ORIGINAL ARTICLE

Study of Primary Caesarean Section in Multiparous Women in Central India

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Abstract:

Background: Primary caesarean section in multipara refers to first time caesarean section in multiparous women who have had previous one or more vaginal delivery. *Aim and Objectives:* The present study focuses on the frequency, indications and obstetric outcome of primary caesarean sections in multiparous women with previous vaginal deliveries. *Material and Methods*: This was a cross sectional observational study, carried out during a period of 1st December 2014 to 30th November 2016 at a tertiary care centre after obtaining clearance from Institutional Ethics Committee. All the consecutive subjects fulfilling the selection criteria were included in study with sample size of 200. *Results:* Total number of deliveries during the study period were 3485, out of which 1649 (47.32%) were vaginal and 1836 (52.68%) were caesarean sections. Frequency of primary caesarean section in multiparous women was 5.73% of all deliveries and 10.89% of all caesarean section. The most common indications for caesarean section were non reassuring fetal status (47%), mal-presentation (13%) and thick meconium stained liquor (13%). *Conclusion:* Though responsible for least number of overall caesarean sections, multiparous women undergoing primary caesarean section fall under high risk pregnancy with possibility of adverse obstetric outcome in significant number of subjects.

Keywords: Primary Caesarean Section, Multiparous, Indication, Non Reassuring Fetal Status, Obstetric Outcome

Introduction:

Caesarean section is the most commonly performed surgical procedure in obstetrics and can be life saving for the child, the mother or both. The term caesarean section refers to operation of delivering the baby through incision made on the abdominal wall and uterine wall after the period of viability. One of the most dramatic features of modern obstetrics is the increase in the caesarean section rate both in developed and developing countries. Reasons for the global increase in the caesarean section rate are increased safety of procedure, fetal distress especially its detection by continuous electronic fetal monitoring, more liberal use of caesarean section for breech presentation, multiple gestation, intrauterine growth restriction, fear of litigation and maternal request. WHO recommends 10-15% ideal rate for caesarean section [1]. However, in June 2010, WHO officially withdrew its previous recommended rate of 15% and stated that it should be done based on medical needs to women rather than striving to achieve specific rate [1-2]. Primary caesarean section in multipara refers to first time caesarean section in multiparous women who have had previous one or more vaginal delivery. It is a common belief that a multiparous woman with previous vaginal delivery will have successful vaginal delivery in subsequent pregnancy. Hence most of the multiparous women ignore antenatal care visits and remain in subnormal state of health during pregnancy and labor. These women get

expert supervision only if any emergency arises during pregnancy or labour or when caesarean section has to be performed. Of particular interest, in light of increased incidence of abdominal delivery throughout the country and in the world is the validity of this procedure when used for the first time in the multipara.

In 1934, the paper published by Dr Bethel Solomon "The Dangerous Multipara" in which he discusses the importance of eradicating the preconceived notion that "primigravida means difficult labour and multipara means an easy one" [3]. There is general perception of obstetrician that primigravida and previous caesarean section are recognized as high risk pregnancy. Multiparous women who had previous normal delivery are considered as low risk group but in practice we observe the adverse obstetric outcome even in these women. As labour can be unpredictable so equal importance should be given to both primigravida and multigravida. Hence present study was undertaken

- To determine the frequency of primary caesarean section in multiparous subjects out of all caesarean sections performed at the place of study, in comparison with other groups such as primigravida, repeat caesarean section and nulliparous multigravida.
- To study indications of primary caesarean section in multiparous women.
- To study the obstetric outcome and associated high risk factors with adverse obstetric outcome of primary caesarean section in multiparous women.

Material and Methods:

This was cross sectional observational study of 200 multiparous women undergoing caesarean section for the first time beyond 28 weeks was included. It was conducted in the Department of Obstetrics and Gynecology at a tertiary care hospital from 1st December 2014 to 30th November 2016, after getting approval from Institutional Ethics Committee. Women with previous uterine surgery (myomectomy and hysterotomy) and caesarean section done in multiparous women before 28 weeks in present pregnancy were excluded. The written informed consent was taken which included that there was no side effects of this study on mother and baby, identity of the patients would never be revealed, women were not to be forced to take part in this study and they were free to withdraw from this study at any time without being liable for any compensation.

