

ANALYSIS OF CAESAREAN SECTION ACCORDING TO MODIFIED ROBSON'S CLASSIFICATION AT TERTIARY HEALTH CARE CENTER IN JAMMU AND KASHMIR

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Abstract

Background: The worldwide rise in CS is a major public health concern and cause of considerable debate due to potential maternal and perinatal risks, cost issues and inequity in access. Present study was aimed to analyse caesarean section according to modified Robson's classification at tertiary health care center in Jammu and Kashmir. **Materials and Methods:** Present study was single-center, retrospective, observational study, conducted pregnant women underwent, caesarean section under department of Obstetrics and Gynaecology of our hospital. **Result:** In present study, we analysed 1124 women underwent CS during study period. We noted that majority women were from group 5 (Previous CS, single cephalic, >37 weeks - 27.31 %), followed by group 2 (Nulliparous, single cephalic, >37 weeks, induced or CS before labor - 22.78 %), group 1 (Nulliparous, single cephalic, >37 weeks in spontaneous labor - 19.13 %) & group 6 (All nulliparous breeches - 9.43 %). Common absolute maternal indication for CS in present study was Major APH (8.81 %), followed by Malpresentation (5.16 %), Obstructed labor (4.72 %) & Uterine rupture (0.71 %), among those majority cases were from group 1 followed by group 5 & group 2. Among cases underwent CS for Non-absolute indication, common indication were Fetal compromise (27.94 %), Previous LSCS (19.31 %), Failure to progress (16.73 %), Breech (10.05 %) severe pre-eclampsia (5.25 %) & others (1.33 %). In these cases, majority cases were from group 5 followed by group 2 & group 1. **Conclusion:** Main advantage of Modified Robson's classification is its simplicity, robustness, reproducibility, flexibility, clinically relevant and suitable even for low resource setting. & helps to achieve meaningful and relevant comparison of CS rates.

INTRODUCTION

The worldwide rise in CS is a major public health concern and cause of considerable debate due to potential maternal and perinatal risks, cost issues and inequity in access.^[1] World Health Organization has recommended that Caesarean Section (CS) rates should not be more than 15%, as CS rates above this are not associated with additional reduction in maternal and neonatal mortality and morbidity.^[2] The lack of a standardized internationally-accepted classification system to monitor and compare CS rates in a consistent and action-oriented manner is one of the factors preventing a better understanding of this trend and underlying causes.^[3] Robson proposed a new classification system, the Robson

ten group classification system to allow critical analysis according to characteristics of pregnancy.^[4] The Robson's 10-group classification is based on simple obstetrical parameters (parity, previous CS, gestational age, onset of labour, fetal presentation and number of fetuses) and does not involve the indication for CS.^[5] WHO has proposed the Robson's ten group classification system (TGCS) as a global standard for assessing, monitoring and comparing CS rates within and between healthcare facilities in 2015 based on two multi country surveys.^[4,5] Present study was aimed to analyse caesarean section according to modified Robson's classification at tertiary health care center in Jammu and Kashmir.

MATERIALS AND METHODS

Present study was single-center, retrospective observational study, conducted in Department of Obstetrics & Gynaecology, Government Medical College, Doda, India. Study duration was of 1 year (January 2021 to December 2021). Study was approved by institutional ethical committee.

Inclusion criteria

- All pregnant women underwent, caesarean section under department of Obstetrics and Gynaecology of our hospital & complete details available to classify CS according to Robson classification⁴.

Exclusion criteria

- Caesarean section done outside
- Pregnant women not willing to participate.
- Informed consent to participate in the study was obtained from all the eligible women.

Demographic details, obstetric/medical history, examination findings on admission to hospital, indication of LSCS, were noted in case record proforma. The obstetric characteristics as described in the Robson classification⁴ were considered, i.e., parity, onset of labour, gestational age, foetal presentation and number of fetuses. Later women were categorised into ten groups as per modified Robson's classification.

Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Statistical analysis was done using descriptive statistics.

RESULTS

During study period total 4142 deliveries were conducted in our hospital. Out of them 2830 (68.33 %) vaginal delivery & 1312 (31.67 %) were CS. From 1312 total CS, we studied 1124 CS as others complete data was not available for study. Thus, we analysed 1124 women underwent CS during study period.

We noted that majority women were from group 5 (Previous CS, single cephalic, >37 weeks - 27.31 %), followed by group 2 (Nulliparous, single cephalic, >37 weeks, induced or CS before labor - 22.78 %), group 1 (Nulliparous, single cephalic, >37 weeks in spontaneous labor - 19.13 %) & group 6 (All nulliparous breeches - 9.43 %). Less common groups were group 3 (Multiparous, excluding previous CS, single cephalic, >37 weeks in spontaneous labor - 5.69 %), group 10 (All single cephalic, <36 weeks, including previous CS - 5.34 %), group 4 (Multiparous, excluding previous CS, single cephalic, >37 weeks, induced or CS before labor - 3.47 %), group 7 (All multiparous breeches, including previous CS - 2.85 %), group 8 (All multiple pregnancies, including previous CS - 2.14 %) & group 9 (All abnormal lies, including previous CS -1.87 %).

