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## Original Research Article

# A cross sectional study of 1000 lower segment cesarean section in obstetrics and gynecology department of P. D. U. Medical College, Rajkot, Gujarat, India

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## ABSTRACT

**Background:** Though WHO recommends a rate of 10-15% caesarean section for a given hospital, there has been a rising trend worldwide. We estimated the recent incidence of caesarean section in Obstetrics and Gynecology Department, P.D.U. Medical College, Rajkot (Gujarat) and correlated these rates with the socioeconomic, demographic, and health variables.

**Methods:** We have studied 1000 cases of lower segment caesarean section (cross sectional study) at Obstetrics and Gynecology Department, P.D.U Medical College, Rajkot (Gujarat) to find out rate of caesarean section, common maternal and fetal indication and complications of lower segment caesarean section.

**Results:** Caesarean section rate of the present study is 19.9%. Most common indication of LSCS was scarred uterus 39.9%, followed by fetal distress 19.1%, malpresentation 18.6%, and failed induction 7.3%. Maternal morbidities and mortalities in emergency LSCS in compare to elective LSCS. Analysis based on Robson's ten-group showed that group 5 (Previous CS, single cephalic, >37 weeks) made the greatest contribution to total CS rate.

**Conclusions:** Scientific advances, social and cultural changes, and medico legal considerations seem to be the main reasons for the increased acceptability of caesarean sections. The decision to perform a C-section delivery must be chosen carefully and should not be profit oriented. There is a possibility of keeping the rate to minimum by reducing number of primary caesarean sections, by proper counseling of the patients, proper monitoring and patience.

**Keywords:** Abdominal route delivery, Caesarean section, Lower segment caesarean section

## INTRODUCTION

Caesarean section has enjoyed a very long history and has been continuously refined by society. Caesarean section rates are rising. Caesarean section is usually justified by the assumed benefit for the foetus. The changing trends in the rates of caesarean section for various indications may be explained partly by improved anaesthetic and surgical techniques.

Though WHO recommends a rate of 10-15% caesarean section for a given hospital, there has been a rising trend worldwide (WHO statement on caesarean section rates). In present study there is rise in caesarean rate upto 19% which is less in comparison to other countries since we have an improved facility of tertiary care services and easy availability of free of cost blood and blood components, trained obstetricians and anaesthetists with skills, more referrals from nearby health care centres.

In present study, there is changing trend of indication which was cephalopelvic disproportion (CPD) in past to previous caesarean section not willing for vaginal trial, precious pregnancy and demand caesarean section in present era. In spite of such a high rate, the number of complications is not at a rise due to improve skill, availability of blood and skilled anaesthetists.

One of the limitations in our study is that we are not considering neonatal outcome and remote complications associated with our studies. We estimated the recent incidence of caesarean section in Obstetrics and Gynecology Department, P.D.U. Medical College, Rajkot (Gujarat) and correlated these rates with the socioeconomic, demographic, and health variables.

### ***Origins of the name: caesarean operation to Caesarean section***

Caesarean section involves the delivery of the baby through an abdominal cut. Initially, caesarean section was referred to as caesarean operation. There is rampant debate over how the name caesarean operation came to be.

Many theorize that the name came from Julius Caesar, who supposedly was born by this method.<sup>1</sup> This, however, is unlikely because it is known that Caesar's mother, Aurelia, was still alive when he invaded Britain, and it is unlikely that she could have survived such a surgery given the crude technique and amount of knowledge of the female anatomy and physiology known at that time.<sup>2</sup> Also, it is believed that at the time of his existence, the surgery was mostly done on dead or dying women. A possibility as to why his name is associated is that during his reign he ordered the use of this procedure to procure the child from a dying mother.<sup>3</sup>

