study regarding outcome of breech deliveries by S. Erkaya *et al*., [8]. In our study, patients only with abnormal presentation as an indication for caesarean section were considered & the incidence of uterine anomalies in our study was found to be 13.63%.

According to numerous research, breech presentation was the most usually connected with uterine abnormalities among the various aberrant presentations. S.P. Michalas conducted a retrospective study on the pregnancy outcome in women with uterine malformations in Greece in 1990, and discovered that breech presentation was the most common uterine anomaly, with breech presentation occurring in 38 of 81 cases with uterine malformations (46.9 percent) [9]. Another retrospective investigation at a major tertiary care centre at Washington University in St. Louis found

that breech presentation was considerably higher in uterine abnormalities (23.6 percent) than in normal uteruses (3 percent). Their study was on congenital uterine anomalies and its adverse pregnancy outcomes by Hua MD *et al*., [10]. In our study, 70.83% (17/24) of patients with uterine anomalies had breech presentation and 25% (6/24) had transverse lie. However, comparison cannot be made as the cases only with abnormal presentation were included in our study and there is no control group.

In 2003 Salim *et al*., American Fertility Society, proposed modified classification for congenital uterine anomalies. Among these various anomalies, many studies had varying frequencies for each type. M.A. Mohamed & M.Y. Abdelrahman (2018) quoted in their study that the most common anomaly noted was septate/subseptate uterus/arcuate uterus (22/31-70.9%) followed by bicornuate uterus (6/31-19.35%), then unicornuate uterus (2/31-6.45%), the least common was didelphys [11]. They found only one case during their study period (1/31-3.23%). In our study, the most common type of uterine anomaly noted was arcuate uterus, followed equally by septate/subseptate and bicornuate uterus & the least being unicornuate uterus. Uterus didelphys was not found in our study period and is also a rare entity.

Mullerian developmental abnormalities can produce functional and structural changes in the cervix and uterine musculature, which can lead to negative pregnancy outcomes such as premature labour and miscarriage. In their study, Hua M et al found that the incidence of preterm delivery was 39.7%, which was substantially higher than the control group's incidence of 10.4% [12].

Another study by N.S. Fox et colleagues (2013) was based on the type of uterine abnormality and its unfavourable pregnancy outcome in a retrospective cohort study in New York. Preterm delivery was observed to be 28.9% in patients with uterine abnormalities compared to 8.9% in controls, a statistically significant [13]. In our study, the rate of preterm delivery was higher in cases with uterine anomalies (54.17%).

CONCLUSION

Early detection of uterine anomaly can prevent poor obstetric outcome. As congenital uterine abnormalities can impair reproductive and obstetric outcomes, early detection can save numerous women from negative results. One of the diagnostic techniques for uterine abnormalities is a Caesarean section. As a result, we urge that all obstetricians perform a routine uterine inspection during caesarean section, both internally and externally as it can provide valuable information about the diagnosis of uterine anomalies with no increase in operative time, risk, or cost to the patient.

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