Detailed history included age, booking status, parity, gestational age at time of admission, obstetrical history, clinical and obstetrical examination and all investigations including special investigations according to diagnosis of subjects were noted. In the present study, booked women were those who had at least one visit in each trimester at our centre and un booked were those who did not visit our centre even once in each trimester booked outside or referred from outside. Total deliveries during study period were noted which included all vaginal deliveries and caesarean sections (all caesarean done in primigravida, nulliparous multigravida, multiparous and repeat caesarean section).

Frequency of primary caesarean section in multiparous women out of all caesarean sections was calculated. Indication of caesarean section, type of caesarean section, preoperative complications (antepartum and intra partum), adverse obstetric outcome including maternal morbidity

[intraoperative (postpartum haemorrhage and extension of excision) and postoperative complication (fever, wound discharge, urinary tract infection, postpartum haemorrhage and paralytic ileus)] and adverse neonatal outcome [neonatal morbidity (preterm care, respiratory distress, birth asphyxia with Apgar score ⩽ 6 , meconium aspiration syndrome, low birth weight <2.5kg, very low birth weight <1.5kg, extremely low birth weight <1kg, random blood sugar in babies of gestational diabetes mellitus mothers) and neonatal mortality] was assessed in all the multiparous women. Total obstetric outcome included both good and adverse obstetric outcome. Association of high-risk factors with adverse obstetric outcome was also studied. All the subjects were followed till the day of discharge.

Statistical analysis was done by using descriptive and inferential statistics using chi square test and software used in the analysis were SPSS 17. Version, EPI-INFO 6.0 version and Graph Pad Prism 6.0 version p value <0.05 was considered as level of significance.

Results:

Distribution of all Deliveries and Frequency of Primary Caesarean Section in Multiparous Women:

Total number of deliveries during the study period were 3485, out of that, 1649 (47.32%) and 1836 were vaginal deliveries and caesarean sections respectively. Among 1649 women who delivered vaginally, 876 (53.1%) were multiparous and 773 (46.9%) were primigravida. Total 1836 (52.68%) women underwent caesarean section, 796 (43.35%) were done in primigravida, 533 (29.03%) were repeat caesarean section, 307 (16.72%) were done in nulliparous multigravida and 200 (10.89%) were primary caesarean section in multiparous. Frequency of primary caesarean section in multiparous women was 5.73% of all deliveries (3485), 10.89% of all caesarean sections (1836) and 12.34% of all multiparous women (1609 included those women who delivered vaginally, had repeat caesarean section and primary caesarean section in multiparous). Nulliparous multigravida were not included as their previous pregnancy had never reached the age of viability.

Table 1: Frequency of Caesarean Sections

Caesarean sections in primigravida	796 (43.35 %)
Repeat caesarean sections	533 (29.03 %)
Primary caesarean sections in nulliparous multigravida	307 (16.72 %)
Primary caesarean sections in multipara	200 (10.89%)
Caesarean sections	1836 (52.68%)

Analysis of Obstetric Parameters:

Majority of the women, 52.5% were in the age group of 25-29 years and 76% were unbooked. Most of the women had gestational age 37-40 weeks (61.5%) with parity <2 (84.5%). Maximum number of women underwent emergency lower segment caesarean section (96.5%). Analysis of preoperative obstetric complications (antepartum andintrapartum). In present study total number of women were 200 but total >200 because some women had more than one preoperative obstetric complications. 25.5% women had bad obstetric history, 20% had anaemia, 18% had PIH and 15% had Premature Rupture of Membrane (PROM). Remaining complications are depicted in the Table 4.

Indications of Primary Caesarean Section in Multiparous Women:

Majority of multiparous women had non reassuring fetal status (47%) as indication for primary caesarean section. Non reassuring fetal status is characterized by fetal tachycardia or bradycardia, reduced fetal heart rate variability <5, deceleration (persistent, late and variable). Thirteen percentage of women underwent caesarean section for malpresentation and thick meconium stained liquor each. Others (4%) include obstructed labour, previous sling operation, severe oligohydramnios, uncontrolled gestational diabetes mellitus, complete perineal tear in previous delivery, cephalopelvic disproportion, eclampsia with unfavourable cervix and cord prolapse.

