Original Article

Analysis of C-Section According to Robson Criteria of C-section

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Abstract

Objective: To analyze the caesarian section deliveries according to Robson criteria of C-section in our setup.
Setting and Duration of Study: This cross-sectional study was conducted in the department of Obstetrics and Gynecology Combined Military Hospital, Muzaffarabad in a period of one year from Jan 2022 to January 2023.
Methodology: All the CS deliveries were included in this study. Preterm, normal or instrumental and vaginally delivered patients were excluded. Demographic information and data related to pregnancy and delivery of the patients was noted. Information on fetal outcomes and maternal complications was noted on a predesigned performa. All these cesarean deliveries were categorized in 10 groups using Robson's Ten Group Classification System.
Results: The mean age was 30.67 ± 4.366 years and mean gestational age was 38.44 ± 1.161 weeks. Majority (93.79%) of the women delivered on term (37-40 weeks). Majority (59.66%) of the women belonged to multipara (1-4) group and 139 (47.93%) women had history of previous C-section delivery. Highest number 132 (45.5%) of caesarian delivery participants belonged to fifth group G5 of the Robson's Ten group classification, followed by 65 (22.4%) in 2nd group (G2) and 28 (9.7%) in 1st group (G1). The mean birth weight of the babies was 3.225 ± 0.414 kg and mean APGAR Score at 5 minutes was 7.84 ± 0.753. Most 260 (89.7%) of the babies delivered by these women did not require NICU admission.
Conclusions: Robson's Ten-Group Classification revealed that Group-5, Group-2, and Group-1 were the most frequently occurring contributing groups among these caesarian deliveries. Robson's Ten-Group Classification is an easy and practical system that may be successfully used in any situation.
Key words: Robson's Ten-Group Classification, Caesarian delivery, Analysis of C-section

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Introduction

The number of caesarean sections (C-sections) performed worldwide is increasing rapidly. Globally, the C-section rate has nearly doubled during the past 15 years. In the past, specialists predicted that 10 to 15% of births required a C-section.[1,2] In contrast to saving lives in situations where vaginal deliveries would be complicated, warrant rates are insignificant.[3] Worldwide, the rate of caesarean sections has dramatically increased and now reaches 30% in some areas.[4]

Avoiding CS may put both the mother and the foetus' lives in danger in situations where spontaneous vaginal delivery (SVD) is either impossible or dangerous. It is also a fact that CSs are sometimes performed despite unclear or ambiguous symptoms, such as obstructed labor and intact membranes.[5] Although CSs are thought to be life-saving treatments, there are dangers associated with them in terms of current or upcoming pregnancies. Increased odds of maternal morbidity and

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mortality are among the most frequent short- and long-term consequences linked to CSs. The actual challenge is maintaining maternal and newborn safety while keeping the CS rate low. Continuous audits of CSs used in healthcare contexts are required for this.[6]

Despite the fact that several recommendations state that 15% is the ideal caesarean section rate, there doesn't seem to be much of an impact on this rate. Robson's classification, which is a set of more useful guidelines, was put forth in 2001. The classification systems with the best overall ratings in this group (Robson and Denk) are simple to comprehend, distinct, mutually exclusive, fully inclusive, reproducible, and enable prospective category identification, according to a recent systematic study that evaluated different categorization schemes rigorously.[7]

The Robson ten group classification system is advised by the World Health Organization as an internationally accepted standard for evaluating, tracking, and contrasting C-section rates. The criteria are based on 10 groups defined by different characteristics.[8] The analysis of C-section according to the Robson criteria shows that the rates of C-section vary significantly across different groups. In general, the groups with the highest rates of C-section are those with previous C-section (group 5, 2 and 1).[9]

On the other hand, the groups with the lowest rates of C-section are those with multiparous women without previous C-section who have spontaneous labor (group 3, 9 and 8). Overall, the Robson criteria provide a useful tool for analyzing the rates and indications of C-section in different groups of women and can help in identifying areas where efforts can be made to reduce unnecessary C-sections. The aim of this study was to perform an analysis based on Robson ten group classification system.