Romans described caesarean birth until the last century B.C as a caeso matris utero, which means, to cut an infant of its mother's womb.<sup>4</sup> Another possible source is from the King of Rome, Numa Pompilius, who codified Roman Law in 715 B.C.<sup>5</sup> Lex Regia, which later became known as Lex Caesarea (under the rule of the Caesars) made it mandatory to remove the child from its dying mother, even if there was no chance of its own survival. This was done in part to ensure separate burial for mother and child.<sup>1</sup> Also, the state was interested in raising its population size, and did not wish to lose any person unnecessarily.<sup>3</sup>

### ***Evidence based LSCS (nice guidelines)<sup>6</sup>***

#### ***Timing of planned LSCS***

The risk of respiratory morbidity is increased in babies born by CS before labour, but this risk decreases significantly after 39 weeks. Therefore planned CS should not routinely be carried out before 39 weeks.

### ***Classification of urgency***

The urgency of CS should be documented using the following standardised scheme in order to aid clear communication between healthcare professionals about the urgency of a CS

- Immediate threat to the life of the woman or fetus
- Maternal or fetal compromise which is not immediately life-threatening
- No maternal or fetal compromise but needs early delivery
- Delivery timed to suit woman or staff.

### ***Decision-to-delivery interval for unplanned CS***

Perform category 1 and 2 CS as quickly as possible after making the decision, particularly for category 1. Perform category 2 CS in most situations within 75 minutes of making the decision. Take into account the condition of the woman and the unborn baby when making decisions about rapid delivery. Remember that rapid delivery may be harmful in certain circumstances.

### ***Preoperative testing and preparation for CS***

Pregnant women should be offered a haemoglobin assessment before CS to identify those who have anaemia. Although blood loss of more than 1000ml is infrequent after CS (it occurs in 4–8% of CS) it is a potentially serious complication. Pregnant women having CS for antepartum haemorrhage, abruption, uterine rupture and placenta praevia are at increased risk of blood loss of more than 1000ml and should have the CS carried out at a maternity unit with on-site blood transfusion services. Pregnant women who are healthy and who have otherwise uncomplicated pregnancies should not routinely be offered the following tests before CS:

- Grouping and saving of serum
- Cross-matching of blood
- Clotting screen
- Preoperative ultrasound for localisation of the placenta, because this does not improve CS morbidity outcomes (such as blood loss of more than 1000ml, injury of the infant, and injury to the cord or to other adjacent structures).

Women having CS with regional anaesthesia require an indwelling urinary catheter to prevent over-distension of the bladder because the anaesthetic block interferes with normal bladder function.

### ***Anaesthesia for CS***

Pregnant women having a CS should be given information on different types of post-CS analgesia so that analgesia best suited to their needs can be offered

Women who are having a CS should be offered regional anaesthesia because it is safer and results in less maternal and neonatal morbidity than general anaesthesia. This includes women who have a diagnosis of placenta praevia. Women who are having a CS under regional anaesthesia should be offered intravenous ephedrine or phenylephrine, and volume pre-loading with crystalloid or colloid to reduce the risk of hypotension occurring during CS.

To reduce the risk of aspiration pneumonitis women should be offered antacids and drugs (such as H<sub>2</sub> receptor antagonists or proton pump inhibitors) to reduce gastric volumes and acidity before CS. Women having a CS should be offered antiemetic's (either pharmacological or acupressure) to reduce nausea and vomiting during CS.

General anaesthesia for unplanned CS should include preoxygenation, cricoid pressure and rapid sequence induction to reduce the risk of aspiration. Intravenous ephedrine or phenylephrine should be used in the management of hypotension during CS. The operating table for CS should have a lateral tilt of 15°, because this reduces maternal hypotension.

### ***Surgical techniques for CS***

Healthcare professionals should wear double gloves when performing or assisting at CS on women who have tested positive for HIV, to reduce the risk of HIV infection of healthcare professionals during surgery. CS should be performed using a transverse abdominal incision because this is associated with less postoperative pain and an improved cosmetic effect compared with a midline incision.