Table 2: Analysis of Obstetric Parameters

Obstetric history		**N=200 (%)**
Age	<25	41(20.5%)
	25-29	105(52.5%)
	⩾30	54(27%)
Booking status	Booked	48(24%)
	Un-booked	152(76%)
Parity	<para 2	169(84.5%)
	⩾para2	31(15.5%)
Gestational age (weeks)	<37	38(19%)
	37-40	123(61.5%)
	>40	39(19.5%)
Type of caesarean section	Elective	7(3.5%)
	Emergency	193(96.5%)

Table 3: Indications of Primary Caesarean Section in Multiparous Subjects

Indications	N=200
Non reassuring fetal status	94 (47%)
Malpresentation	26(13%)
Thick meconium stained liquor	26(13%)
Cervical dystocia	11(5.5%)
Antepartum haemorrhage	10(5%)
Maternal desire	10(5%)
Failure of induction	7(3.5%)
Monochorionic diamniotic twins with first baby breech	4(2%)
Deep transverse arrest	2(1%)
Abnormal Doppler (Absent diastolic flow)	2(1%)
Other	8(4%)

Others include obstructed labour, previous sling operation, severe oligohydramnios, uncontrolled gestational diabetes mellitus, complete perineal tear in previous delivery, cephalopelvic disproportion, eclampsia with unfavourable cervix and cord prolapse.

Analysis of Maternal Morbidity:

In the present study, 21 (10.5%) and 27 (13.5%) women had intraoperative and postoperative complications respectively but number was more as 6 (3%) subjects had both intraoperative and postoperative complications. Most common intra-operative complication was postpartum haemor-rhage (12%) and postoperative complications were fever (6%) and wound discharge (5%).

Analysis of Adverse Neonatal Outcome:

About 93.2% of babies had Apgar score >7 and 64.9% of babies had birth weight between 2.1-3 kg. Live babies were 96.6% and neonatal mortality was 3.4%. Seventy (34.14%) babies had NICU admission out of which 30.73% babies had neonatal morbidity and 3.41% had neonatal mortality. Neonatal morbidity was seen in 63 babies but number was more because some babies had more than one complications. Most common neonatal morbidity was preterm care 35 (17.07%). According to NICU protocol of our centre, all neonates with gestational age <37 weeks were admitted for preterm care.

Analysis of Total Obstetric Outcome:

About 50.5% and 49.5% subjects had adverse and good obstetric outcome respectively.

Association of high-risk factors with adverse obstetric outcome as follows

Maternal morbidity was found in 42 (27.63 %) of unbooked subjects as compared to 12 (25%) booked subjects. But no significant association was found between booking status and maternal morbidity with p value of 0.63. Association of maternal morbidity with preoperative complications was statistically significant with p value of 0.046. Fifty-five (35.26%) babies of unbooked subjects had adverse neonatal outcome as compared to 15 (30.61%) babies of booked subjects which was found statistically non-significant with p value >0.05. Adverse neonatal outcome was found in 41 (100%) babies with gestational age <37 weeks as compared to 29 (17.68%) babies ⩾ 37 weeks. It was found to statistically significant with p value <0.05. Significant association was found between preoperative complications and adverse neonatal outcome with p value of 0.049. Adverse neonatal outcome was found statistically significant with low birth weight with p value <0.05.

Table 4: Preoperative Complications (Antepartum and Postpartum)

Complications in present pregnancy	N=200
Bad obstetric history	51 (25.5%)
Anaemia	40 (20%)
Pregnancy Induced Hypertension (PIH)	36 (18%)
Premature Rupture of Membrane (PROM)	30 (15%)
Malpresentation	27 (13.5%)
Oligohydramnios	26 (13%)
Intrauterine Growth Restriction (IUGR)	12 (6%)
Antepartum haemorrhage	11 (5.5%)
Multifetal pregnancy	5 (25%)
Gestational Diabetes Mellitus (GDM)	4 (2%)
Polyhydramnios	3 (1.5%)
Cord prolapse	3 (1.5%)
Absent diastolic flow	2 (1%)
Complete perineal tear in previous pregnancy	1 (0.5%)
Previous sling operation	1 (0.5%)
Total*	252 (126%)

**Multiple responses allowed (as some patients had more than one pre-operative complications)*

Table 5: Analysis of Maternal Morbidity

Maternal morbidity			**N=200**	**Total***
Intraoperative complications	21 (10.5%)	Postpartum haemorrhage	24 (12%)	27 (13.5%)
		Extension of uterine incision	3 (1.5%)	
Postoperative complications	27 (13.5%)	Fever	12 (6%)	33 (16.5%)
		Wound discharge	10 (5%)	
		Postpartum haemorrhage	6 (3%)	
		UTI	4 (2%)	
		Fever with wound discharge	1 (0.5%)	
Intraoperative and postoperative complication	6 (3%)			