Methodology

Women who had been admitted for Caesarean deliveries were included in this cross-sectional study, which was done at the Obstetrics and Gynaecology Department of the Combined Military Hospital in Muzaffarabad. Between January 2022 and January 2023, a one-year period, the patients were chosen. The process of acquiring data for this study was started once the hospital ethical review committee gave its clearance for the project. Patients who met our selection criteria were enrolled utilizing a non-probability consecutive sampling procedure. Every person who was selected was informed about the study's methodology, and the researcher acquired their signed informed permission. Confidentiality was maintained with regard to both their medical and non-medical information. The study involved 290 people in total. The sample size was calculated by WHO sample size calculator with the help of 95% confidence level, anticipated population proportion (Rate of C-section) P = 25%, and absolute precision required of 5%.[10]

This study included every patient who delivered via CS during the specified time frame. Patients who were vaginally delivered, preterm, or had a normal or assisted birth were not included in this study. Age, parity, previous delivery method, gestational age, number of fetuses, foetal presentation, prior CS, and associated symptoms were recorded as demographic data. On a pre-made performa, details on foetal outcomes, such as birth weight, APGAR score, and foetal problems, were noted. All these cesarean deliveries were categorized in 10 groups using Robson's Ten Group Classification System as follows.

Group 1: Nullipara, single, cephalic, term pregnancy, spontaneous labour
Group 2: Nullipara, single, cephalic, term, induced labour or planned CS
Group 3: Multipara without uterine scar, single, cephalic, term, spontaneous labour
Group 4: Multipara without uterine scar, single, cephalic, term, induced labour or planned CS
Group 5: Multipara with uterine scar, single, cephalic, term
Group 6: Nullipara, single, Breech presentation
Group 7: Multipara, single, breech, including previous C-Section
Group 8: Multiple Pregnancy
Group 9: Single, abnormal lie, including previous scar
Group 10: Single, Cephalic, Preterm including previous scar

Statistical software "Statistical Package for Social Sciences" SPSS version 25 was used to enter and analyze all the recorded data. Quantitative data was presented as mean and standard deviation, while qualitative variables were expressed as frequency and percentages. Results were presented in the form of tables and graphs.

Results

In this cross sectional study, a total of 290 women admitted for elective or emergency caesarian section

were enrolled. The mean age of the women in the study was 30.67 ± 4.366 years ranging from 18 to 40 years with mean gestational age of 38.44 ± 1.161 weeks ranging from 33 to 42 weeks. Majority (93.79%) of the women delivered in term (37-40 weeks) of gestation. Then value of parity was 1.44 ± 1.551 with majority (59.66%) of the women belonging to multipara (1-4) group. Most 264 (91.03%) of the babies had cephalic presentation and 139 (47.93%) women had history of previous C-section delivery as shown in table I.

Table I: Distribution of Demographic Characteristics.

Characteristics	N	%
Maternal Age		
Mean ± SD	30.67 ± 4.366	
Gestational Age		
Mean ± SD	38.44 ± 1.161	
Gestational Age Categories		
<37 weeks (preterm)	14	4.83
37–40 weeks (term)	272	93.79
>40 weeks (Post-dated)	4	1.38
Parity		
Mean ± SD	1.44 ± 1.551	
Parity categories		
Nulliparous	106	36.55
Multipara (1-4)	173	59.66
Grand Multiparas (≥5)	11	3.79
Fetal Presentation		
Cephalic	264	91.03
Breech	22	7.59
Transverse/oblique/brow/others	4	1.38
History of Previous CS		
Yes	139	47.93
No	151	52.07
Number of Fetuses		
Single	285	98.28
Multiple	5	1.72

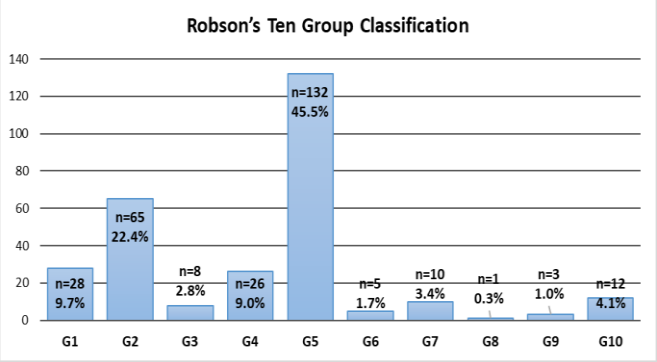

Figure 1. Distribution of Robson's Ten Group Classification.

The distribution of the caesarian deliveries of the women selected in study sample showed that highest number 132 (45.5%) of caesarian delivery participants belonged to fifth group G5 of the Robson's Ten group classification, followed by 65 (22.4%) in 2nd group (G2) and 28 (9.7%) in 1st group (G1) as shown in detail in figure 1.

Among these women admitted for caesarian delivery 2 (0.7%) women delivered by normal vaginal delivery. Main bulk 198 (68.3%) of the women did not go for labor induction and among mothers who opted for induction of labor 60 (20.7%) had spontaneous onset of labor and 32 (11.0%) had induced induction of labor. The mean birth weight of the babies was 3.225 ± 0.414 kg and mean APGAR Score at 5 minutes was noted to be 7.84 ± 0.753. Most 260 (89.7%) of the babies delivered by these women did not require NICU admission as elaborated in table II.

