# Analysis of caesarean sections using Robson's classification system in a rural tertiary care centre of Western India

## Dr Mohit Marda

*Department of Obstetrics and Gynecology, Pravara Institute of Medical Science, Loni, Ahmednagar, Maharashtra, India*

Dr Ajit Deshpande
Dr Nyruthya K M
Dr Kanchan Kakade

## I.     INTRODUCTION

Lower segment Caesarean section (LSCS) is one of the most commonly performed obstetric surgeries for child birth. As per WHO CS rates of more than 10%-15% is unfair.1 However the global trends for surgical deliveries have risen from 15% to 30% in the last few decades.2 There is an alarming increase in CS rates in India from 2.5% of all deliveries in 1993 to 15.5% in 2015 with rates being over 30% in some states and private institutions.3

High rate of surgical deliveries is an important public health problem. Along with increasing the cost of health services, it leads to a significant risk to the health of the mother as well as neonates.4-6 Hence there is a need to curb the unnecessary increase in surgical deliveries. But for this we need to identify which group of women are at high risk for surgical deliveries. For this we need to classify them into suitable categories. Furthermore, the classification system must be acceptable and comparable internationally.

Hence arose the need of standardization of classification of caesarean section through Robson criteria within the healthcare facilities as proposed by Robson in the year 2001. The 10 group Robson classification of caesarean section has been appreciated by WHO in 2014 and FIGO in 2016.7 According to WHO, Robson classification will aid in optimisation of the caesarean section use, assessment of the strategies aimed to decrease the caesarean section rate and thus improve the clinical practises and quality of care in various health care facilities.

**Aim &Objectives of the study:**

The present study was done to analyse caesarean sections using Robson's Ten Group Classification system (TGCS) and determine the groups of patients which contribute the most to caesarean sections in the study group over a period of two months. This will subsequently enable initiation of interventions in the identified groups to reduce the caesarean rates.

To classify the caesarean section according to indications using Robson's TGCS.

**Methods:** This retrospective study design was performed in department of obstetrics and gynaecology of pravara rural Medical College, Loni in the Maharashtra from 27th October 2021 to 6th December 2021(2 months). In the present study, all cases delivered by caesarean section during the period of two months were recorded and classified according to Robson's 10 group classification system.

**Inclusion criteria**
• All the women delivered during a period of two month from27th October 2021 to 6th December 2021, irrespective of birth outcome were included in the study.

**Exclusion criteria**
• Incomplete record forms or case papers with inadequate details were excluded from the study.

Hospital delivery records were used for data collection. A customised data collection tool was

used to collect the required information on parity, mode of previous deliveries, previous CS, gestational age, onset of labor, spontaneous or induced labor.

Data collected was analysed using simple statistical measures like percentage and proportion. Descriptive statistical analysis was done.

## II. RESULTS

From 27th October 2021 to 6th December 2021, there were a total of 1401 deliveries, of which 434 had caesarean section accounting for an overall caesarean delivery rate of 30.97%. When the data was analysed as shown in Table 2; the maximum contribution of caesarean was through Robson's group 5 that is multiparous with prior caesarean section, singleton, cephalic, ≥37 weeks (32.34%). There were 142 patients in this group with 142 patients who had caesarean section for previous caesarean section (100%).

### Table 1: Robson's classification of caesarean section

| Groups | Clinical Characteristics |
|---|---|
| 1 | Nulliparous, singleton, cephalic, ≥37 weeks, spontaneous labour |
| 2 | Nulliparous, singleton, cephalic, ≥37 weeks, induced labour or caesarean section before labour |
| 3 | Multiparous without previous caesarean section, singleton, cephalic, ≥37 weeks, spontaneous labour |
| 4 | Multiparous without previous caesarean section, singleton, cephalic, ≥37 weeks, induced labour or caesarean section before labour |
| 5 | Multiparous with prior caesarean section, singleton, cephalic, ≥37 weeks |
| 6 | All nulliparous breeches |
| 7 | All multiparous breeches (including previous caesarean section) |
| 8 | All multiple pregnancies (including previous caesarean section) |
| 9 | All pregnancies with transverse or oblique lie (including those previous caesarean section) |
| 10 | Singleton, cephalic, ≤36 weeks (including previous caesarean section) |

### Table 2: Caesarean section rate and contribution made by each group

| Robson's criteria | Total no. of caesarean section in each group | Contribution made by each group to total caesarean section rate (%) |
|---|---|---|
| | | |

| | | |
|---|---|---|
| **1** | 101 | 23 |
| **2** | 82 | 18.67 |
| **3** | 12 | 2.7 |
| **4** | 8 | 1.8 |
| **5** | 142 | 32.34 |
| **6** | 24 | 5.4 |
| **7** | 11 | 2.5 |
| **8** | 18 | 4.1 |
| **9** | 5 | 1.1 |
| **10** | 36 | 8.2 |

This was followed by group 1 that is nulliparous, singleton, cephalic, ≥37 weeks, spontaneous labor which contributed 32% to total caesarean section rate.