**Multiple responses allowed*

Table 6: Analysis of Neonatal Outcome

Parameters	**N=205 (%)**	
Apgar score	⩽7	14 (6.8%)
	>7	191 (93.2%)
Birth weight (kilogram)	⩽2	25 (12.19%)
	2.1-3	133 (64.9%)
	⩾3.1	47 (22.91%)
Fetal outcome	Live birth	198 (96.6%)
	mortality	7 (3.41%)

Table 7: Distribution of Patients according to NICU Admission

NICU Admission	**No. of babies (205)**
Neonatal morbidity	63 (30.73%)
Neonatal mortality	7 (3.41%)
Total	70 (34.14%)

Table 8: Analysis of Neonatal Morbidity

Neonatal morbidity	No. of babies (205)
Preterm care	35 (17.07%)
Respiratory distress	22 (10.73%)
Meconium aspiration syndrome	6 (2.93%)
Random blood sugar monitoring in gestational diabetes mellitus subjects	4 (1.95%)
Sepsis	2 (0.98%)
Low birth weight	5 (2.44%)
Very low birth weight	2 (0.98%)
Birth asphyxia	3 (1.46%)
Total*	79 (38.54%)

**Multiple responses allowed*

Table 9: Analysis of Obstetric Outcome

Obstetric outcome		No. of subjects (200)	Total
Adverse	Only maternal morbidity	34	101 (50.5%)
	Adverse neonatal outcome	47	
	Both	20	
	Good	99 (49.5%)	
	Total	200	

Discussion:

Total numbers of deliveries in the present study over 2 years were 3485, out of which 1836 (52.68%) subjects underwent caesarean section. It is comparable to the study by Himabindu *et al.* [4] with caesarean section rate of 40.55% out of all deliveries. Other studies by Padmaleela *et al.* [5], Rao *et al*. [6], Subhashini *et al*. [7], Saluja *et al*. [8] and Reddy *et al*. [9] showed caesarean section rate of 31.15%, 29.46%, 25.66%, 24.64%, 22.506% respectively. The frequency of caesarean section was more in the present study as our centre is the tertiary care centre which caters to rural population. Frequency of primary caesarean section in multiparous subjects in present study was 10.89% out of all caesarean section which closely correlates with study by Rao *et al.* [6] (10.28%). Other studies showed caesarean section rate in multiparous subjects as 3.82% (Saluja *et al*. [8]), 6.04% (Samal

et al. [10]), 7% (Himabindu *et al*. [4]), 7.68% (Reddy *et al.* [9]) and 29.05% (Desai *et al*. [11]).

In the present study, maximum number of subjects undergoing primary caesarean section were in age group of 25-29 years (52.5%) which is comparable with studies by Reddy *et al.* [9], Rao *et al*. [6] and Sethi *et al*. [12] which showed 45.18%, 41.5%, 41% in similar age group respectively. This may be due to early marriage and illiteracy resulting in high fertility in early ages. Nearly 84.5% subjects were Para <2 similar to the study done by Reddy *et al.* [9] and Desai *et al*. [11].

In the present study, 61.5% subjects were term (37-40 weeks), 24% booked and 76% were unbooked. Similar results were seen in study by Saluja *et al*. [8] (booked 28% and unbooked 72%) and Himabindu *et al*. [4] (booked 29% and unbooked 71%). The most common preoperative complications were bad obstetric history, anaemia, Pregnancy Induced Hypertension (PIH) and PROM. Emergency caesarean sections in present study were 96.5% which closely correlates with study by Rao *et al*. [6], Saluja *et al*. [8], Samal *et al*. [10]. Increased rate of emergency caesarean sections was because our centre is the tertiary care centre catering to rural population. Most of the subjects were unbooked and had various preoperative complications (antepartum and intrapartum) which necessitated need for emergency caesarean sections.

In the present study, the most common indication for caesarean section was non reassuring fetal status seen in 47% subjects which closely correlates with study by Samal *et al*. [10] (44.1%). In present study some of the subjects with non-reassuring fetal status had high risk factors like preeclampsia, postdates, PROM, Intrauterine Growth Restriction (IUGR), loop of cord around neck. Nowadays, all labour subjects are monitored by continuous external fetal heart rate monitoring and any abnormal fetal heart rate changes will indicate non reassuring fetal status and as there is no facility for fetal scalp blood sampling, no obstetrician would take risk of not performing caesarean section.

