

# A comparative study of outcome of caesarean delivery in rural obstetric referrals with elective caesarean delivery

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## Abstract

**Objectives:** To study the obstetric outcome of rural referrals who undergo emergency caesarean delivery versus elective caesarean delivery in a tertiary care hospital in rural scenario and to evaluate the risks and complications associated with it. **Methodology:** This comparative study was conducted at Rural Medical Hospital in Karnataka, India over a period of 18 months. Among the total of 100 patients who fulfilled the inclusion criteria 50 patients referred to us, who underwent caesarean delivery are emergency group and 50 patients admitted in our hospital who were posted for elective caesarean delivery were the other group in the study period. The various parameters, maternal morbidity, neonatal outcome, morbidity and mortality were compared in both groups using a semi structured Performa. The comparison was done by using Chi-square test and p-value < 0.05 was considered statistically significant. **Results:** During our study period the referred cases constituted of 19.8%. Caesarean delivery rate among referred Cases was 40.7%. Statistically significant association was found between emergency CS and younger patients, low parity, irregular attendance at antenatal clinics, intra operative complications, postoperative morbidity and low Apgar score, NICU admission and also mortality as compared to elective caesarean section group. The commonest indication for caesarean delivery in emergency was obstructed labour (34 %), previous caesarean delivery (36%) being the commonest in elective group. Perinatal mortality was 12.5% **Conclusions:** The present study has shown that improper intranatal, an emergency care for a pregnant women being responsible for most of the referral cases undergoing caesarean section on emergency which caused increased maternal morbidity and perinatal deaths in our institution. It was concluded that every effort should be directed to effect-planned CS, as determined during the antenatal period, if possible, so as to reduce the various problems associated with emergency CS.

**Keywords:** caesarean delivery, mortality.

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Received Date: 04/10/2014 Accepted Date: 14/10/2014

## Access this article online

Quick Response Code:	Website: <a href="http://www.statperson.com">www.statperson.com</a>
	DOI: 21 October 2014

## INTRODUCTION

Caesarean delivery is one of the most commonly performed operations today<sup>1</sup>. It has been defined as birth of a fetus through a surgically created incision in the anterior abdominal wall and uterine wall<sup>2</sup>. In many countries around the world, obstetric practice has witnessed an increasing frequency in caesarean deliveries which has increased from 21.8% to 25.4%<sup>3</sup>. The procedure has evolved from it being done in desperate situations as a postmortem surgery to save the unborn child to present times where one of the commonest indications for caesarean delivery is previous caesarean birth<sup>1</sup>. In spite of all attempts to electively deliver the

pregnancy by CS, many times emergency CS may have to be resorted to for fetal or maternal salvage, even if there may be problems associated with it. The present study was therefore undertaken to compare the obstetric outcome in patients delivered by elective CS with those referred and underwent emergency CS in a rural medical college.

### MATERIALS AND METHODS

The main source of data for this study were 50 patients who were handled in PHC's, CHC's, private nursing homes, untrained dais and referred to us who underwent caesarean delivery on emergency and 50 patients admitted in our hospital who were posted for elective caesarean delivery during the study period. INCLUSION CRITERIA - Gestational age > 37 weeks, either booked or unbooked cases, Cases handled outside and Referred, who underwent caesarean delivery on emergency, Cases admitted in our hospital for elective caesarean delivery

#### Exclusion Criteria

Gestational age < 37 weeks, Multiple gestation, Medical and surgical disorders associated with pregnancy. In elective group on admission detailed history was taken, routine investigations was done. The procedure was explained and informed written consent was obtained, In emergency group( referred cases) on admission to hospital with a referral letter from the peripheral centre, detailed history, reason for referral, a complete obstetric history, any method of intervention like use of oxytocin, epidurin, ARM, Inspection of the vulva for edema, injury, presence of episiotomy wound was done, NST was taken, Various parameters such as age, parity, booked/unbooked, type of anaesthesia, The indications for the CS, the types of abdominal and uterine incisions, the intraoperative and postoperative complications, the duration of postoperative hospital stay, Fetus whether born alive/dead/still born, neonatal morbidity in terms of Apgar score at 1 and 5 min, NICU admission in relation to type of caesarean delivery, were recorded, The data were analyzed with the chi-squared test to determine the association between the various factors under investigation. A probability value of <0.05 was considered statistically significant.

