

Analyses of Cesarean Section in Western Part of Rajasthan in the Year 2019

Dr BS Jodha¹, Dr Sudhakshi Kinger², Dr Santosh Khokher³

¹Senior Professor, Umaid Hospital Jodhpur, Rajasthan, India

²Junior Resident, Umaid Hospital Jodhpur, Rajasthan, India

³Assistant Professor, Umaid Hospital Jodhpur, Rajasthan, India

Abstract: *Aim: To study the indications of cesarean section in western part of Rajasthan. Place and duration of study: This study was conducted in Umaid hospital from the month of January 2019-december 2019. Methodology: This study includes all subjects undergoing cesarean section in the year 2019. Results: In all 21540 deliveries were conducted in Umaid hospital in which 7344 deliveries were conducted via cesarean section. Previous cesarean section accounts for the maximum section 41.08%, followed by fetal distress (21.59%), malpresentation (10.66%), failed induction (7.05%), failed progress of labor (4.9%), APH (3.69%), cephalopelvic disproportion (2.57%), hdop (2.47%), DTA (1.9%), obstructed labor (1.68%), BOH (1.56%), cord prolapse (0.69%), previous uterine scar (0.07%), csmd (0.04%), heart disease (0.04%) and placenta increta (0.01%). Out of 7344 cesarean sections done in the year 2019 there were in total four mortalities. Conclusion: considering the rise in trend of cesarean section it has become the need of an hour to properly apply the antenatal care, intrapartum management and use this mode of delivery judiciously so that this rising number can be reduced.*

Keywords: cesarean section, robson group

1. Introduction

Cesarean section is defined as an operative procedure whereby a fetus is extracted through an incision on the abdominal wall (laparotomy) and uterus (hysterotomy) after the period of viability. As we all know that the natural mode of delivery is and will always be vaginal; but in the past few years, this trend is on change.

More on more people are preferring cesarean section; this could be attributed to obstetric, medical, socioeconomic conditions, improvement in technology, or medico-legal issues. This has resulted in increasing the cesarean section at an alarming rate¹.

There has been a rising trend in India also in recent times²⁻⁵. The cesarean section rate in India rose from 8.5% in 2005-06 to 2015-16 17%^{2,6}. The WHO had earlier recommended a cesarean section rate of around 5-15% in any population⁷⁻¹⁰. However recently WHO recommended that they do not recommend a specific rate at the country level or hospital level¹¹.

Though with time cesarean sections have become safer but they are not safer than uncomplicated vaginal deliveries¹².

The cesarean section when indicated can reduce the maternal and neonatal mortality and morbidity¹³⁻¹⁵. Obstructed labor, selected breech delivery, malpresentation of fetus, and fetal distress are few of the life threatening indications for cesarean section. But unnecessary cesarean sections may prove to be fatal for the life of the mother.

Cesarean section is associated with maternal and neonatal morbidity with newborns having difficulty in feeding and may have more chances of atopic disease¹⁶. There are

increased chances of abnormal placentation in future pregnancy with previous cesarean section^{16,17}.

With the rising cesarean sections rate, it would be better to understand their indications and their outcomes to avoid unnecessary cesarean sections and mortality associated with it.

WHO had proposed ten group classification known as the Robson group which categorizes all women to be delivered into ten groups based on parity, the onset of labor, gestational age of the fetus, fetus presentation, and the number of fetuses. A woman to be delivered is assigned to one group at the time of admission. Based on this information rate of the cesarean section can be analyzed in a standardized, uniform, and the reproducible way that can be used to optimize the cesarean section rate and improve the quality of care.

2. Aims and Objective

The objective of this study is to analyze the indications of cesarean section so as to find the cause behind this rise and to reduce the rate of current rising trend.

3. Method

Umaid hospital is situated in the western part of Rajasthan which has been providing services free of cost to the people of Rajasthan since 1938. This study was conducted in Umaid Hospital associated with Dr S.N Medical College, Jodhpur, Rajasthan in the period of January 2019 to December 2019. It's a retrospective analytical study. The requisite data was collected from the patients admitted either in the labor room or in the ward either for elective cesarean section or

emergency cesarean section. Any personal information was removed from the data sets before analyses.

Inclusion Criteria

All the patients who underwent cesarean section from the period of January 2019-december 2019

Duration of Study

The study was conducted over one year from January 2019-December 2019

4. Result

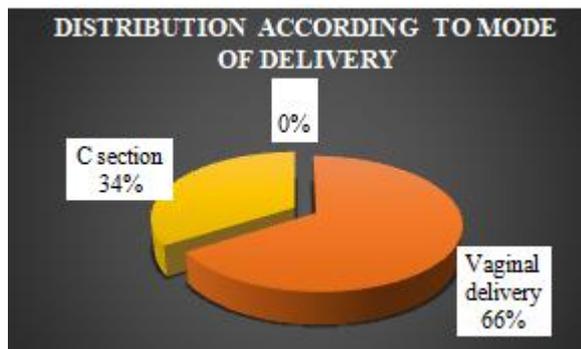
The study was conducted in Umaid hospital, Jodhpur, Rajasthan for a period of one year starting from 1 January 2019 to 31 December 2019.

