



AUDIT OF LOWER SEGMENT CAESAREAN SECTION IN A TERTIARY CARE CENTRE

Obstetrics & Gynaecology

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ABSTRACT

Introduction : Caesarean section is an operative procedure whereby the fetuses after the end of 28th weeks are delivered through an incision on the abdominal and uterine walls. While it confers risks of both immediate and long-term complications, for some women cesarean delivery can be the safest or even the only way to deliver a healthy newborn. Based on the data review by WHO, an increase in caesarean section rates up to 10-15% at the population level is associated with a decrease in maternal, neonatal and infant mortality. Thus, audit plays an important role in the analysis of changing trends in caesarean delivery rates. **Materials and methodology:** Type of study: Retrospective study Study area: Department of Obstetrics and Gynaecology, MGM Medical College and Hospital, Aurangabad Study period: 1st October 2023 to 31st March 2024. Sample size: 926 Women who underwent a Lower Segment Caesarean Section in the mentioned study period. **Exclusion criteria:** None. **Results:** Majority women were 20-29 years of age. Most common indications of LSCS were 'fetal distress' and 'Previous LSCS not willing for trial of labor' in primigravida and in women with a history of a previous LSCS respectively. Majority of babies had birth weights > 2.5 kgs with only a 7.99% NICU admission rate.

KEYWORDS

Lower Segment Caesarean Section, LSCS, Indications, Previous LSCS.

INTRODUCTION

- Caesarean section is an operative procedure whereby the fetuses after the end of 28th weeks are delivered through an incision on the abdominal and uterine walls.
- The prevalence of the Caesarean section in India was 8.5% in NFHS-3 while data in NFHS-4 show that it has increased to 17.2%. Thus, almost 9% has increased over 10 years. The recent NFHS-5 data shows it is 21.5%. The highest Caesarean section deliveries was found in Telangana (60.7%), while the lowest was observed in Nagaland (5.2%).^[1]
- The reasons for such dramatic increases are multifactorial. It has been suggested that non-medical factors such as social, cultural, varying accessibility to health services as well as clinical practice patterns can be some major contributors to the wide variation in caesarean section rates across different countries.^[2]
- Based on the WHO systematic review in 2014, an increase in caesarean section rates up to 10-15% at the population level is associated with a decrease in maternal, neonatal and infant mortality. Above this level, increasing the rate of caesarean section is no longer associated with reduced mortality. Therefore, the international healthcare community has considered the ideal rate for LSCS between 10-15% and no less than 5%.^[3]
- Audit plays an important role in the analysis of changing trends in caesarean delivery rates, the pros and cons of such changes and to help update an obstetrician's point of view towards the use of a caesarean section.

METHODS

After Ethical committee approval, a retrospective study was conducted at MGM Medical College and Hospital, in which all cases of Lower Segment Caesarean Section (LSCS) deliveries were analysed for a study period of 6 months, from 1st October 2023 to 31st March 2024. This required details like patient demographic data, clinical diagnosis and high-risk factors, indications of LSCS, etc. which were taken from hospital registers.

The key **objectives** of this research considering the present challenges are:

- To study the demographic data and obstetric history of women who underwent LSCS.
- To study the indications of LSCS.
- To assess the high-risk factors associated with indications of LSCS.

- To assess the intra-operative complications.
- To know the neonatal outcome of women who underwent LSCS.

RESULTS

Incidence:

- Out of 1650 deliveries occurred during the study period, 926 were LSCS. The overall incidence of LSCS was 56.12% in our institute. This incidence is justified, as ours being a tertiary care centre, referred high-risk cases which require immediate termination are inevitable.

Table 1: Distribution of emergency vs. elective LSCS:

Type of LSCS	No. of Subjects (n=926)	%
Elective	406	43.84%
Emergency	520	56.15%
Total	926	100.00%

Among the total 926 LSCS, 56.15% were Emergency caesarean sections and 43.84% of cases were Elective caesarean sections.

Table 2: Age distribution:

Age (Yrs)	No. of Subjects (n=926)	%
< 20	78	8.42%
20-29	657	70.95%
30-34	149	16.09%
>=35	42	4.53%
Total	926	100.00%

Majority, 70.95% belonged to 20-29 years of age. 4.53% and 8.42% were elderly gravidas (35 and above) and teenage pregnancies respectively.

Table 3: Distribution according to parity:

Parity	No. of Subjects (n=926)	%
Primigravida	400	43.19%
2nd Gravida	399	43.08%
3rd gravida or more	127	13.71%
Total	926	100.00%

43.19% of patients were primigravida and 13.71% were grand multipara (3 and above).

13.60% of patients were less than 37 weeks maturity (preterm).