### RESULTS

**Table 1:** Distribution of case in relation to age

Range	Elective	Emergency
18-25	26 (52%)	42 (84%)
26-30	23 (46%)	5 (10%)
30 +	1 (2%)	3 (6%)
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

P value 0. 000\*\*

**Table 2:** Distribution of cases in relation to parity

Parity	Elective	Emergency
Primi	15 (30%)	37 (74%)
Multi	35 (70%)	13 (26%)
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

P=0.000\*\*

Table 1 shows the age group distribution of 100cases and type of caesarean delivery. Age ranges from 18 to >30 yrs age group. Overall 84 % of emergency cases were of 18-25 yr age group; on the other hand 52 % of this age group were in elective group. The association between age and type of caesarean was statistically significant (P<0. 005). Table 2 shows that majority of patients in emergency group were primipara (74%). In contrast only 30% of primiparas were in elective caesarean group. The percentage of multipara was more in elective group (70%) as compared to 26% in emergency caesarean group. The association between low parity and emergency caesarean was statistically significant (P<0.005)

**Table 3:** Type of Cesarean In Relation To Booking Status

Booking status	Elective	Emergency
Booked	48 (96%)	28 (56%)
Unbooked	2 (4%)	22 (44%)
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

P=0.000\*\*

**Table 4:** Indication for cesarean section and type of operation

Type of LSCS	Elective	Emergency
Previous LSCS	18 (36%)	2 (4%)
Breech	11 (22%)	4 (8%)
CPD	8 (16%)	2 (4%)
Malpresentation	6 (12%)	2 (4%)
APH	3 (6%)	6 (12%)
Obstructed labour	-	17 (34%)
Fetal distress	-	11 (22%)
Cord prolapsed	-	3 (6%)
Failure to progress	-	3 (6%)
Others	4 (8%)	-
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

P=0.000\*\*

There was statistically significant difference between booking status and type of cesarean delivery as seen in table 3. 44% of unbooked patients had emergency cesarean delivery as compared to 4% in elective group. There was statistically significant association between the major indication and type of operation (P<0.005)

**Table 5:** Type of uterine incision in relation to type of LSCS

Incision	Elective	Emergency
LUS Transverse	47 (94%)	44 (88%)
Classical	1 (2%)	-
Invert T	2 (4%)	6 (12%)
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

P=0.212

**Table 6:** Intra op complications in relation to type of LSCS

Intra operative	Elective	Emergency
Normal	30 (60%)	22 (44%)
Adhesions	15 (30%)	-
Bladder adhesions	1 (2%)	-
Bladder advancement	1 (2%)	8 (16%)
Bleeding	1 (2%)	2 (4%)
Thin LUS	1 (2%)	6 (12%)
Incision extended	1 (2%)	12 (24%)
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

P=0.000

At operation there was more incision extension (24%), bladder advancement (16%), thinned out lower uterine segment (12%) among Emergency cesarean group as compared with 2%, 2%, 2% respectively among Elective cesarean group. The difference was statistically significant (P<0.05).

**Table 7:** Neonatal outcome in relation to type of LSCS

Neonatal outcome	Elective	Emergency
Live	50 (100%)	44 (88%)
Dead	-	3 (6%)
Still born	-	3 (6%)
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

There were 44 (88%) live babies in Emergency group as against 50 (100%) live births in Elective group. There was 3 (6%) still births and 3 (6%) dead babies in

**Table 10:** Incidence of post op complications in patients with elective and emergency caesarean section

Type of CS	Blood transfusion	Febrile illness	Prolonged catheterization	Wound infection
Elective	8 (16%)	6 (12%)	4 (8%)	1 (2%)
Emergency	17 (34%)	24 (48%)	9 (18%)	3 (6%)
P value	0.038**	0.000**	0.137	0.307

**Table 11:** Mean duration of hospital stay in elective and emergency caesarean section cases

	Elective	Emergency
Mean $\pm$ SD	8.9 $\pm$ 1.50	10.1 $\pm$ 3.5
<b>P value</b>	<b>0.035**</b>	

Statistically significant difference was seen in emergency group in requirement of blood transfusion (P<0.05) and Febrile illness (P<0.05). The mean duration of Hospital stay in Elective group was 8.9 $\pm$ 1.5 days and 10.1 $\pm$ 3.5 in Emergency group. The difference was statistically significant (P<0.05).

