

## Prospective study of primary cesarean section in multigravida

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### Abstract:

**Background:** Progress in obstetrics has been associated with an increased incidence of cesarean section (CS). Primary CS in a multipara means the first CS performed in woman who has delivered vaginally at least once previously and it is associated with a number of maternal and foetal indications. **Objectives:** The present research was undertaken to study the incidence and indications of primary CS in multigravida. **Method:** This prospective observational study was conducted in total 510 booked cases of multigravida reported to antenatal OPD with gestational age >28 weeks and previous vaginal deliveries and no cesarean delivery or any other scar on uterus. **Results:** Primary CS was performed in 75(14.7%) multigravida women. Majority of cases (48%) with primary CS belonged to 26-30 years age group. The incidence of primary CS in emergency and elective cases was 74.7% and 25.3% respectively. Maternal and fetal indications contributed 44% and 56% of the total cases respectively. Fetal distress (26.7%), malpresentation (18.7%) and failed induction (14.7%) for various co-morbidities were the commonest indications of primary CS. **Conclusion:** Fetal distress is a major contributor to primary CS in multigravida. Proper antenatal evaluation with early detection and management of high risk cases can reduce the likelihood of intrapartum fetal distress.

**Keywords:** Primary cesarean section, multigravida malpresentation, cephalopelvic disproportion, incision, anaesthesia.

C - Section (CS) is one of the most frequently conducted surgical operations in the world, and it can save the child's, mothers, or both lives<sup>1</sup>. The quick growth in the rate of CS delivery has been a worldwide problem, and research done throughout India have revealed an alarming increase in the frequency of CS deliveries<sup>2, 3</sup>. In a multipara, primary CS refers to the first CS done on a woman who has previously delivered vaginally at least once<sup>4</sup>. In multipara, the infant and placenta are mostly responsible for CS. However, the main CS rate at teaching hospitals is increasing as a result of technical advancements such as ultrasound reporting of oligohydramnios, cord around neck, and doppler studies of missing or reversed diastolic flow, infertility therapies, aberrant CTG, and on-demand CS from women<sup>5</sup>.

Furthermore, multiparas are predisposed to a variety of difficulties throughout the prenatal (abortion, preeclampsia, antepartum haemorrhage, multiple pregnancy, and polyhydroamnios) and intranatal (abortion, preeclampsia, antepartum haemorrhage, multiple pregnancy, and polyhydroamnios) periods (malpresentation, cephalopelvic disproportion, uterine inertia, ruptured uterus, retained placenta and postpartum haemorrhage). All of these symptoms may be indicators of CS, therefore they should be examined in multipara<sup>6, 7</sup>. Despite this, the majority of un-booked patients live in rural regions<sup>8</sup> and are frequently referred to maternity centres when issues emerge during pregnancy or labour. It is often held that if a mother delivers her baby normally, all subsequent births will be normal

as well, leading to multiparous women ignoring standard pregnancy check-ups. It is also critical to investigate the CS indications and outcomes in women who have previously given birth vaginally<sup>9,10</sup>. Hence the present study was undertaken with the objective to know the incidence and indications of primary CS in multi-gravidas.

### Materials and methods

It was a prospective observational study carried out in total 510 booked cases of multigravida reported to antenatal OPD with gestational age >28 weeks and previous vaginal deliveries, and with no cesarean delivery or any other scar on the uterus at AFMC (Armed Forces Medical College) Pune, India over a period of one year from July 2019 to Jun 2020. Patients were studied during the antenatal period, labour and until discharge from the hospital.

All routine investigations such as haemoglobin, urine analysis, blood grouping and Rh factor, serological test for VDRL, HCV, HBSAg, HIV, blood sugar fasting and post prandial, and glucose tolerance test were carried out. In addition Rh antibodies in cases of Rh negative patients with Rh positive husbands were performed in relevant cases. An obstetric ultrasound was done in all cases for confirming the period of gestation, ruling out congenital anomalies, placental localization and assessment of amniotic fluid volume. After completion of relevant investigations including pre-anaesthetic checkup in cases of elective CS and usual routine preoperative preparations, the patients were taken up for surgery. The operations were performed under spinal and general anaesthesia. All cases were operated by lower segment cesarean section (LSCS) with a transverse incision in the lower uterine segment.

Patients were managed postoperatively with intravenous fluids, parenteral antibiotics, analgesics, record of fluid intake and output. In cases of postoperative persistent rise of body temperature, routine examination of urine, culture and antibiotic sensitivity test, blood culture and a high vaginal swab culture and antibiotic sensitivity test were performed after a detailed clinical examination. Patients with no complications were discharged on post-operative day 3rd and reviewed on day 7th in OPD or ward for suture removal. At the time of discharge, the patients were explained about the importance of spacing, contraception and immunization. Cord blood collected during delivery was submitted for investigations in case of Rh negative mothers with Rh positive husband. Preterm and small for date babies and babies suffering from birth asphyxia were managed at neonatal intensive care units under the care of paediatrician. The infants were also discharged along with the mothers if no complications were detected.