Preterm vs Full term LSCS	No. of Subjects(n=926)	%
Preterm LSCS	126	13.60%
Full-term LSCS	800	86.39%
Total	926	100.00

Table 5: Indications of LSCS:**5a: In Primigravida:**

Indications of LSCS in Primigravida	No. of Subjects(n=400)	%
Heart disease	7	1.75%
PIH	24	6.00%
GDM	1	0.25%
FGR	5	1.25%
Oligohydramnios	22	5.50%
Fetal distress/MSL	103	25.75%
Non progress of labor	23	5.75%
DTA	2	0.50%
Failure of induction	7	1.75%
Not w/f further induction	8	2.00%
Not w/f vaginal delivery	30	7.50%
Prolonged prom	16	4.00%
Malpresentation	47	11.75%
CPD	68	17.00%
Contracted pelvis	22	5.50%
APH	10	2.50%
Twins	5	1.25%
Total	400	100.00%

- Fetal distress was the leading cause of LSCS, in 25.75% of primigravida. This was followed by Cephalo-pelvic disproportion in 17% of primigravida.
- Third most common indication of LSCS was malpresentation of foetus in 11.75% of primigravida.
- The most common medical disease complicating pregnancy and leading to LSCS in primigravida was PIH (6%).

5b: In Women With Previous LSCS:

Factors leading to repeat LSCS in patients with previous LSCS	No. of Subjects(n =361)	%
Not w/f TOLAC	140	38.78%
>1 previous LSCS	41	11.36%
Impending scar dehiscence	72	19.94%
Short inter conceptional period	2	0.55%
Fetal distress	17	4.71%
PROM	11	3.05%
PIH	25	6.93%
Oligohydramnios	15	4.16%
FGR	14	3.88%
GDM	3	0.83%
Malpresentation	10	2.77%
APH	3	0.83%
Heart disease	2	0.55%
DCDA/MCDA twins	1	0.28%
Recurrent indications(contractured pelvis,etc)	5	1.39%
Grand total	361	100.00%

- 38.78% of women were not willing for TOLAC (Trial of labour after caesarean section) making it the most common factor/indication leading to a repeat LSCS in current pregnancy.
- 19.94% of women with previous LSCS underwent repeat LSCS due to impending scar dehiscence/scar tenderness, making it the next common indication.

5C: In previous vaginal delivered women:

Indications of LSCS in Previous normal delivered patients with no previous deaths	No. of subjects (n=125)	%
PIH	10	8.00%
Heart disease	3	2.40%
GDM	3	2.40%
FGR	3	2.40%
Oligohydramnios	9	7.20%
Fetal distress	37	29.60%
DTA	1	0.80%

Not w/f further induction	3	2.40%
Not w/f vaginal delivery	11	8.80%
Prolonged PROM	5	4.00%
Malpresentation	19	15.20%
CPD/contracted pelvis	4	3.20%
APH	9	7.20%
Twins	5	4.00%
Failure of induction	2	1.60%
Total	125	100.00%

- Again, foetal distress was the most common indication of LSCS among women who were previously vaginal delivered (29.6%).
- Malpresentation was the second most common indication in 15.20% of these women followed by PIH in 8% of women who were previously vaginal delivered.
- Considering the whole study population together irrespective of the parity, 'previous LSCS and its associated factors' (not willing for trial of labor, scar tenderness, etc) was the most common indication among 38.98% of the population. This is followed by fetal distress in 11.12% of the population which is similar to many studies in the literature.

Table 6: Antenatal High-risk factors:

ANTENATAL FACTORS	No. of Subjects	%
Nil	446	48.16%
APH	18	1.94%
Asthma	1	0.11%
FGR	98	10.58%
GDM	69	7.45%
PIH	105	11.34%
Preterm	53	5.72%
PROM	78	8.42%
Postdatism	56	6.05%
Infertility	26	2.81%
Heart disease	10	1.08%
Oligohydramnios	96	10.37%
Polyhydramnios	8	0.86%
Hypothyroid	63	6.80%
TB	1	0.11%

Among all the cases, 11.34% of cases had PIH, 10.58% of cases had FGR (foetal growth respiration) and 10.37% of cases had oligohydramnios.

Table 7: Intraoperative findings:

Specific intra-operative findings	No. of Subjects	%
None	698	75.38%
MSL	78	8.42%
Loop	52	5.62%
Thinned out LUS	34	3.67%
Adhesions	29	3.13%
PPH	23	2.48%
Retro-placental clots	10	1.08%
IUD	6	0.65%
Anomalous uterus	6	0.65%
Scar rupture	6	0.65%
Bladder injury	4	0.43%
Couvellaire uterus	3	0.32%
Others	2	0.22%

- In the present study, majority 75.38% of patients had an uneventful LSCS.
- 8.42% of cases had meconium-stained liquor draining intraoperatively, correlatable to the fetal distress being the leading indication of LSCS as mentioned above.
- Only 2.48% (23) of cases had PPH.
- Interestingly, 6 cases had uterine anomalies like bicornuate uterus, unicornuate uterus and septate uterus.