## DISCUSSION

Caesarean section (CS) is a safe obstetric surgical procedure but also carries considerable disadvantages when compared with normal vaginal delivery. This is not only in terms of the pain and trauma of an abdominal operation, but also because of the complications that may be associated with it. CS is also expensive, because of the cost of the operation itself, as well as the longer

Emergency cesarean group. There is statistically significant association between outcome and type of operation (P<0.05).

**Table 8:** Apgar scores At 1 and 5 min In babies delivered by elective and emergency section

Apgar score at 1 and 5 min	Elective	Emergency
3 and 5	1 (2%)	9 (18%)
5 and 7	6 (12%)	24 (48%)
7 and 9	43 (86%)	11 (22%)
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

P=0.000\*\*

**Table 9:** Incidence of NICU admission in relation to type of LSCS

NICU Admission	Elective	Emergency
No	39 (78%)	17 (34%)
Yes	11 (22%)	29 (63%)
<b>Total</b>	<b>50 (100%)</b>	<b>50 (100%)</b>

The Apgar score at 1 and 5 min was generally much lower in Emergency cesarean group. 18% of them had scores of 3 and 5, 48% of 5 and 7 and 22% had 7 and 9 as compared to 2%, 12% and 86% respectively in Elective cesarean group. The difference was statistically significant (P<0.05) and as also in terms of neonatal admission (P<0.05).

postpartum stay in the hospital that is required of the newly delivered mother. It is generally accepted that a planned operation often does better in terms of morbidity than one performed as an emergency<sup>4</sup>. Yet in spite of all attempts to electively deliver patients by caesarean section when this is indicated, many times this has to be carried out as an emergency, for reasons beyond the control of the attendant. It is uncommon, but therefore essential, to compare the outcome of the deliveries in both situations. Majority of patients (84%) in Emergency Caesarean Group were younger age group of 18-25yr as observed by Al Nuiam *et al* where in his study younger age group (<25yr) constituted 28.6%<sup>4</sup>. The increased frequency of Emergency caesarean delivery may indicate the tendency of obstetrician to allow vaginal deliveries in younger patients as long as this is feasible, with a view to preserve their future reproductive performances and only resorting to caesarean delivery when there is a threat of danger to either patient or her baby. In our study, majority of primigravida (74%) were in referral cases undergoing Emergency caesarean delivery, this is in consistent with

Limaye *et al* study where maximum no of referred cases where primigravida (44.8%)<sup>5</sup>. The association between low parity and Emergency caesarean was statistically significant as also seen in Al Nuiam *et al*<sup>4</sup>. As also in a study by Kambo *et al* it was seen that 42.4% were primigravida in which 31% were from rural areas and 20% were referred<sup>3</sup>. Current level of antenatal care is 70 % in our contentment area, however there were 44% of unbooked cases in Emergency caesarean group as compared to 4 % in Elective group. As observed by Limaye *et al* the rate of caesarean delivery was 6 times higher in referred cases as compared to booked cases, the reason being lack of proper antenatal and intranatal care<sup>5</sup>. The commonest indication for Elective caesarean section was previous caesarean section (36%) and obstructed labour (34%) in Emergency caesarean group. Al Nuiam *et al* also reported previous caesarean (69.5%) as commonest indication in Elective group, where as failure to progress (41.5%) accounted for highest number of cases in Emergency group<sup>4</sup>. As in Gasparovic *et al* study-commonest indication for Elective caesarean delivery was previous caesarean section, pre eclampsia and APH constituted the frequent indication for Emergency caesarean delivery<sup>6</sup>. Our institution is a referral centre and we get lot of referred cases from peripheral health centres. Since our study group mainly constituted the rural referrals, obstructed labour was the commonest indication. 6 cases (12%) in emergency caesarean group had invert T incision; the high incidence of T shaped incision may be due to difficulty in delivering impacted fetal head in obstructed labour cases. As observed by Cebeku L *et al*, 31% of cases had difficulty in delivery of the baby (P<0. 001) as compared to none in control group i. e elective caesarean group<sup>7</sup>. The intra op complications encountered in emergency caesarean tend to more of extended incision, thin lower uterine segment, bladder advancement and hemorrhage. Cebeku L reported significant Intra op difficulties like fetal head impaction in almost one third of caesarean delivery and greater blood loss<sup>7</sup>. Al Nuiam *et al* reported hemorrhage (4.7%) and uterine incision extension (1.2%) in emergency caesarean group<sup>4</sup>. There was greater incidence of post operative pyrexia, need for blood transfusion in Emergency caesarean group as compared to Elective group<sup>8</sup> which is in consistent with other studies. When analysed for Apgar scores in Emergency caesarean group, AS at 1 and 5 min was lesser (3 and 5, 5 and 7) as compared to elective caesarean group (7 and 9), as found in Gasparovic *et al*<sup>6</sup>. Al Nuim *et al* showed Apgar score at 5min to be less favourable in emergency caesarean group, than elective caesarean group<sup>4</sup>. There were more neonatal admissions in the emergency group; Neonates in elective caesarean group had less frequent asphyxia and

