



Examining Primary Cesarean Section in Multiparous Women: A Forward-looking Investigation

Anupama bhagat, Jyotsana dwivedi, Chanchala kumari

Corresponding author: Dr Anupama bhagat, Assistant professor, Department of Obstetrics and Gynaecology, Madhav Prasad Tripathi Medical College, Siddharthnagar, Uttar Pradesh, India;

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ABSTRACT:

Background: Advancements in obstetrics have led to a surge in the prevalence of cesarean sections (CS). Primary CS in multiparas, defined as the initial CS performed on a woman who has previously delivered vaginally, is linked to various maternal and fetal indications. While medical progress has undoubtedly improved outcomes, it has also raised concerns about the overutilization of CS procedures.

Objectives: This study aims to investigate the frequency and reasons behind primary CS in multigravid women, shedding light on potential areas for optimizing obstetric care.

Method: A prospective observational study was carried out, encompassing 250 pre-booked cases of multigravid women attending antenatal outpatient clinics with a gestational age exceeding 28 weeks, prior vaginal deliveries, and no history of cesarean delivery or uterine scarring.

Results: Primary CS was conducted in 37(14.7%) multigravida women, highlighting a significant incidence within this population. Notably, the majority (48%) of primary CS cases occurred among women aged 26-30 years, underscoring a critical age bracket for obstetric interventions. The distribution between emergency and elective cases revealed a stark contrast, with emergency procedures accounting for 74.7% and elective procedures for 25.3% of the total. Maternal and fetal factors played distinct roles, with maternal indications contributing to 44% and fetal indications to 56% of cases. Predominant reasons for primary CS included fetal distress (26.7%), malpresentation (18.7%), and failed induction (14.7%), emphasizing the diverse clinical scenarios prompting surgical intervention. Conclusion: Fetal distress emerges as a prominent factor necessitating primary CS in multigravida women, warranting enhanced antenatal assessment and proactive management of high-risk pregnancies to mitigate the incidence of intrapartum fetal distress.

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

I. INTRODUCTION

Cesarean section (CS) remains a cornerstone of modern obstetrics, frequently employed to ensure the well-being of both mother and child. However, the pervasive escalation in CS rates poses a global challenge, with research conducted in India spotlighting a concerning surge in CS deliveries. Within the multiparous cohort, primary CS delineates the inaugural surgical delivery in women with a history of prior vaginal deliveries.

While fetal and placental factors predominantly dictate CS necessity in multiparas, advancements in obstetric technology, such as sophisticated ultrasound diagnostics and fetal monitoring, contribute to the burgeoning CS rates observed, particularly in academic medical centers.

Moreover, multiparous women encounter a myriad of prenatal and intranatal complexities, spanning from obstetric anomalies like malpresentation and cephalopelvic disproportion to emergent situations like uterine rupture and postpartum hemorrhage. Given the diverse array of indicators for CS, comprehensive prenatal evaluation is imperative for multiparous women.

However, it's worth noting that a substantial proportion of unbooked patients resides in rural locales, often seeking maternity services only upon encountering pregnancy or labor-related complications. Misconceptions surrounding subsequent births following a previous vaginal delivery may prompt multiparous women to forgo routine prenatal check-ups, emphasizing the necessity to explore CS indications and outcomes in this demographic. Thus, this study aims to elucidate the incidence and underlying indications for primary CS in multigravid women.



II. MATERIALS AND METHODS:

This study employed a prospective observational design, enrolling a cohort of 250 pre-scheduled multigravida cases attending the antenatal outpatient department (OPD), over a one-year period from July 2021 to June 2022. Inclusion criteria encompassed women with gestational ages exceeding 28 weeks, a history of prior vaginal deliveries, and the absence of previous cesarean deliveries or uterine scarring. Patients were meticulously monitored throughout the antenatal period, labor, and until hospital discharge.

A comprehensive range of routine investigations was conducted, including hemoglobin assessment, urine analysis, blood grouping, Rh factor testing, and serological screening for VDRL, HCV, HBsAg, and HIV. Additionally, blood sugar levels were evaluated via fasting and postprandial tests, with glucose tolerance testing administered as required. Rh antibody screening was performed in Rh-negative patients with Rh-positive partners. Obstetric ultrasound examinations were employed to determine gestational age, identify congenital anomalies, assess placental localisation, and evaluate amniotic fluid volume.

Following the completion of necessary investigations, including pre-anaesthetic evaluations for elective CS cases, patients underwent surgical intervention. Cesarean sections were performed under either spinal or general anaesthesia, utilizing a lower segment cesarean section (LSCS) approach with a transverse uterine

incision. Postoperative management comprised intravenous fluid administration, parenteral antibiotics, analgesics, and vigilant monitoring of fluid balance. Patients experiencing postoperative fever underwent comprehensive clinical assessments, including urine and blood culture analyses, in addition to high vaginal swab culture and antibiotic sensitivity testing as warranted.

Patients without complications were discharged on the third postoperative day, with follow-up appointments scheduled on the seventh day for suture removal either in the OPD or ward. Discharge counseling emphasized the significance of birth spacing, contraception, and immunization. Cord blood samples from deliveries involving Rh-negative mothers with Rh-positive partners were collected for further investigation. Preterm or growth-restricted infants and those experiencing birth asphyxia received specialized care in neonatal intensive care units under the supervision of pediatricians. Infants were discharged alongside their mothers upon resolution of any complications.

