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Original Research Article

Comparative study on maternal and fetal outcomes in emergency versus elective caesarean section

C Sunitha¹, Aditi Sangwan^{1*}, Suyash Goel¹, Deepika Gulati Dumeer², K C Singh¹, Shivani Sangwan³¹Dept. of Obstetrics & Gynaecology, ACMS & Base Hospital, Delhi Cantt, Delhi, India²Dept. of Paediatrics, ACMS & Base Hospital, Delhi Cantt, Delhi, India³Dept. of Pathology, ACMS & Base Hospital, Delhi Cantt, Delhi, India

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ABSTRACT

Background: The progressive increase in the incidence of caesarean section during the last few decades has been constant worldwide, increasing; at the same time, the indications, many of them unnecessary, resulting in indiscriminate practice, becoming the most frequent surgical intervention performed in health institutions, both private and public. Caesarean section is preferred as an emergency or elective procedure depending on the maternal and fetal conditions. It has been seen that risk of surgical complications is greater with emergency as compared with elective caesarean section.

Materials and Methods: Present study is a retrospective study, designed to evaluate maternal and fetal outcomes in elective versus emergency caesarean sections performed at our hospital from January 2023 to December 2023.

Results: Out of total 2573 deliveries conducted, 1496 were normal deliveries, 116 were instrumental and 961 were caesarean deliveries, 446 were emergency and 515 were elective caesarean section. In our study overall operative complications were 114(11.8%) which was mainly contributed to emergency group.

Conclusions: The elective caesarean section shows less maternal and perinatal complications as compared to emergency caesarean sections.

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1. Introduction

Caesarean section is the delivery of baby from the mother's uterus by making an incision over it. Worldwide the rate of caesarean section has been increasing.¹⁻⁴ There are many factors contributing to this increase like advanced maternal age, increase in the rate of conception through artificial reproductive techniques, reduced parity, patient's choice for elective caesarean section. This is also leading to patients presenting with increase in number of pregnancies with previous caesarean sections further increasing the rate of maternal and fetal complications associated with it. This

study is a retrospective study, conducted to assess the maternal and fetal outcomes in elective versus emergency caesarean section performed in our hospital.

2. Materials and Methods

All obstetric patients who underwent caesarean section (total no. 961) from January 2023 to December 2023 at Army College of Medical Sciences and Base Hospital Delhi Cantonment, which is a tertiary care hospital, were included in the study. Maternal data which were considered include age of the patient, parity, fetal malpresentations, previous caesarean section, placenta praevia, cephalopelvic disproportion (CPD), fetal growth restriction (FGR),

* Corresponding author.

E-mail address: adzsharp@gmail.com (A. Sangwan).

preeclampsia. The various intra operative and postoperative complications were compiled. Neonatal data which were considered include period of gestation at which caesarean section was done, sex, birth weight, one- and five-minute APGAR score, need of C- PAP or ventilator, neonatal complications and duration of hospitalisation. Data was collected from operation theatre, labour room and NICU registers. Data was analysed by percentage method.

2.1. Inclusion criteria

All obstetric patients who underwent elective or emergency caesarean section (total no.961) in one year from Jan 2023 to Dec 2023.

2.2. Exclusion criteria

All obstetric patients who underwent normal delivery or instrumental delivery. Data was analysed by percentage method.

3. Results

The total no. of patients admitted in Obstetric ward and labour room of our hospital were 2573.Out of these, 961underwent caesarean section. The incidence of caesarean section comes out to be 37.34%. Of these 446(46.4%) had emergency and 515(53.5%) had elective surgery. Out of the total 961 caesarean cases, spinal anaesthesia was given in 912(95%) patients and General anaesthesia in 49(5.0%) patients. Amongst the total patients receiving general anaesthesia, 46 underwent emergency caesarean and 3 had elective caesarean section. The most common indication for caesarean section was repeat lower segment caesarean section (LSCS). Out of the total LSCS done, 375(39.0%) were post LSCS pregnancies. Fetal distress was seen in 83 cases (08.63%) non-progress of labour in 76 cases (7.90%), malpresentations in 94 cases (9.78%), placenta praevia and antepartum haemorrhage in 53 cases (5.51%), CPD or contracted pelvis in 87(9.05%), severe FGR in 91 cases (9.46%), severe pre-eclampsia in 85 cases (8.84%) and twins with discordance in 17 cases (1.76%). (Table 1)

As we can see in Figure 1, there were 38 patients who had intraoperative complications. Out of these, post-partum haemorrhage (PPH) was the most common. It was seen in 35 cases (92%).Out of these, 24(63.15%) were seen in emergency LSCS whereas 11(28.9%) in elective cases. There were 2 cases of bladder injury (5.2%) which was seen in post LSCS pregnancy presenting in labour. There was one case of caesarean hysterectomy (2.6%) which was post LSCS pregnancy with placenta accreta. PPH was mainly managed medically. There were three patients in whom B Lynch suturing was done.