Table 1: Distribution according to Robson's ten-groups classification system

Group number	Robson's ten-groups classification	No. of cases	Percentage
1	Nulliparous, single cephalic, >37 weeks in spontaneous labor	215	19.13%
2	Nulliparous, single cephalic, >37 weeks, induced or CS before labor	256	22.78%
3	Multiparous (excluding previous CS), single cephalic, >37 weeks in spontaneous labor	64	5.69%
4	Multiparous (excluding previous CS), single cephalic, >37 weeks, induced or CS before labor	39	3.47%
5	Previous CS, single cephalic, >37 weeks	307	27.31%
6	All nulliparous breeches	106	9.43%
7	All multiparous breeches (including previous CS)	32	2.85%
8	All multiple pregnancies (including previous CS)	24	2.14%
9	All abnormal lies (including previous CS)	21	1.87%
10	All single cephalic, <36 weeks (including previous CS)	60	5.34%
	Total	1124	100.00%

Common absolute maternal indication for CS in present study was Major APH (8.81 %), followed by Malpresentation (5.16 %), Obstructed labor (4.72 %) & Uterine rupture (0.71 %), among those majority cases were from group 1 followed by group 5 & group 2.

Among cases underwent CS for Non-absolute indication, common indication was Fetal compromise (27.94 %), Previous LSCS (19.31 %), Failure to progress (16.73 %), Breech (10.05 %) severe pre-eclampsia (5.25 %) & others (1.33 %). In these cases, majority cases were from group 5 followed by group 2 & group 1.

Table 2: Distribution according to indication of CS

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	
Absolute Maternal indication.											
1) Obstructed labor	32 (2.85 %)	8 (0.71 %)	6 (0.53 %)	3 (0.27 %)	0	0	0	1 (0.09 %)	1 (0.09 %)	2 (0.18 %)	53 (4.72 %)
2) Major APH	26 (2.31 %)	19 (1.69 %)	2 (0.18 %)	5 (0.44 %)	22 (1.96 %)	0	1 (0.09 %)	2 (0.18 %)	1 (0.09 %)	21 (1.87 %)	99 (8.81 %)
3) Malpresentation	5 (0.44 %)	2 (0.18 %)	16 (1.42 %)	10 (0.89 %)	2 (0.18 %)	0	0	7 (0.62 %)	16 (1.42 %)	0	58 (5.16 %)

4) Uterine rupture	0	0	2 (0.18 %)	0	6 (0.53 %)	0	0	0	0	0	8 (0.71 %)
Non-absolute indication.											
1) Fetal compromise	102 (9.07 %)	98 (8.72 %)	24 (2.14 %)	11 (0.98 %)	50 (4.45 %)	18 (1.6 %)	0	1 (0.09 %)	943 (0.27 %)	7 (0.62 %)	314 (27.94 %)
2) Previous LSCS	0	0	0	0	198 (17.62 %)	0	11 (0.98 %)	2 (0.18 %)	0	6 (0.53 %)	217 (19.31 %)
3) Failure to progress.	30 (2.67 %)	116 (10.32 %)	5 (0.44 %)	8 (0.71 %)	13 (1.16 %)	0	3 (0.27 %)	3 (0.27 %)	0	10 (0.89 %)	188 (16.73 %)
4) Breech	0	0	0	0	0	88 (7.83 %)	17 (1.51 %)	8 (0.71 %)	0	0	113 (10.05 %)
5) severe pre-eclampsia	19 (1.69 %)	9 (0.8 %)	7 (0.62 %)	1 (0.09 %)	10 (0.89 %)	0	0	0	0	13 (1.16 %)	59 (5.25 %)
6) others	1 (0.09 %)	4 (0.36 %)	2 (0.18 %)	1 (0.09 %)	6 (0.53 %)	0	0	0	0	1 (0.09 %)	15 (1.33 %)
Total	215 (19.13 %)	256 (22.78 %)	64 (5.69 %)	39 (3.47 %)	307 (27.31 %)	106 (9.43 %)	32 (2.85 %)	24 (2.14 %)	21 (1.87 %)	60 (5.34 %)	1124

DISCUSSION

The Robson ten group classification system (TGCS) categorizes women into 10 mutually exclusive groups, considering the following criteria: obstetric history (parity and previous Caesarean section), onset of labour (spontaneous, induced, or Caesarean section before onset of labour), fetal presentation or lie (cephalic, breech, or transverse), number of fetuses, and gestational age (preterm or term).^[6] TGCS is universally accepted and results are internationally comparable. The TGCS uses the entire relevant patient characteristic to classify the patients into ten mutually exclusive and inclusive groups i.e. each and every patient will be classified into one and only one group.^[2]

In study by Dhodapkar SB et al,^[8] 367 (32.6%) women delivered by CS. The CS rates among various groups varied from 100% among women with breech presentation (group 6 and group 7) and abnormal lies (group 9) to 5.9% among multiparous women with spontaneous labour having single cephalic pregnancy (group 3). Among women with previous section, CS rate was very high (89.6%). Women with previous CS (group 5) contributed maximum (40.1%) to the total number of CS. All women with breech presentation and abnormal lies delivered by CS and repeat CS was the highest contributor to all CS deliveries.