less frequent resuscitation than in emergency caesarean group as reported by Onkapa B<sup>9</sup>. The perinatal mortality rate in our study was 14 %, as compared to 21.7% and 11 % in other studies. Obstructed labour accounted for 6% of deaths as against 9.6% found in Rabindranath saho study<sup>10</sup>. The mean duration of hospital stay in emergency group was 10±3.5 and 8.9±1.5 in elective group with a statistically significant difference. This however increased the misery and financial burden to the under privileged in the rural set up.

## CONCLUSION

Childbirth is a normal physiological process but emergencies can arise anytime. The present study has shown that improper intranatal, an emergency care for a pregnant women being responsible for most of the referral cases undergoing caesarean section on emergency which caused increased maternal morbidity and perinatal deaths in our institution. Those who need caesarean, should get one under optimum conditions and the others get appropriate care through labour to minimize morbidity. Essential standards to be set, not only for service delivery but also its management and supervision. Every effort should be made in the antenatal clinic to pick up the cases that are likely to result in difficult labour, such as large babies, small pelvis, previous obstetric history etc, that may indicate the need for caesarean delivery, in order to reduce the incidence of failed labour that will end up in emergency caesarean delivery. Universal antenatal care, early detection of obstetric problems and timely referral to appropriate level of health care, immediate and effective to such high risk cases at referral centres would certainly help in reducing perinatal mortality<sup>11</sup>.

## REFERENCES

1. Akolekar R, Pandit S N, Rao. B.S., The cesarean Birth FOGSI publications, 1<sup>st</sup> Edn., National Book Depot, reprint 2010; p. 1-3.
2. Cunningham F G, Leveno K J, Bloom S L, Hauth J C, Rouse D J, Spong C Y. Cesarean delivery and peripartum hysterectomy. Williams Obstetrics. 23<sup>rd</sup> edition. Mc Graw Hill 2010; 544-555.
3. Kambo I, Bedi N, Dhillon B S, Saxena N C. A Critical Appraisal of Cesarean section rates at teaching hospital in India. International Journal Gynecol and obstet 2002; 79: 151-158.
4. Nuiam L A, Soltan M H, Khashoggi T, Addar M, Chowdhury N, Adelusi B A. Outcome in elective and emergency cesarean sections: A comparative study. Annals of Saudi medicine 1996; 16 (6): 645-649.
5. Limaye H R, Ghadialli M V. Maternal and fetal outcome in obstetric emergency cases referred from rural area and recommendations to improve it. Journal of obstet and gynec of India 1982; 32: 520-529.

6. Gasparovic VE, Pulanic TK, Peter B. Maternal and fetal outcome in elective v/s emergency cesarean section in a developing country, coll. Antropol ; 30 (2006) 1 : 113-118.
7. Cebeku L, Buchmann EJ. Complications associated with cesarean section in second stage of labor. Int J Obstet Gynecol; 2006; 95: 110-114.
8. Neilson TF, Hokegard KH. Post operative cesarean section morbidity. A prospective study. Am J Obstet Gynecol vol 146, no 8 ; 1983 : 911-915.
9. Onkapa B, Ekele B. Fetal outcome following cesarean section in a university teaching hospital. J of National Medical Association, vol 101(6) ; 1999:
10. Sahoo R, Chakladar BK. A Profile of maternity cases admitted in rural maternity and child welfare centres. J Obstet Gynecol India; 1992; 42(1) : 132-138.
11. Gaddi SS, Seetharam S. Study of PMR in Head quarters hospital bellary. J Obstet Gynecol India; 2001 vol 51 (6): 101-103.

Source of Support: None Declared  
Conflict of Interest: None Declared