Among the postoperative complications there were a total of 76 cases who had complications seen in

Table 1: Indications of caesarean section

Indication	Elective	Emergency	Total	Percent
Post LSCS pregnancy	202	173	375	39.0
Fetal Distress	Nil	83	83	08.63
Non Progress of labour	Nil	76	76	7.90
Malpresentations (Breech/Transverse)	60	34	94	9.78
Placenta previa/APH	27	26	53	5.51
CPD/Contracted pelvis	82	05	87	9.05
Severe FGR	82	09	91	9.46
Severe Preeclampsia	49	36	85	8.84
Twins with discordance	13	04	17	1.76
Total	515	446	961	100

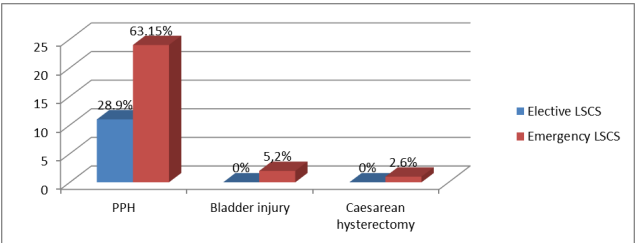


Figure 1: Intraoperative maternal complications in LSCS

postoperative period. These were more commonly seen in emergency cases which accounted for 49 cases (64.3%). Fever was seen in 31 patients (40%) making it the most common post op complication. Others being surgical site infection, PPH and spinal headache. (Table 2)

Table 2: Postoperative complications in caesarean section

Complications	Total	Elective No %	Emergency No %
Fever	31	12 17.1	19 25.0
Surgical site infection	15	06 7.8	09 11.8
PPH	14	04 5.2	10 13.1
Spinal Headache	16	05 6.5	11 14.4
Total	76	27 36.6	49 64.3

Out of 1054 babies (including twins), 1053(99.9%) were born alive. There were total 98 admissions in NICU in LSCS patients. Out of these, 77(78.8%) were from emergency LSCS cases and 21(21.4%) were from elective LSCS. 1 baby in emergency group was still birth. The total number of perinatal deaths were five;4 in emergency group and 1 in elective group. (Table 3)

Table 3: Fetal outcomes and complications

Fetal Outcome	Elective	Emergency
Total NICU admissions	21	77
Respiratory distress	15	52
Meconium Aspiration	05	14
Sepsis	Nil	06
Perinatal deaths	01	04

4. Discussion

Globally it has been seen that the trend for caesarean section is increasing very rapidly.¹⁻⁴ The rate of caesarean section in our hospital during study period is 37.34%. Out of these 46.4% cases were done in emergency conditions and 53.5% were done as elective caesarean section. The rate of LSCS is slightly higher than the WHO recommendation of 10 to 15% caesarean. “Caesarean for once and then caesarean forever” is gradually becoming a norm in the obstetric world which has led to a global rise in caesarean section rate during the last few decades.⁵ The commonest indication found in our study also is post LSCS pregnancy. Elective LSCS should be planned in cases with history of more than two previous LSCS, classical caesarean section done in previous surgery, history of previous rupture uterus or conditions like placenta praevia.^{6,7} There are some systematic reviews and meta analysis which have explored outcomes related to trial of labour vs elective repeat LSCS in women with one or more previous LSCS.^{8,9} There was a retrospective cohort study conducted in Community medical center from 2008 to 2018 to study about the maternal and neonatal outcomes among women with two previous caesarean deliveries undergoing TOLAC (trial of labour after caesarean) vs elective repeat LSCS which showed no difference in maternal or neonatal morbidity among patients in these groups.¹⁰ A recent systematic review and meta analysis by Hui Mao et al suggest an increased risk of uterine rupture and maternal mortality with TOLAC in pregnancy with previous two LSCS emphasising the need for personalised risk assessment and shared decision making by healthcare professionals.¹¹ Regarding the optimum timing of elective LSCS, ACOG recommends that in absence of any high risk conditions or complications which warrant an early delivery, optimum time is at full term that is at 39 completed weeks.¹² TOLAC is a very important method especially after one LSCS to decrease the morbidity and mortality associated with increasing trends in caesarean sections. However, following an unsuccessful TOLAC, there would be an increase in maternal and fetal morbidity and mortality. There are many factors which would affect the positive outcomes of TOLAC such as age of patient, indication of previous LSCS, inter pregnancy interval, current obstetric factors, Bishop’s score, fetal factors etc.^{13,14} In our hospital being a referral centre managing high risk risk cases, elective repeat LSCS is