Jamwal D et al., studied 630 women underwent CS & CS rate was 46.12%. It was observed that majority of caesarean sections belonged to group 2 and group 5 of Robson criteria. Group 5 comprised of patients with one or more previous caesarean section with cephalic presentation according to Robson criteria and maximum number of caesarean sections done in the present study belonged to this group that is 40.3%. Group 2 that is nulliparous singleton cephalic >37 week induced labour or caesarean section before labour comprised 29.2%. Breech pregnancies (groups 6 and 7) had >90% caesarean rates.

Dogra K et al,^[10] noted that out of total 1302 women delivered, 395 underwent CS (30.3%). The major contribution to overall caesarean section rate was 33.4% by group 5 followed by 16.7% by group 1, 12.4% by group 3. CS rates among various group ranges from 100% among women with abnormal lie

(group 9) to 77.5% in nulliparous breech (group 6), 73.7% in previous CS (group 5) and least 11.2% in multipara induced or pre labour CS (group 4). Modified Robson classification is simple, systematic, reproducible and can be effectively utilized in analyzing delivering women.

In study by Hiralal Konar et al,^[11] CS rate was 43.13% (735 out of 1704 deliveries). Not only the largest group in terms of relative size 649 (38.08%), the Robson group 1 had a CS rate of 41.75% (271/649), as well as the largest absolute number of caesarean deliveries. The group 1 made the largest contribution (271) to the overall CS rate (15.9%). The group 5 was the second largest contributing group 155 (9.09%), followed by group 3 96 (5.63%) and group 2 69 (4.04%). In the present study group 5 showed the CS rate of 95.67%, group 3 with CS rate of 24.48% and group 2 with CS rate of 60.52%. Similar findings were noted in present study.

Cognizant of its advantages and simplicity, the WHO and the International Federation of Gynecology and Obstetrics (FIGO) recommend the Robson classification system as a global standard for assessing, monitoring and comparing CS rates among nations and within institution over time, and between institutions, regardless of their level of complexity.^[12,13,14]

Through implementation of the Robson ten group classification system, contribution of each group to the overall CS rate as well as the CS rate within each group can be calculated. Target groups with higher CS rates, require more in-depth analysis to identify possible modifiable factors and to apply specific interventions to reduce the CS rate.

In order to reduce CS under group 5 (Previous CS, single cephalic, >37 weeks) vaginal birth after CS (VBAC) is best option. VBAC is associated with decreased maternal morbidity and a decreased risk of complications in future pregnancies, as well as a decrease in the overall CS rate.^[15] Hence, for promoting VBAC, the Royal College of Obstetricians and Gynaecologists recommends the routine use of VBAC checklists during antenatal counseling as they would ensure informed consent and shared decision-making in women undergoing VBAC.^[16]

Regarding group 1 & 2. obstetric units should critically address certain issues such as induction of

labour, failure to progress and fetal heart rate concern which are very much related to rising CS rate in unscarred pregnancies. Evidence based recommendations is need of hour regarding the same. A better effort in reducing relatively preventable primary caesarean section need enforcement which includes preventing failed induction by a better induction protocol, allowing vaginal birth after primary caesarean section, wait for spontaneous onset of labor up to 41 weeks and then induction, practicing external cephalic version for breech presentation and transverse lie, use of low forceps or ventose for second-stage delay, allow the second stage 3 hours in nulliparous before saying arrest in the second stage.^[17]

Increasing CS rate among women with breech presentation is a common phenomenon particularly since the publication of the term breech trial. Groups 6 and 7 consist of women with breech presentation and showed high CS rates.^[18,19] Despite the criticisms of the term breech trial, many hospitals have been reluctant to offer vaginal breech birth.^[20] Evaluation of existing management protocols and further studies into indications of CS and outcomes are needed to design tailored strategies and improve outcomes. The Robson ten group classification is a widely accepted, risk-based, ten-group classification system developed specifically to assess caesarean section rates.

CONCLUSION

Main advantage of Modified Robson's classification is its simplicity, robustness, reproducibility, flexibility, clinically relevant and suitable even for low resource setting. & helps to achieve meaningful and relevant comparison of CS rates. Reducing primary CS by induction of labour in indicated cases, partographic monitoring of labour & application of VBAC to reduce repeat CS is need of hour to decrease morbidity & mortality related to CS.

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