### Results

A total of 510 patients were included in the study. Human immunodeficiency virus (HIV) was observed in only one of the 510 patients while hepatitis B surface antigen was present in two cases. The mean age of patients was 26.03±3.7 years, ranged from 18 – 41 years. Most of the patients were in the age group of 21-25 years (44.31%) followed by 26-30 years (40.39%) as shown in table 1.

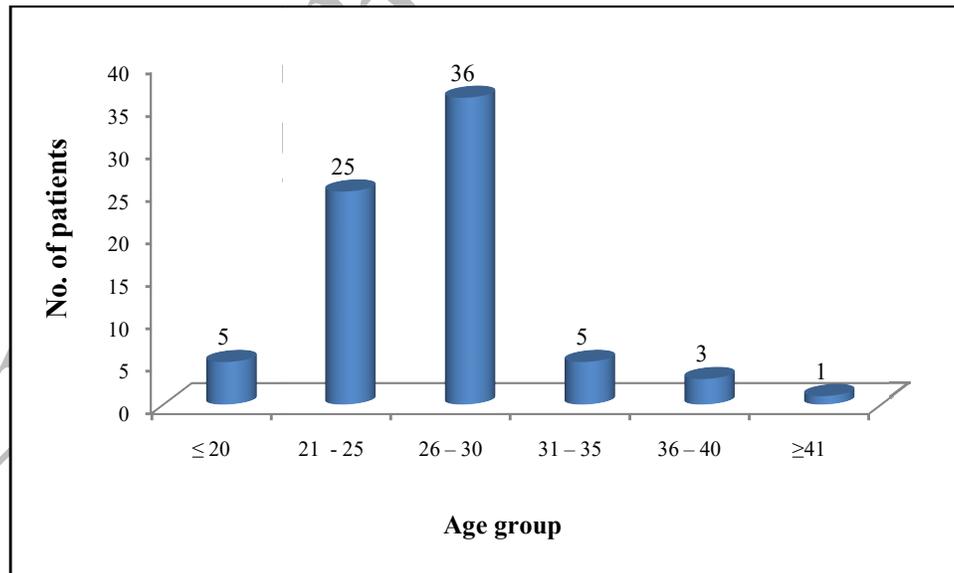
Age group (in years)	No of patients	Percentage
< 20	23	4.50
21 - 25	226	44.31
26 - 30	206	40.39
31 - 35	48	9.41
36 - 40	06	1.17
≥ 41	01	0.19
Total	510	100

Majority of patients were G2 category (56.5%) and P1 parity (79.21%) as depicted in table 2. Table 3 shows the mode of delivery. In majority of cases, (435; 85.3%) delivery was vaginal while 75 (14.7%) patients underwent lower segment caesarian section. There were two still born vaginal deliveries.

Gravida and parity		Frequency	Percentage
Gravid	G2	288	56.5
	G3	150	29.4
	G4	48	9.4
	G5	20	3.9
	G6	02	0.4
	G8	02	0.4
Parity	P1	404	79.21
	P2	96	18.82
	P3	09	1.76
	P4	01	0.20

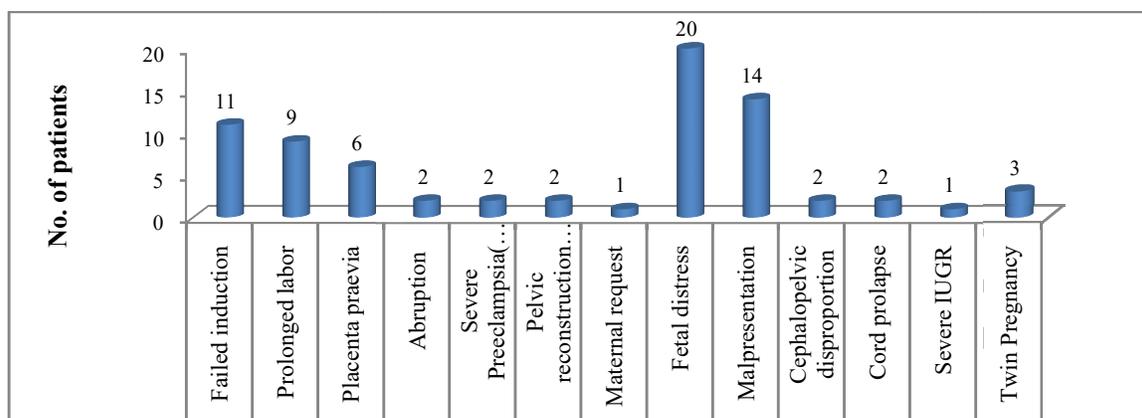
Mode of delivery		Frequency	Total
Vaginal	Preterm	29	435
	Term	398	
	Instrumental (Vacuum)	08	
LSCS	Preterm	10	75
	Term	65	

Most of the cases (48%) with primary CS belonged to 26-30 years age group. Only 1.3% of cases were in the age group above 40 years as depicted in figure 1. The number of para 1 patients who underwent primary CS was the highest i.e. 58(77.3%) then para 2 (16; 21.3%) whereas the number in 3rd para was one only.