planned between 38 to 39 weeks of period of gestation. Trial of labour is only given if the patient comes in labour and does not have any contraindications like cephalopelvic disproportion, contracted pelvis, malpresentation, placenta praevia etc.

Ethisham S et al conducted a study in 2014 and according to them the caesarean section rate was 44.8%. This is comparable to our study which had 37.34% caesarean rates. The most common indication which was seen in their study was pregnancy with history of previous caesarean (30.0%).¹⁵ In a similar study conducted by Singh et al in 2019, caesarean section for previous LSCS was most common indication.¹⁶ There was a study published by Angan Sengupta et al in 2021 which shows the rate of caesarean section to vary between 23% to 40% in different states of India.¹⁷ In our study the most common indication for caesarean was pregnancies with history of previous LSCS; 375 out of 961 cases (39.0%) followed by malpresentation, FGR, CPD or contracted pelvis, severe preeclampsia, fetal distress, non-progress of labour, placenta praevia or APH, twins with discordance. The overall maternal complications seen in intraoperative and postoperative period were more common in patients whose caesarean section was done in emergency as compared to elective settings. The overall intraoperative and postoperative complications seen in our study was 11.8% mainly contributed by the emergency group; 70.95% intraoperatively and 64.3% postoperatively.¹⁸

There was a study conducted by Maral Hosseinzadeh et al in 2023 to see the various complications associated with the caesarean section. It was found that primary PPH was the most common complication seen and a leading cause of maternal mortality. The post op complications encountered were fever, surgical site infection, PPH, spinal headache.¹⁹

There were total 98 NICU admissions following LSCS. It was observed that the mortality and morbidity seen in neonates were higher in emergency group. The various conditions associated with fetal morbidity were respiratory distress, meconium aspiration, sepsis, perinatal deaths, stillbirth contributing to 10.10% of the cases. Out of this 78.6% cases were found in emergency group and 21.4% in elective group. There were four perinatal deaths in emergency group as compared to only one death in elective group.²⁰

5. Conclusion

The incidence of caesarean sections has been increasing globally. Maternal and fetal outcomes in a caesarean section depends on a number of factors like age of the patient, associated medical conditions like preeclampsia, gestational diabetes mellitus(GDM), thrombophilia, anaemia, jaundice, kidney diseases etc. Other important contributing factors could be urinary tract infection (UTI), premature rupture of membranes (PROM), pre term labour, chorioamnionitis

or fetal factors like fetal growth restriction, congenital anomalies, etc. Due to a rapid increase in the rate of caesarean sections, there are more cases of placenta accreta syndrome being reported resulting in an increase in maternal and fetal morbidity and mortality. With proper antenatal care, patient education about the medical conditions associated and importance of regular follow up, TOLAC in cases when feasible, we can improve the overall maternal and fetal outcomes.

6. Source of Funding

No funding sources.

7. Conflict of Interest

None declared


8. Ethical Approval

The study was approved by the Institutional Ethics Committee.

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Author's biography

C Sunitha, Assistant Professor  <https://orcid.org/0009-0007-8730-1373>

Aditi Sangwan, Assistant Professor  <https://orcid.org/0009-0009-5063-5040>

Suyash Goel, Associate Professor  <https://orcid.org/0000-0002-8376-7084>

Deepika Gulati Dumeer, Assistant Professor  <https://orcid.org/0009-0003-7288-9929>

K C Singh, Associate Professor

Shivani Sangwan, Associate Professor

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