During this period total 21,540 deliveries were conducted in which 14,196 were normal vaginal delivery while 7344 were cesarean sections

Table 1: Mode of delivery distribution

	Total number	Percentage (%)
Vaginal deliveries	14196	65.91
C section	7344	34.09

As seen in table 1, 65.91% of cases had vaginal delivery while 34.09% of cases had cesarean section.



Distribution According to Indications

Table 2

Serial Number	Indications	Percentage %
1	Previous Cesarean Section	41.08
2	Fetal Distress	21.59
3	Malpresentation	10.66
4	Failed Induction	7.05
5	Failed Progress	4.9
6	Antepartum Haemorrhage (APH)	3.69
7	Cephalopelvic Disproportion (CPD)	2.57
8	Hypertensive Disorder Of Pregnancy (HDOP)	2.47
9	Deep Transverse Arrest (DTA)	1.9
10	Obstructed Labor	1.68
11	Bad Obstetric History (BOH)	1.56
12	Cord Prolapse	0.69
13	Previous Uterine Scar	0.07
14	Cesarean Section On Maternal Demand(CSMD)	0.04
15	Heart Disease	0.04
16	Placenta Increta	0.01

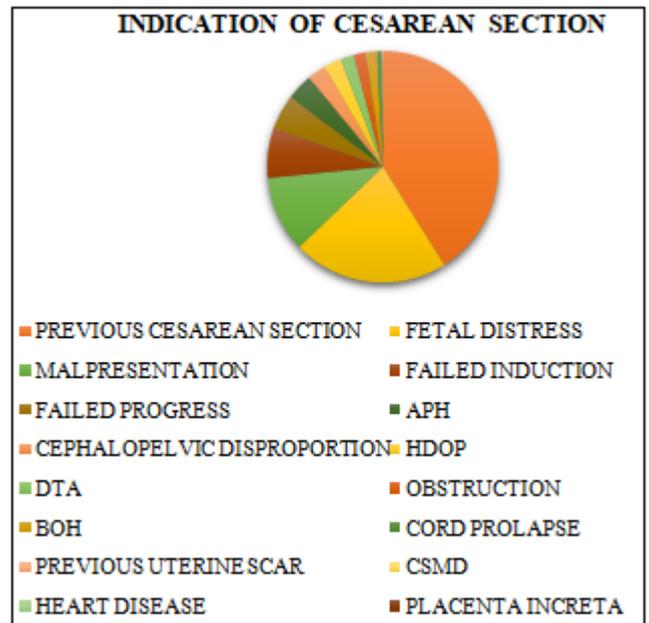


Chart 2b

As seen in table 2a and pie chart 2b all shows the distribution of cesarean section according to their indications. In the year 2019 ,7344 deliveries were conducted by cesarean section. Out of them previous cesarean section accounts for the maximum section 41.08%, followed by fetal distress (21.59%), malpresentation (10.66%), failed induction (7.05%), failed progress of labor (4.9%), APH (3.69%), cephalopelvicdisproportion (2.57%), HDOP (2.47%), DTA(1.9%), obstructed labor (1.68%),BOH (1.56%), cord prolapse (0.69%), previous uterine scar (0.07%), csmd (0.04%), heart disease (0.04%) and placenta increta (0.01%).

Incidence of Malpresentation

Table 3

	Percentage (Out of Total C Section)
Breech	9.35
Transverse Lie	0.72
Face Presentation	0.16
Hand Prolapse	0.16
Brow Presentation	0.14
Oblique Lie	0.08
Compound Presentation	0.05
Total	10.66

As seen from table 3 breech presentation contributed maximum to malpresentation (in our study breech included primary breech, multiparous breech and twin with first lie breech irrespective of second fetus)

Incidence of Type Antepartum Haemorrhage

Table 4

	Percentage(Out Of Total C Section)
Abruptio Placentae	2.22
Placenta Previa	1.46
Vasa Previa	0.013
Total	3.69

As seen in table 4 antepartum hemorrhage contributes 3.69% of cesarean sections of which maximum was contributed by abruption placentae (2.22%) followed by placenta previa and vasa previa in decreasing order.

