



A STUDY OF ANALYSIS OF CAESAREAN DELIVERIES ACCORDING TO ROBSON'S GROUP CLASSIFICATION SYSTEM IN OUR HOSPITAL

Obstetrics & Gynaecology

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ABSTRACT

Background: The incidence of caesarean delivery has been progressively rising throughout the world. In last 15-20 years there has been two-threefold increase in the caesarean rate. Incidence of caesarean delivery is high in tertiary referral centre. Reasons for increase in CS rate are such as increase in elderly primigravida which are at risk for pregnancy related complications, use of electronic foetal monitoring which detects more cases of abnormal/non-reassuring foetal heart rate, increase in number of CS i/v/o previous CS, instant of Vaginal birth after CS [VBAC]. ROBSON 10 GROUP CLASSIFICATION OF CAESAREAN SECTION was used to classify CS according to their cause. **Objective:** To classify the caesarean deliveries according to their causes. To identify and audit the rising causes of caesarean deliveries at GCS Medical College, Hospital and Research Centre. To standardise the indications of caesarean deliveries. **Methods:** This cross-sectional study was conducted at Department of Obstetrics and Gynaecology, GCS Medical College, Hospital and Research Centre Ahmedabad, from June 2023 to April 2024. The study population included a total of 100 women who underwent CS in our hospital during the specified study period. For each case, we collected data regarding maternal characteristics and pregnancy-related information. The dependent variable was Robson classification group. **Results:** Overall, mean age was 26.53±5.1 years. Majority of the women, 74% had gestational age between 37-42 years while 47% had history of caesarean section. Most of the patients, 40% turned out to be from TGCS Group-5. Group-2 and Group-1 were the 2nd and 3rd most common group, accounting for 21% and 13% cases respectively. Previous caesarean section (47%) and foetal distress (23%) were found to be the most common indications leading to caesarean section. **Conclusion:** Among the completed deliveries, Groups 5 and 2 were determined to be the most contributing, according to Robson's Ten-Group Classification. The most frequent reasons for a caesarean section were foetal distress and prior caesarean section.

KEYWORDS

Robson's Ten-Group Classification, Caesarean section, Foetal distress, previous CS

INTRODUCTION

Caesarean section (CS) rates have alarmingly increased over the past few decades on a global scale.¹ Avoiding caesarean sections (CS) may put the lives of the mother and the foetus at risk in situations where spontaneous vaginal delivery (SVD) is not feasible or advised.^{2,3} Although CSs are thought to be a life-saving surgery, there are dangers associated with them in relation to ongoing or possible pregnancies.

Requirements for blood transfusions, longer hospital admissions, post-partum infections, retained placenta, stillbirth, and post-partum haemorrhage are some of the most frequent short- and long-term complications related to CS. This suggests that some women may be unnecessarily exposed to these issues if they are not chosen carefully, while some women could miss out on CS when they are in actual need. The prevalence of CS is relatively higher among women with an education (minimum secondary level), who live in urban areas, or who come from wealthy socioeconomic backgrounds. Maternal morbidity and mortality have been observed to be higher in rural areas due to lack of staff, equipment, and access to adequate healthcare facilities.

In the present scenario, the real challenge is to have CS rate low while preserving safety of mother and the newborn intact. For this, constant audits of CSs being performed in healthcare settings are necessary. Three most commonly adopted classifications are "based on primary clinical indications", "the degree of urgency or absolute need for caesarean delivery", and "Robson classification"- as frameworks for auditing CS. Torloni MR et al. did a systematic review comparing different classifications for CS and concluded that Robson's 10 Groups classification was found to be optimal for monitoring CS.⁴ "World Health Organization" has also endorsed Robson's classification as a "global standard" tool for the monitoring of CS.⁵ The Robson's classification is known as "Ten Group Classification System (TGCS)", classifies CSs in ten groups according to different categories of the pregnancy, past obstetrical record, the course of labour and delivery, and the gestational age of the pregnancy.

Table-I Robson's Ten Group Classification System.

Group	Description
1	Nullipara, single, cephalic, term pregnancy, spontaneous labour
2	Nullipara, single, cephalic, term, induced labour or planned CS
3	Multipara without uterine scar, single, cephalic, term,

	spontaneous labour
4	Multipara without uterine scar, single, cephalic, term, induced labour or planned CS
5	Multipara with uterine scar, single, cephalic, term
6	Nullipara, single, Breech presentation
7	Multipara, single, breech, including previous C-Section
8	Multiple Pregnancy
9	Single, abnormal lie, including previous scar
10	Single, Cephalic, Preterm including previous scar

METHODS

The Department of Obstetrics and Gynaecology, GCS Medical College, Hospital and Research Centre Ahmedabad, was the site of this cross-sectional study. This study was approved by the "Institutional ethical committee". A total of 100 women who had CS in the hospital throughout the designated study period made up the study population. Every participant in the study gave written consent. Those with lacking records or those undergoing a laparotomy due to uterine rupture were not included.

Maternal history, biobdata, symptomatology, clinical examination, management outcomes, and pregnancy-related information (gestational age, foetal presentation, number of foetus, and onset of labour) as well as maternal and foetal outcomes at discharge (complications, APGAR score at five minutes, and birth weight) were documented for each of the enrolled women. The Robson classification group was the dependent variable. Each component of study data was recorded on a pre-made proforma.