The transverse incision of choice should be the Joel Cohen incision (a straight skin incision, 3 cm above the symphysis pubis; subsequent tissue layers are opened bluntly and, if necessary, extended with scissors and not a knife), because it is associated with shorter operating times and reduced postoperative febrile morbidity.

The use of separate surgical knives to incise the skin and the deeper tissues at CS is not recommended because it does not decrease wound infection. When there is a well formed lower uterine segment, blunt rather than sharp extension of the uterine incision should be used because it reduces blood loss, incidence of postpartum haemorrhage and the need for transfusion at CS.

Women who are having a CS should be informed that the risk of fatal lacerations is about 2%. Forceps should only be used at CS if there is difficulty delivering the baby's head. The effect on neonatal morbidity of the routine use of forceps at CS remains uncertain. Oxytocin 5 IU by slow intravenous injection should be used at CS to encourage contraction of the uterus and to decrease blood loss.

At CS, the placenta should be removed using controlled cord traction and not manual removal as this reduces the

risk of endometritis. Intraperitoneal repair of the uterus at CS should be undertaken. Exteriorisation of the uterus is not recommended because it is associated with more pain and does not improve operative outcomes such as haemorrhage and infection.

The effectiveness and safety of single layer closure of the uterine incision is uncertain. Except within a research context, the uterine incision should be sutured with two layers. Neither the visceral nor the parietal peritoneum should be sutured at CS because this reduces operating time and the need for postoperative analgesia, and improves maternal satisfaction.

In the rare circumstances that a midline abdominal incision is used at CS, mass closure with slowly absorbable continuous sutures should be used because this results in fewer incisional hernias and less dehiscence than layered closure. Routine closure of the subcutaneous tissue space should not be used, unless the woman has more than 2 cm subcutaneous fat, because it does not reduce the incidence of wound infection.

Superficial wound drains should not be used at CS because they do not decrease the incidence of wound infection or wound haematoma. Obstetricians should be aware that the effects of different suture materials or methods of skin closure at CS are not certain. Umbilical artery pH should be performed after all CS for suspected fetal compromise, to allow review of fetal wellbeing and guide on going care of the baby.

Offer women prophylactic antibiotics at CS before skin incision. Inform them that this reduces the risk of maternal infection more than prophylactic antibiotics given after skin incision, and that no effect on the baby has been demonstrated.

Offer women prophylactic antibiotics at CS to reduce the risk of postoperative infections. Choose antibiotics effective against endometritis, urinary tract and wound infections, which occur in about 8% of women who have had a CS.

Do not use co-amoxiclav when giving antibiotics before skin incision. Women having a CS should be offered thrombo-prophylaxis because they are at increased risk of venous thromboembolism. The choice of method of prophylaxis (for example, graduated stockings, hydration, early mobilisation, low molecular weight heparin) should take into account risk of thromboembolic disease and follow existing guidelines.

Women's preferences for the birth, such as music playing in theatre, lowering the screen to see the baby born, or silence so that the mother's voice is the first the baby hears, should be accommodated where possible.

Aims and objectives of present study are:

- To find out rate of Caesarean Section in Obstetrics and gynecology department of P.D.U. Medical college Rajkot.
- To know common maternal and fetal indication of lower segment caesarean section.
- To know intra-operative and post-operative complications.

## METHODS

We have studied 1000 cases of Lower Segment Caesarean Section (Cross sectional study) at Obstetrics and Gynecology department P.D.U Medical College, Rajkot, Gujarat. Study period was 1<sup>st</sup> January 2015 to 8<sup>th</sup> September 2015. We have included all cases of elective and emergency caesarean sections performed. Only exclusion criteria were referred cases of caesarean sections performed outside.

Due consent to get enrolled in study is obtained in vernacular and patient has free choice to opt out any moment. There is no element of monetary consideration, compulsion or denial of treatment if not opted for study.

## RESULTS

This study was conducted from 1<sup>st</sup> January to 8<sup>th</sup> September 2015. One thousand cases of caesarean section were included in our study. During this period 5018 vaginal deliveries were conducted so caesarean section rate of present study is 19.9%.