Incidence of Type of HDOP in C Section

Table 5

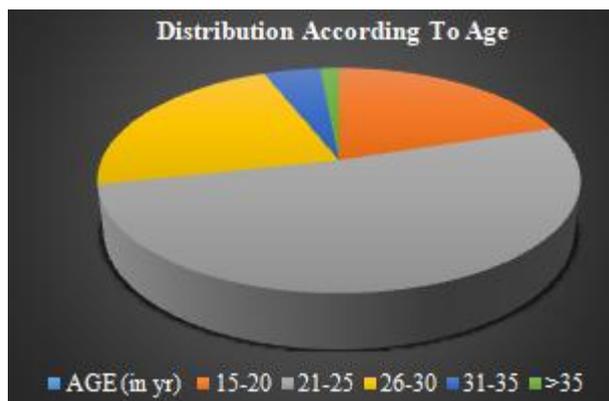
	Percentage(Out of Total C Section)
Severe Preclampsia	1.19
Antepartum Eclampsia	1.28
Total	2.47

In our study hypertensive disorder of pregnancy contributed 2.47% of cesarean section of which antepartum eclampsia contributed to 1.28% and severe preeclampsia contributed 1.19%.

Age Wise Distribution

Table 6

Age (in yr)	Total Number	Percentage (%)
15-20	1470	20.02
21-25	3784	51.53
26-30	1647	22.42
31-35	333	4.53
>35	110	1.5



As seen in table 6; cases which underwent c section were mainly in the age group of 21-25yrs (51.53%) followed by 26-30yrs (22.42%)

Gravida Wise Distribution

Gravida	Total Number	Percentage (%)
1	2535	34.51
2	1931	26.35
3	1720	23.41
4	1064	14.48
>=5	94	1.25

Table 7

As seen in table 7 maximum number of cases belonged to gravida 1 followed by gravida 2 and gravida 3 in decreasing order. only 1.25% of cases belonged to gravida greater than 5.

Type of Cesarean Sections

Table 8

	Total Number	Percentage
Elective	2049	27.90
Emergency	5295	72.10

In our hospital 72.1 % of cases were done in emergency since it's a tertiary care center hence most of the cases are referred from the other government as well as private hospitals. Resulting in higher number of cesarean section in emergency

ROBSON Group

Table 9

ROBSON	Percentage (%)
1	26.2
2	15.10
3	4.23
4	2.03
5	41.08
6	6.41
7	2.02
8	0.62
9	1.21
10	1.1

As seen in above table 9 in accordance with indications Robson group five which include all previous cesarean sections tops the list followed by robson group 1, 2,6,3,4,9,10 and 8.

Mortality

Out of 7344 cesarean sections done in the year 2019 there were in total four mortalities (these exclude those patients which were operated outside Umaid hospital)

Table 10

Cause of mortality		Percentage (out of total c section)	Percentage (out of total mortality)
Embolism	1	0.01	25
Hemorrhagic shock	3	0.04	75

As clearly indicated from the above table that 75% of the mortality is because of hemorrhagic shock.

5. Discussion

The importance of studying the cesarean section was not found until the rate of abnormal placentation rose, this leads to an increase in mortality. Hence more and more studies were conducted in this regard.

This study was conducted in a tertiary care center situated in the western part of Rajasthan, Umaid hospital.

Umaid hospital is a tertiary care hospital in Rajasthan providing services to people of western Rajasthan since 1983. It caters to all types of cases whether complicated or not. All types of cases are referred to the Umaid hospital from peripheries as well as private hospital. Although WHO had earlier mentioned the rate of cesarean section to be 15% but considering a large number of referred cases both from private as well as government hospitals located in peripheries it will be difficult to stick to this criterion. Hence the cesarean rate of 34.09% is justifiable.

Considering the indication of cesarean section; 41.08% of cases are contributed by the previous cesarean section. This rise has been because of the women's refusal of VBAC. VBAC is an important term it depending on many factors

like birth interval, the indication of previous c section, condition of the wound in the previous c section along with various factors; hence neither the concerned patient nor the surgeon treating wants to take any risk along with its comes with the medico-legal complications; since VBAC has its own demerits, it places the life fetus as well as of the mother at risk. There has been a low threshold for performing VBAC may be due to the fear of uterine rupture in labor which 5.2/1000 compared with 1.6/1000 elective repeat cesarean delivery and it can lead to perinatal death 1/1000 and sometimes catastrophic maternal mortality. So considering this rise in section in Robson group 5 of cesarean classification is very much obvious.

The second most common indication of cesarean section is fetal distress. Along with the development in the technology of electrofetomonitoring there here has been a rise in the cesarean section rate. because of this indication. A study conducted by Levens et al. showed higher rates of cesarean section on account of fetal distress with significant perinatal mortality rates in the cesarean versus vaginal delivery.