The caesarean section rate in group2 (nulliparous, singleton, cephalic, ≥37 weeks, nulliparous, singleton, cephalic, ≥37 weeks, induced labour or caesarean section before labour) (18.67%) and 3 (multiparous without previous caesarean section, singleton, cephalic, ≥37 weeks, spontaneous labour) (2.7%) was less as compared with group 1 ( nulliparous, singleton, cephalic, ≥37 weeks, spontaneous labour) (23%) and group 4 ( multiparous without previous caesarean section, singleton, cephalic, ≥37 weeks, induced labour or caesarean section before labour) (1.8%) respectively where the labour was induced (Table 2). There was 5.4% caesarean rate in group 6 with nulliparous breeches whereas 2.5% multiparous breeches had caesarean section in group 7.
Group 8 had caesarean section contributing to 4.1%. There was 1.1% caesarean rate in abnormal lie (group 9). Group 10 contributed 8.2% to total caesarean section rate.

## III. DISCUSSION

Over the years there is a steady increase in trends of surgical delivery in India as well as across the globe. Surgical delivery being associated with increased morbidity and mortality of the mother and baby, there is a need to check this epidemic of surgical delivery. However earlier no standard classification system was available to identify the characteristics of women likely to undergo surgical delivery and thereby prevent it. Robson Ten Group Classification System for classifying the women undergoing CS is well accepted internationally and is used for comparison purpose. In order to interpret the TGCS, Robson suggested following guidelines based on his research and experience.[8] These guidelines are quoted below in quotation mark (""). The results of the present study are discussed in this context.

**Groups 1 and 2**
"Groups 1 and 2 usually account for 35-40% of all deliveries; Group 1 should be larger than Group 2 and a CS rate for Group 1 less than 10% is desirable" Group 1 and group 2 included a total of 41.67% women in the present study. Group 1 was 1.2 times larger than group 2 and the CS rate for group 1 was 23%.

**Groups 3 and 4**
"Groups 3 and 4 usually account for 30-40% of women; Group 3 should be larger than Group 4. The CS rate for Group 3 should be 2.5-3%. The CS rate in Group 4 should be below 20%." Group 3 and group 4 included a total of 4.5% women in the present study. The CS rates in group 3 and 4 were

only 2.7% and 1.8% respectively. The CS rate in group 3 is small and is used as a quality check for data collection. If it is more than 3% probability of inaccurate data increases.

**Group 5**

"Group 5 should comprise no more than 10% of women. With good perinatal outcomes, a CS rate of 50-60% in Group 5 is excellent". The proportion of women in group 5 in the present study was slightly more (32.34%) than the suggested limit. All the women in group 5 were delivered by CS. This finding is in agreement with studies done by Kansara Vijay et al (98.3%,), Dhodapkar SB et al (89.6%) and Shirsath A et al (87.2%) where CS rates in group 5 were alarmingly high.9-11

"Groups 1, 2, and 5 usually account for two-thirds of all caesarean deliveries." In the present study group 1, 2 and 5 were responsible for 74.01% of all the CS.

**Group 6 and 7**

"Groups 6 and 7 should include 3-4% of all women, and Group 6 is usually twice the size of Group 7" The present study has 7.9% women in group 6 and group 7 combined. Group 6 was 2.1 times the size of group 7.

**Group 8 and 9**

"Group 8 should include 1.5-2% of women. Group 9 should comprise 0.2-0.6% of women with a CS rate of 100%." In the present study group 8 and 9 comprised of 4.1% & 1.1% respectively of the study population. All the women in group 8 & 9 were delivered by CS.

**Group 10**

"Group 10 includes approximately 5% of women. If the CS rate in Group 10 is 15-16% it suggests a high proportion of women with spontaneous onset of preterm labour." The size of group 10 in the present study was 8.2%, nearly two times the recommendation.

**Overall:**

The present study highlights that group 5 i.e. women with previous CS, contributed maximum (32.34%) to the overall surgical deliveries. This finding is consistent with the studies of Dhodapkar SB et al (40%), Wanjari SA et al (32.8%), Shirsath A et al (54.5%) and Kansara V et al (46.1%).9-12 The only option available to decrease the CS rate in group 5 is trial of labour after caesarean section (TOLAC). However, this depends on the judgement of the obstetrician, his risk-taking attitude along with required counselling and favourable response from the patient. Here the key is to reduce the overall size of group 5 by reducing the primary CS rates.

In the present study group 1 was the second largest (23%) contributor of surgical delivery and along with Group 5, was accountable for nearly 55.34% of total CS. This finding is in agreement with that of Samba A et al where groups 1 and 5 contributed nearly half (47.5%) of the overall caesarean section rate.13

## IV. CONCLUSION

All deliveries and caesareans should be universally categorized by the Robson's classification system. Groups contributing most to caesareans should be analysed regularly and interventions initiated. Those interventions should be targeted at reducing primary caesareans and convincing patients for trial of labour after caesarean section where possible.

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