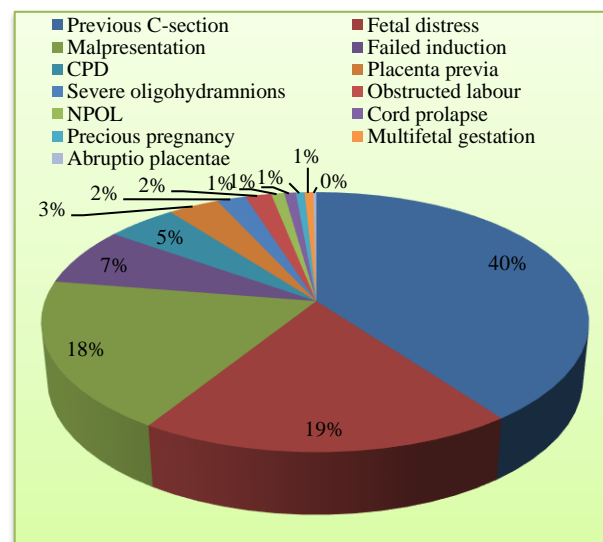
**Table 1: Caesarean section rate in present study.**

Vaginal deliveries	5018
Elective	244
Emergency	756
Rate of caesarean section	19.9%

**Table 2: Indications of caesarean sections.**

Indication of caesarean section	Sample size N=1000
Previous caesarean section	399(39.9%)
Fetal distress	191(19.1%)
Mal presentation	186(18.6%)
Failed induction	73(7.3%)
CPD	48(4.8%)
Placenta previa	35(3.5%)
Severe Oligo hydroamnios	20(2.0%)
Obstructed labour	18(1.8%)
Non progression of labour	09(0.9%)
Cord prolapse	08(0.8%)
Precious pregnancy	06(0.6%)
Multifetal gestations	06(0.6%)
Abruptio placenta	02(0.2%)

Most common indication of LSCS was scarred uterus 39.9% followed by fetal distress 19.1%, malpresentation 18.6%, failed induction 7.3%. Antepartum hemorrhage was an indication in 37 cases, out of which 35 were of placenta previa and 2 patients were diagnosed with abruptio placenta.



**Figure 1: Pie chart analysis of indication of C-section.**

**Table 3: Complications in Elective V/S Emergency Caesarean Section in present study.**

Complications	Elective C.S N=244	Emergency C.S N=756
Blood transfusion	13	67
Atonic PPH	03	20
Obstetric hysterectomy	01	01
Intestinal injury	00	01
Surgical site infection	01	03
Paralytic ilius	00	03
Maternal mortality	00	02

Above table shows more maternal morbidities and mortalities in emergency LSCS in compare to elective LSCS.

Analysis based on Robson's ten-group showed that group 5 (Previous CS, single cephalic >37 weeks) made the greatest contribution to total CS rate.