Thirteen percentage of subjects in the present study had malpresentation as an indication for caesarean section. In the study by Desai *et al*. [11] 17.44% and Himabindu *et al.* [4] 19.3% of subjects had malpresentation as an indication. Most common malpresentation in present study was breech. At our centre, we prefer abdominal delivery in breech either electively or in labour to avoid maternal and fetal complications.

Nearly 13.5% and 16.5% of subjects had intraoperative and postoperative complications respectively. It closely correlates with study by Sethi *et al*. [12], Rao *et al.* [6] and Reddy *et al.* [9]. Intraoperative and postoperative complications were observed more in unbooked subjects which was comparable with study by Reddy *et al.* [9]. There were no cases of maternal mortality in our study which can be explained by proper surgical technique, prophylactic antibiotics, blood transfusion facility and back up of obstetric intensive care unit facility.

In the present study, 93.2% babies had Apgar score >7, 64.9% had birth weight between 2.1-3 kg and neonatal mortality of 3.4% comparable to study by Himabindu *et al*. [4]. Less frequency of neonatal mortality in our set up could be because of proper management of antepartum complications, careful intrapartum monitoring, proper asepsis, skilled neonatologist and effective neonatal intensive care unit. Neonatal mortality was more in unbooked subjects. Perinatal morbidity was 30.73% which was high in present study as compared to other

studies by G. Reddy *et al.* [9] (11.47 %), Samal *et al*. [10] (22.1 %), Himabindu *et al*. [4] (15%) and Sethi *et al*. [12] (17%). This was because our NICU protocol is to keep all preterm babies <37 weeks in NICU for preterm care and were considered as having neonatal morbidity in the present study.

Out of 200 subjects 50.5% had adverse obstetric outcome and 49.5% had good obstetric outcome. Multiparous women requiring caesarean section is also high-risk group. No study had mentioned regarding this combined obstetric outcome.

Conclusion:

The frequency of primary caesarean section in multiparous women was 10.89% of all caesarean sections and 12.34% of all multiparous women. Though responsible for least number of overall caesarean section, multiparous subjects undergoing primary caesarean section is high risk pregnancy with possibility of adverse obstetric outcome in significant number of subjects and hence multiparous women deserve the same attention during pregnancy and labour as primigravida and women with repeat caesarean section.

Recommendations

- Early diagnosis and timely referral is necessary whenever multiparous women present with antepartum complications.
- Strengthening of preterm baby units and neonatal intensive care unit is necessary to improve neonatal outcome.

References

1. WHO Statement on caesarean section rates. Geneva: World Health Organisation; 2015 (WHO/RHR/15.02).
2. Betrán AP, Torloni MR, Zhang J, Gulmezoglu AM, and the WHO working group on cesarean section. WHO statement on caesarean section rates. *BJOG* 2016; 123(5): 667-670.
3. Solomon B. The dangerous multipara. *Lancet* 1932; 2: 8-11.
4. Himabindu P, Tripura SM, Sireesha KV, Sairam MV. Primary caesarean section in multipara. *IOSR-J Dent Med Sci* 2015; 14(5):22-25.
5. Padmaleela K, Thomas V, Vishnu Prasad K. An analysis of the institutional deliveries and their outcomes in government teaching hospitals of Andhra Pradesh, India. *Int J Health Sci Res* 2013; 3(5): 76-80.
6. Rao JH, Rampure N. Study of primary caesarean section in multiparous women. *J Evol Med Dent Sci* 2013; 2(24): 4414-4418.
7. Subhashini R, Uma N. Changing trends in caesarean delivery. *Int Arch Integr Med* 2015; 2(3): 96-102.
8. Saluja JK, Roy PK, Mahadik K. Study of primary caesarean section in multiparous women. *Nat J Integr Res Med* 2014; 5(2):27-29.
9. Reddy GPS, Ramana SV, Bhanu SPG. Clinical study of primary caesarean section in multiparous women. *Indian J Res* 2015; 4(10):112-114.
10. Samal R, Palai P, Ghose S. Clinical study of primary caesarean section in multiparous women in a tertiary care hospital. *Int J Reprod Contracept Obstet Gynecol* 2016; 5(5):1506-1509.
11. Desai E, Leuva H, Leuva B, Kanani M. A study of primary caesarean section in multipara. *Int J Reprod Contracept Obstet Gynecol* 2013; 2(3):320-324.
12. Sethi P, Vijaylaxmi S, Shailaja G, Bodhare T, Devi S. A study of primary caesarean section in multigravidae. *Perspect Med Res* 2014; 2: 3-7.

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