With rise in the socio- economic conditions, technology, improvement in cesarean techniques more and more people are opting for a cesarean section on maternal demand. In our study 0.04% of cases were done on maternal demand. With an increase in urbanization, people avoid unbearable pain and undue trauma caused by vaginal delivery thus prefer less time- consuming cesarean sections. Also in India time and date of birth holds significant importance thus people prefer Their newborn to arrive in this world on auspicious days. Thus there has been a rise in cesarean deliveries in our country.

6. Conclusion

Cesarean section rate in our hospital is 34.09 % which is far more than WHO suggested 15% criteria. This is because Umaid is a tertiary care center attending all referrals from government and private hospitals of western Rajasthan.

Considering the indications for cesarean section one of the main indication of cesarean section in our study as well as other studies is the previous cesarean section. One of the main reasons for a secondary cesarean is the primary cesarean. Hence better labor monitoring using things like partogram could help in the reduction of primary cesarean rate.

Implementation of government schemes like jsrk has resulted in improvement in transportation facilities as well as hospitalized delivery thus increasing cesarean rates. One must abide by the ethics in the clinical practice and one must carefully evaluate the indication before performing the cesarean sections

References

[1] Mala Vijaykrishnan, Bhaskar Rao K. Cesarean deliveries- Changing Trends. In: Arulkumaran S, Ratnam SS, Bhaskar Rao K, Editors. *The Management of Labour*, 2nd Ed., Hyderabad, Orient Longman, 2005:p.351-63.

- [2] Desai e, leuva h, leuva b, kanani m. A study of primary caesarean section in multipara. 2013;2(3):320-4.
- [3] Weil O, Fernandez H. Is safe motherhood an orphan initiative? *The Lancet* 1999; 54: 940±943.
- [4] Lauer JA, BetraÂn AP, Merialdi M, Wojdyla D. Determinants of caesarean section rates in developed countries: supply, demand and opportunities for control. *World Health Report* 2010.
- [5] Chu K, Cortier H, Maldonado F, Mashant T, Ford N, Trelles M. Cesarean section rates and indications in sub-Saharan Africa: a multi-country study from *Medecins sans Frontieres*. *PloS one*. 2012; 7(9):e44484. <https://doi.org/10.1371/journal.pone.0044484> PMID: 22962616
- [6] International Institute for Population Sciences (IIPS) and Ministry of Health and Family Welfare. National Family Health Survey-4 (NFHS-4), India-Factsheet. <http://rchiips.org/NFHS/pdf/NFHS4/India.pdf>
- [7] International Institute for Population Sciences (IIPS) and Macro International. 2007. National Family Health Survey (NFHS-3), 2005±06: India: Volume I. Mumbai.
- [8] Lauer JA, BetraÂn AP, Merialdi M, Wojdyla D. Determinants of caesarean section rates in developed countries: supply, demand and opportunities for control. *World Health Report* 2010.
- [9] Chu K, Cortier H, Maldonado F, Mashant T, Ford N, Trelles M. Cesarean section rates and indications in sub-Saharan Africa: a multi-country study from *Medecins sans Frontieres*. *PloS one*. 2012; 7(9): e44484. <https://doi.org/10.1371/journal.pone.0044484> PMID: 22962616
- [10] Alkire BC, Vincent JR, Burns CT, Metzler IS, Farmer PE, Meara JG. Obstructed labor and caesarean delivery: the cost and benefit of surgical intervention. *PloS one*. 2012; 7(4):e34595. <https://doi.org/10.1371/journal.pone.0034595> PMID: 22558089
- [11] World Health Organization. Appropriate technology for birth. *Lancet* 1985; 2: 436±437. PMID: 2863457.
- [12] World Health Organization. Appropriate technology for birth. *Lancet* 1985; 2: 436±437. PMID: 2863457
- [13] Ghosh S, James KS. Levels and Trends in Caesarean Births: Cause for Concern?. *Economic and political weekly*. 2010 Jan 30:19±22.
- [14] Cavallaro FL, Cresswell JA, FrancËa GV, Victora CG, Barros AJ, Ronsmans C. Trends in caesarean delivery by country and wealth quintile: cross-sectional surveys in southern Asia and sub-Saharan Africa. *Bulletin of the World Health Organization*. 2013; 91(12):914±22D. <https://doi.org/10.2471/BLT>.
- [15] Mishra U.S. and Ramanathan M., 2002. Delivery-related complications and determinants of caesarean section rates in India. *Health Policy and Planning*, 17(1), pp.90±98. PMID: 11861590
- [16] Tollånes MC. Increased rate of Cesarean sections--causes and consequences. *Tidsskr Nor Laegeforen*. 2009;129(13):1329-31.
- [17] Silver RM, Landon MB, Rouse DJ, Leveno KJ, Spong CY, Thom EA et al. Risk of placenta previa and accrete to number of previous cesarean deliveries. *Obstetrics & Gynecology*. 2006;107:1226