## DISCUSSION

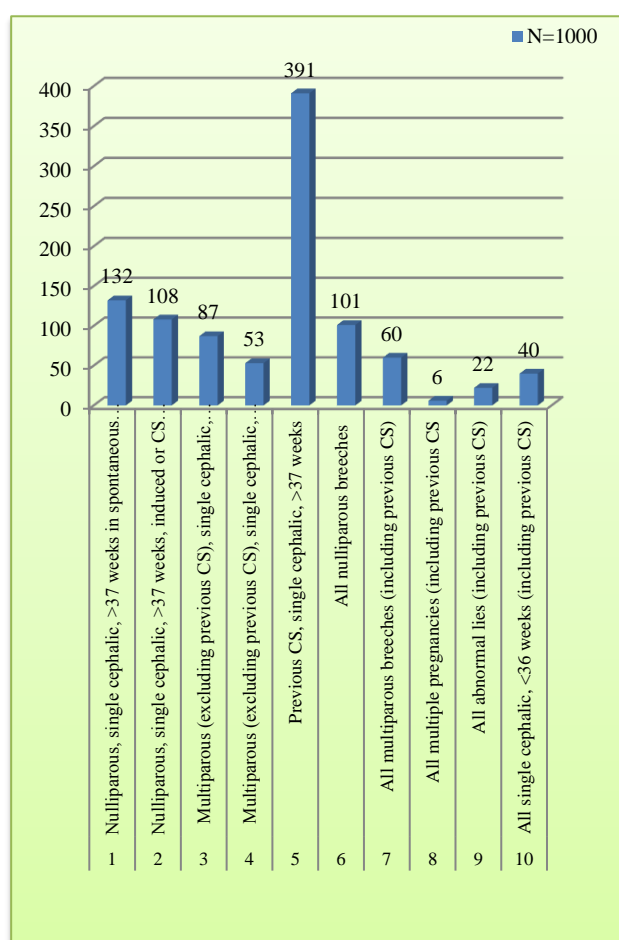
We have reviewed 1000 cases which underwent caesarean section for their indications. The most common indication was previous caesarean section, followed by fetal distress and malpresentations. Similar results were found in studies

conducted in USA and in south India.<sup>7,8</sup> Previous caesarean section was the commonest indication in present study.<sup>9</sup> There were 40 cases with history of previous 2 caesarean section. The major cause behind it is higher rate of primary caesarean section, putting next pregnancy at a higher risk than normal.

More number of VBAC trials with proper selection criteria and proper monitoring will help in reducing the rate of CS in general.<sup>10</sup>

**Table 4: Robson's Classification.**

Group	Robson's ten-groups classification	N=1000	%
1	Nulliparous, single cephalic, >37 weeks in spontaneous labour	132	13.2%
2	Nulliparous, single cephalic, >37 weeks, induced or CS before labour	108	10.8%
3	Multiparous (excluding previous CS), single cephalic, >37 weeks in spontaneous labour	87	8.7%
4	Multiparous, (excluding previous CS), single cephalic, >37 weeks, induced or CS before labour	53	5.3%
5	Previous CS, single cephalic, >37 weeks	391	39.3%
6	All nulliparous breeches	101	10.1%
7	All nulliparous breeches (including previous CS)	60	6.0%
8	All multiparous pregnancies (including previous CS)	6	0.6%
9	All abnormal lies	22	2.2%
10	All single cephalic, <36 weeks(including previous CS)	40	4.0%



**Figure 2: Robson's ten-groups classification N=1000.**

The incidence of fetal distress in present study is slightly more as compare to other studies. This can be attributed to frequent use of fetal monitoring (cardiotocograph).<sup>11,12</sup>

Without doubt improvement in safety of caesarean section as well as better intensive care backup for both mother and the neonate has influenced such practice.<sup>13</sup> In present study most common indication of LSCS in emergency as well as elective LSCS was previous LSCS, this shows increased incidence of repeat caesarean section. In present study the rate of LSCS observed is 19.9% which is similar to outcome of 24.4% in the study carried out by Kambo I et al and 31.15% observed by Padmaleela K et al.<sup>14,15</sup> Atonic PPH was the common complication during LSCS. Followed by surgical site infection and paralytic ileus. Two patient had obstetric hysterectomy in which atonic PPH not controlled by uterotonics and other measures.

## CONCLUSION

An increase in the rates of caesarean section delivery is a burden on health system. Caesarean section, however, associated with increases risk to both mother and child. It should only be performed when it is clearly advantageous. Therefore the decision to perform caesarean section delivery must be chosen carefully and should not be profit oriented. Amongst all other factors perhaps place of delivery (Private or public medical institution) is becoming the strongest one influencing CS. Utilization of ANC, better doctor-patient communication, doctor's commitment to reduce the rate of CS, government's intension to develop better health care infrastructure may help to reduce the high and increasing rate of caesarean delivery.

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