Table 8: Neonatal outcomes:**8A: Birth weight:**

Birth weight	No. of Subjects (n=926)	%
≤ 1 kg	9	0.97%
1.1 - 1.5 kg	29	3.13%
1.6 - 2.5 kg	291	31.43%

>2.5 kg	597	64.47%
Total	926	100.00%

64.47% of babies had good birth weights (> 2.5 kg). 4.1% of babies are with very low birth weights (<1.5 kg).

8b: Nicu Admission:

NICU Admission	No. of Subjects(n=926)	%
Yes	74	7.99%
No	852	92.01%
Total	926	100.00%

7.99% of babies born required NICU admission due to various reasons like low birth weights, tachypnoea, meconium aspiration, etc.

DISCUSSION

The prevalence of LSCS in our institution was 56.12% during the above-mentioned study period. This is because our institute being a single tertiary care centre, it is difficult to contain the rates catering to a large population of referred cases.

- Similarly, in an audit conducted by Ancy T Jacob, Sheela Jacob et al, 2020, the prevalence rate of LSCS was 45.84% which was far above the accepted range of 10-15%.^[4]
- S. Sreevidya et al, 2003 conducted a population based cross-sectional study in Madras in which the total caesarean section rate was 32.6% and the total rate was twice higher in the private sector compared to public sector.^[5]
- Katke RD et al, 2014 conducted a study in which the overall incidence of LSCS was 25.7% in over a study period of 6 months.^[2]

Analysis of the age group in this audit showed that most of the Caesarean sections (70.95%) were performed in the age group of maximum fertility (20-29 years). 8.42% of total patients were teenage pregnancies.

- A Jawa, S Garg et al, 2016 conducted a similar study in which a vast majority of 80.9% population who underwent LSCS were within the age group of 21-30 years. In their study, 10.3% of population who underwent LSCS were teenagers.^[6]
- Mussart N, Qureshi S et al, 2013 conducted a similar study at a teaching hospital in Faisalabad. Most of patients (80%) were in 20-30 years age group.^[7]

In terms of **parity**, In this audit, 43.19% of patients were Primigravida and the rest are multigravida similar to **Ancy T Jacob, Sheela Jacob et al, 2020**.^[4] 13.17% patients were grand multiparas. 13.60% underwent preterm LSCS (<37wks GA).

In terms of **indications of LSCS**, considering the whole study population together irrespective of the parity, 'previous LSCS and its associated factors' (not willing for trial of labor, scar tenderness, etc) was the most common indication among 38.98% of the population. This is followed by fetal distress in 11.12% of the population which is similar to many studies in the literature - **Ancy T Jacob, Sheela Jacob et al, 2020**^[4], **Katke RD et al, 2014**^[2], **Reena Sharma, Poojan Dogra et al, 2017**^[8].

- Previous LSCS, was the leading cause in 35.2% of cases in a study by Katke RD et al, 2014. This was followed by foetal distress in 14.9% of cases and previous 2 LSCS 10.5%.
- Almost same results were observed by Reena Sharma, Poojan Dogra et al, 2017. Previous LSCS was the most common indication of caesarean section in the present study accounting for 22% of all CS cases. Cephalopelvic disproportion accounted for 15.8% of cases.

Intraoperative findings and complications showed variations and differed in each study. 8.42% of cases had meconium-stained liquor draining, 3.67% cases had thinned out lower uterine segment and 3.13% had adhesions intraoperatively.

- Ancy T Jacob, Sheela Jacob et al, 2020^[4] conducted a study in which lower uterine segment was thin in 6%. Adhesions were observed in 3% and scar dehiscence were present in 2% of cases.

In terms of neonatal outcomes, 1% of babies were with very low birth weights (<1.5 kg). 7.99% of babies born required NICU admission due to various reasons like low birth weights, tachypnoea, meconium aspiration, etc.

- In a study by **Katke RD et al, 2014**^[2], the total NICU admission was found to be 20.8% and 13.1% had birth weights less than 1.5 kg.

CONCLUSION

- The caesarean section rate found in this study indicates that India is already headed towards a costlier and interventionist medical care system. Interventionist attitudes are sometimes detrimental to the health and economic well-being of society and should be urgently addressed.
- Proper antenatal care and counselling regarding the planned hospital delivery is always important. This is where BP/CR strategy (Birth preparedness and complication readiness) plays a very vital role in avoiding delay in obtaining obstetric care and helps in avoiding unindicated caesarean sections
- Although LSCS indications seen in our institute are the same in most institutions worldwide, efforts should be made to focus on reducing the primary LSCS rates thereby reducing a repeat LSCS in subsequent pregnancies. This can be achieved by introduction of evidence-based strategies at both individual and national level as a first step towards safe motherhood.

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