III. RESULTS:

The study involved a total of 250 patients. Human immunodeficiency virus (HIV) infection was detected in only one out of the 250 patients, while hepatitis B surface antigen was identified in two cases. The mean age of the patients was 26.03 ±3.7 years, ranging from 18 to 41 years. The majority of patients fell within the age group of 21-25 years (44.31%), followed closely by those aged 26-30 years (40.39%), as illustrated in Table 1.

Table 1: Age wise distribution of patients.

Age groups (in years)	No. Of patients	Percentage
<21	11	4.4
21-25	110	44.1
26-30	101	40.42
31-35	24	9.41
36-40	3	1.27
>40	1	0.4
Total	250	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.



Table 2: Gravida and parity status of patients

Gravida	Frequency	Percentage
G2	141	56.5
G3	74	29.4
G4	23	9.4
G5	10	3.9
G6	1	0.4
G8	1	0.4
Parity	Frequency	Percentage
P1	198	79.11
P2	47	18.89
P3	4	1.66
P4	1	0.4

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. 77.3% then para 2, 21.3%, whereas the number in 3rd para was one only.

Table3: mode of delivery

Mode of delivery		Frequency
Vaginal	Pre-term	15
	Term	190
	Instrumental (vaccum)	5
LSCS	Pre-term	5
	Term	35

Out of primary CS cases, 74.7% underwent emergency CS whereas only 25.3% cases 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 (14.7%) while fetal distress was the commonest fetal indication for CS followed by malpresentation.

IV. DISCUSSION

In our recent investigation, the predominant age group among patients was 21-25 years (44.31%), closely followed by 26-30 years (40.39%), mirroring findings from prior studies. The majority of patients (56.5%) were Gravida-2, with Gravida-3 accounting for 29.4%, consistent with research by Ramavath et al. and Rajput et al.



This demographic shift indicates a notable decrease in grand multiparity over recent years, transitioning from 5-6 children per couple to 2-3 children per couple.

Despite previous vaginal deliveries, multiparous women may still necessitate cesarean sections (CS) for safe delivery, leading to a natural increase in primary CS incidence in multigravidas. Over the one-year study period, there were 510 deliveries and 75 primary CS cases, resulting in a 14.7% incidence rate. Comparatively, Boyle et al. reported a primary CS rate of 11.5% among multiparas, while Indian reports indicated rates ranging from 1.8% to 10.3%. The higher prevalence of emergency CS in our study (74.7% emergency, 25.3% elective) is in line with findings by Sree Sailaja et al.

Regarding age distribution among primary CS cases, the majority (48%) fell within the 26-30 years age group, consistent with earlier studies. Surprisingly, only 6.7% were aged 31-35 years, and 33.3% were aged 21-25 years. Despite increased obstetric complications with advancing age, the risk of cesarean delivery increased with each 5-year increment among women aged 20 years or older, possibly attributed to completing childbearing by age 35. Primary CS incidence decreased with increasing parity, with rates of 77.3%, 21.3%, and 1.3% for Para 1, Para 2, and Para 3, respectively, and no cases in Para 4 and above.

Pinpointing a single indication for CS proved challenging, as multiple factors often contributed. Maternal and fetal indications accounted for 44% and 56% of cases, respectively. Fetal distress emerged as a primary indication for primary CS in multigravidas, consistent with other studies. Malpresentation and failed induction followed as common indications, with failed induction notably associated with hypertensive disorders, post-datism, and intrauterine growth restriction (IUGR). Prolonged labor also featured prominently as a maternal indication, echoing findings by Gibb et al. Additionally, there were cases of secondary arrest of dilatation, secondary arrest of descent, deep transverse arrest, and twin pregnancies requiring emergency CS, underscoring the complexity of indications for cesarean delivery.

V. CONCLUSION

Our study highlights fetal distress as a significant contributor to primary cesarean section (CS) in multigravidas. While CS remains a safe procedure, efforts to reduce primary CS rates should focus on mitigating factors such as fetal distress and non-progress of labor. Antenatal

evaluation plays a crucial role in this regard, with early detection and management of high-risk cases potentially lowering the likelihood of intrapartum fetal distress.

The diagnosis of fetal distress, often based on clinical parameters such as fetal heart rate (FHR) monitoring on cardiotocography (CTG) and meconium-stained liquor on vaginal examination, can be subjective. A more precise interpretation of fetal heart tracing, coupled with the use of fetal scalp pH testing, could provide confirmative evidence. Additionally, employing good clinical pelvimetry, early detection of incoordinate uterine contractions, antenatal identification of malpositions and malpresentations, and timely external cephalic version (ECV) to convert a breech presentation to a cephalic position, can help reduce intrapartum events of failed progress leading to the necessity of cesarean section.

By emphasizing preventive measures and improving antenatal care, healthcare providers can work towards reducing primary CS rates while ensuring the safety and well-being of both mothers and babies during childbirth.

Conflict of interest: None.

Disclaimer: Nil.

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S Momon Singh , Tina Singh , Vaidehi Thakur
Department of Obstetrics and Gynecology,
INHS Sanjivani, Kochi, Kerala, India;
Department of Obstetrics and Gynecology,
INHS Asvini and Institute of Naval Medicine,
Mumbai, Maharashtra, India;
Department of Obstetrics and Gynecology, NH
Powai, Maharashtra, India.