Calculations were made for study variables and participant descriptive statistics. Four obstetric concepts (together with its corresponding criteria) were used to assign the Robson group: gestational age, course of labor, prior obstetric history, and hemorrhage (APH), transverse, oblique, and brow malpresentation, in that order, were absolute maternal signs. Fetal compromise, prior CS, failure to progress, breech birth, severe pre-eclampsia, and eclampsia (without a hierarchy) were among the non-absolute indicators. Indicators of the results included means, SD, frequencies, and percentages.

Inclusion Criteria:

- Patient delivered by CS during the study period will be recorded and classified according to Robson's ten group classification system.

- The parameter considered were according to the classification system
- Parity (with /without previous cs)
- Gestational age (>37/<36 weeks)
- Fetal Presentation (cephalic/breech/abnormal lie)
- Number of fetus (singleton/multiple)
- Onset of labour (spontaneous/induced /previous cs)

Exclusion Criteria:

- Term normal or instrumental vaginal deliveries.
- Preterm normal or instrumental vaginal deliveries.

RESULTS

During the study interval, a total of 100 deliveries occurred. Overall, mean age was 26.53±5.1 years while most of the women, 78% were between 20 to 35 years of age. 63% were multigravida, 88% had gestational aged between 37-42 years, 47% had history of caesarean section and 92% had cephalic foetal presentation (Table-II).

Table-II Characteristics of Study Participants.

Characteristics		Number (%)
Age (years)	<20	2
	20-30	78
	>30	20
Gravidity	Primigravida	37
	Multigravida	63
Parity	Nulliparous	37
	Multiparous	63
Gestational Age (weeks)	<37	12
	37-42	88
	>42	0
History of Previous Caesarean Section	None	53
	1	39
	>1	8
Onset of Labour	Spontaneous	39
	Induction of Labour	22
	Pre-labour Caesarean Section	39
Foetal Presentation	Cephalic	92
	Breech	8
Apgar Score (at 5 minutes)	≤7	13
	>7	87
Birth Weight (grams)	<2500	19
	2500-4000	79
	>4000	2

Table III displays the distribution of all deliveries conducted throughout the study period based on Robson's TGCS. 40% of the patients ended up belonging to Group 5. Groups 2 and 1 made up the second and third most frequent groups, with 21% and 13% cases respectively.

Table-III Distribution of Caesarean Section in terms of Robson's TGCS.

Classification	Description of Robson's 10-Groups Classification	Number	(%) Contribution made by each group to overall CS
1	Nulliparous, single cephalic, ≥37 weeks, in spontaneous labour.	13	13
2	Nulliparous, single cephalic, ≥37 weeks, induced or caesarean section (CS) before labour.	21	21
3	Multiparous (excluding previous CS), single cephalic, ≥37 weeks, in spontaneous labour.	5	5
4	Multiparous (excluding previous CS), single cephalic, >37 weeks, induced or CS before labour.	1	1
5	Previous CS, single cephalic, ≥ 37 weeks.	40	40
6	All nulliparous breeches.	6	6
7	All multiparous breeches (including previous CS).	1	1
8	All multiple pregnancies (including previous CS).	2	2
9	All abnormal lies (including previous	1	1

	CS).		
10	All single cephalic, <37 weeks (including previous CS)	10	10

Table IV summarizes the indications for caesarean sections. The most frequent indications were found to be foetal distress (23%) and previous caesarean section (47%).

Table-IV Indications leading to Cesarean Section in the Present Study.

Indications	Number (%)
Previous Caesarean Section	47%
Fetal Distress	23%
Hypertensive Disorders of Pregnancy	3%
Failed Induction of Labour	7%
Cephalopelvic Disproportion	6%
Maternal Requests	1%
Breech	7%
Abruption	1%
Placenta Previa	1%
Others	4%

DISCUSSION

For CS to balance its benefits and risks, the World Health Organization recommends a rate of CS less than 15% .American College of Obstetrician and Gynaecologist had recommended a cs rate of 15.5% . Rising trends in the rates of caesarean sections are thought to be related to an increase elderly primigravida which are at risk for pregnancy related complication, use of electronic foetal monitoring which detect more case of abnormal /non reassuring foetal heart rate , increase number of cs i/v/o previous cs instant of Vaginal birth after cs [VBAC] ,a decrease in the threshold for labour pains, a lack of experience with instrumental births ,early detection of high risk pregnancy, early detection of foetal compromise, malpractices, increase rate of induction of labour and demands from mothers, increase rate of cs for preeclampsia . In order to identify potential areas for improvement and ultimately reduce total CS rates, it is critical to continuously assess CS rates over time and compare them with historical data.

One prevalent observation is that women who have previously had a caesarean section are afraid that giving birth vaginally will cause uterine rupture. Though this has not yet been confirmed in local studies, it has also been assumed that women who are giving birth after having prior scars choose to use CS.

Groups 5 and 2 accounted for most of the total number of CS cases. Increase rate of vaginal birth after cs [VBAC] , more liberal use of cephalic version for breech and transverse lie , increase rate of assisted breech delivery in multigravida, induction of labour in pre-eclampsia in selected case, maintains of partograph and active management ,cut short 2nd stage of labour by instrumental delivery ,amniotomies in selected case, use of foetal scalp pH in foetal distress for foetal acidosis as foetal distress in most common indication for cs.

CONCLUSION

Among the completed deliveries, Groups 5 and 2 were determined to be the most contributing, according to Robson's Ten-Group Classification. The most frequent reasons for a caesarean section were foetal distress and prior caesarean section.

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Conflict of Interest: None.

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