Table II: Distribution of maternal and fetal characteristics

Characteristics	Frequency	Percentage
Mode of delivery		
NVD	2	0.7
Cesarean section	288	99.3
Onset of Labor		
Spontaneous	60	20.7
Induced	32	11.0
No labor (pre-labor CS)	198	68.3
Birth Weight		
Mean ± SD	3.225 ± 0.414	
APGAR score at 5 minutes		
Mean ± SD	7.84 ± 0.753	
NICU admission		
Yes	30	10.3
No	260	89.7

Discussion

According to a global survey, the C- section accounts for nearly half of the deliveries in countries like Brazil, Mexico, Turkey, and Egypt and nearly one-third in the USA and Australia. In Pakistan, C- section rates are consistently on the rise, with the C- section rate increasing from 3.2% to 20% over the last three decades.[11] Although the C- section can be a life-saving procedure for both mother and the baby, its unjustified use can be associated with increased maternal and perinatal morbidity and mortality. In order to tackle the rising C-section rate, Robson devised a classification system, endorsed by WHO, which classifies women into ten groups based on parity, presentation, the onset of labor, previous C-section, and period of gestation. This system of classification allows an objective comparison and audit of C- section rates in different health care facilities and within the same facility over time.[12,13]

The Robson criteria can be used to assess C-section rates and identify areas for improvement in clinical practice. It will help healthcare providers to compare C-section rates within and between hospitals, regions, and countries. This can help them identify which groups of women are at higher risk of having a C-section and develop targeted interventions to reduce unnecessary C-sections.[14]

In this present study, it was observed that in study sample the highest number (45.5%) of caesarian deliveries was observed in fifth group G5 of the Robson's Ten group classification, followed by (22.4%) in 2nd group (G2) and (9.7%) in 1st group (G1). In our analysis, groups 5 and 2 and 1 accounted for the majority of caesarean deliveries (77.6%), contributing significantly to the overall CSR. Studies from other developing countries reported conclusions that were comparable. According to a recent study from Ethiopia, the CSR was 25.7%, with groups 3, 5, and 1 making up the majority of the total CSR.[15] Robson 10 categorization groups 1, 5, and 3 are said to be the main contributors to the CSR, according to another study from Nepal.[16]

VBAC is linked to a reduction in the total CS rate, a reduction in maternal morbidity, and a reduction in the likelihood of difficulties in subsequent pregnancies. Therefore, to encourage VBAC, the Royal College of Obstetricians and Gynaecologists.[17] advises the routine use of VBAC checklists during antenatal counselling since they would ensure that women undergoing VBAC gave their informed consent and participated in the decision-making process. Women should receive appropriate advice regarding the advantages of VBAC because ERCD is linked to a slight higher risk of placenta previa and/or accreta in subsequent pregnancies, as well as pelvic adhesions complicating any subsequent abdominopelvic surgery.[18]

Some of the most common causes for the growth in C-section rates are mother anxiety of labour pain, the ability to schedule the birth in accordance with the desires of families or medical professionals, or the observation that it is less upsetting for the newborn. Some cultural believes for the day of birth, pressure of perfect outcome on doctor by the governing body, and perception of safety of pelvic floor by C-section etc are also contributors for this alarming increase.[19]

An evidence-based justification of the issue must be implemented in order to lessen the worrisome public health issue of rising C-section rates in Pakistan. The World Health Organization proposed the Robson classification as a global standard to analyses, monitor, and compare C-section rates within and between healthcare facilities because to the impact of high C-section rates. In the majority of Pakistani health facilities, the Robson categorization is not used. The overuse of C-section utilization in Pakistan should be reviewed and audited using policy implications in healthcare institutions and the healthcare system.[20]

The primary CS rate should be the focus of any efforts to lower the total CS rate. To assess the signs of CS within each group, more analytical investigations based on Robson's 10-group classification are required locally.

Conclusion

Robson's Ten-Group Classification revealed that Group-5, Group-2, and Group-1 were the most frequently occurring contributing groups among these caesarian deliveries. The most frequent reasons for a caesarean section were a previous CS and foetal distress. It shows that it's essential to concentrate on the care of women in groups 1, 2, and 5 in particular if Caesarian Section rates are to be minimized. so it can be concluded that the Robson's Ten Classification is a straightforward and practical methodology that may be successfully applied in any setting.

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