**Figure 1: Age wise distribution of patients in primary CS**

Out of 75 primary CS cases, 56(74.7%) underwent emergency CS whereas only 19 cases (25.3%) underwent elective CS. Maternal and fetal indications contributed 44% and 56% of the total cases respectively. The most common maternal indications for cesarean section was failed induction (11; 14.7%) while fetal distress was the commonest fetal indication for CS followed by malpresentation as shown in figure 2.



**Figure 2: Maternal and fetal indications for cesarean section**

## Discussion

In the present study, majority of patients were from the age group of 21-25 years (44.31%) followed by 26-30 years (40.39%) which is comparable to previous studies<sup>11,12</sup>. Most of the patients (56.5%) were Gravida - 2 followed by Gravida-3 (29.4%) as similar to study conducted by Ramavath et al<sup>12</sup> and Rajput et al<sup>13</sup>. It reflects that in last few years' family size has been shifted from 5-6 children per couple to 2-3 children per couple. So, grand multiparity has been significantly reduced in the past few years.

A multipara who has earlier delivered vaginally may still require a CS for safe delivery<sup>4</sup> and the incidence of primary CS in multigravida has naturally been increased. Total number of deliveries during the study period of 1 year was 510 and the total number of primary CS was 75, thus the incidence of primary CS in present study was 14.7%. Boyle et al reported that the primary CS rate among the multipara was 11.5% (10,368/89,868)<sup>14</sup>. However the reports from India showed that the primary CS rate ranged from 1.8%<sup>15</sup> to 10.3%<sup>16</sup>. The incidence of primary CS in emergency and elective cases was 74.7% and 25.3% respectively; this explains the higher number of emergency CS in our study which is comparable with the study done by Sree Sailaja et al<sup>17</sup>.

Majority of cases (48%) with primary CS belonged to 26-30 years age group; this is comparable with the earlier studies<sup>18,19</sup>. There were only 5(6.7%) cases in the age group of 31-35 years and 25(33.3%) cases in the age group of 21-25 years. This observation is rather surprising because obstetric complications enhance considerably with advancing age, when operative delivery may be indicated. However, the risk of cesarean delivery increased with each 5 years age increment among women of 20 years age or older<sup>20</sup>. It may perhaps be explained by the fact that in our country most of the women complete their childbearing function by the age of 35 years. The incidence of primary CS in Para 1, para 2 and para 3 were 77.3%, 21.3%, 1.3% respectively and there were no cesarean cases in para 4 and above. This shows a decreasing incidence of CS as parity increases.

It is difficult to pinpoint exactly one specific indication of the operation in all cases as most of the time CS was indicated because of several factors put together. However, while preparing the tables, the cases with multiple indications were carefully scrutinized and the main indication charted. In current study maternal and fetal indications contributed 44% and 56% of the total cases respectively. The fetal distress was a major contributor to primary CS in multigravida which was also the most common indication in other studies<sup>4, 11, 12, 16, 17, 21</sup>. Next common indication was malpresentation accounting for 18.7% of cases as similar to study conducted by Ramavath et al<sup>12</sup> and Mallika et al<sup>21</sup>. Failed induction was the indication in 11(14.7%) cases forming the most common maternal indication of primary CS whereas it was 5.45% in a study by Khairun Nahar<sup>22</sup>. Majority of cases that underwent CS due to failed induction were hypertensive disorders (8%), post-datism (4%) and IUGR (2.7%). Other

indications of induction were thrombophilias, BOH and cholestasis of pregnancy but all of them delivered vaginally. Prolonged labor was the next common maternal indication of primary CS (9; 12%) which is correlated with the study conducted by Gibb et al<sup>23</sup>. There were 2 cases of secondary arrest of dilatation, 4 cases of secondary arrest of descent and 3 patients developed deep transverse arrest. There were 3(4%) cases of twin pregnancy who underwent emergency CS. Two of them were preterm DADC twin, one was with severe preeclampsia and other was with breech presentation of the first twin. There was one case of preterm DAMC twin with TTTS with single fetal demise of the first twin, and emergency CS was recommended to salvage the surviving second twin. However the baby expired on post operative day 2.2 cases of preterm with severe preeclampsia and one were with ascites. Both of them underwent emergency CS. Two patients underwent elective CS for total hip replacement. One patient underwent elective CS on maternal request.

### Conclusion

We concluded that fetal distress is a major contributor to primary CS in multigravida. Cesarean section is a safe procedure, however, preventive efforts to lower primary CS rate should be focused on the areas of decreasing fetal distress and non progress of labor. Proper antenatal evaluation with early detection and management of high risk cases can reduce the likelihood of intrapartum fetal distress. The diagnosis of fetal distress based on clinical parameters (FHR monitoring on CTG and meconium - stained liquor on p/v examination) is often subjective. Precise interpretation of fetal heart tracing together with use of fetal scalp pH testing would be more confirmative. Good clinical pelvimetry, early diagnosis of incoordinate uterine contraction, antenatal detection of malposition and malpresentations, and timely practice of ECV to turn a breech baby to cephalic position can reduce intrapartum events of failed progress leading to cesarean section.

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**Conflict of interest:** None. **Disclaimer:** Nil.