



## COMPARISON OF FETO MATERNAL OUTCOME BETWEEN FIRST AND SECOND STAGE CESAREAN SECTIONS IN RURAL TERTIARY HOSPITAL

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### ABSTRACT

**Aim:** To determine maternal and neonatal outcome associated with cesarean section done in women at term in second stage of Labour, and to compare them with outcomes of first stage cesarean section. **Materials and Methods:** A prospective observational study, comparing two groups: Group I: 60 women, who underwent cesarean section in second stage of labour and Group II: 60 women, who had cesarean section in first stage of labour. The study was done at Rajah Muthiah Medical College and Hospital, Annamalai University, Chidambaram. November - 2014 to October - 2016. **Results:** Out of 4725 deliveries, 1.26% of cesareans were performed in second stage. Group I patients had higher maternal and perinatal morbidity like uterine incision extension (25%), atonic PPH (8.3%), prolonged bladder catheterization (35%), wound infection (20%) and postpartum fever (9%) while complication in first stage sections was wound infection (5%), post partum fever (10%), blood transfusion (6.7%). There were more NICU admissions in Group I (66%) vs (40%) than in Group II. There were 3 perinatal deaths in Group I and one in Group II. Mean birth weight of babies was more in group I (2.96 kg vs 2.72kg) ( $P<0.05$ ). **Conclusion:** Second stage cesareans are associated with significant intra-operative and neonatal morbidity higher birth weight is a risk factor for cesarean section in second stage of labour.

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### INTRODUCTION

Decision making surrounding cesarean section in the second stage of labour is one of the greatest challenges in current obstetric practice.

The rates of cesarean sections have risen steadily in the past two decades and may be associated with a disproportionate rise in second stage of cesarean section due to a decline in the use of instrumental deliveries. Cesarean section at full cervical dilatation with an impacted foetal head can be technically difficult and is associated with increased trauma to the lower uterine segment and adjacent structures, as well as increased haemorrhage and infection. When compared with cesarean deliveries in the first stage of labour, cesarean deliveries in the second stage have been associated with longer surgery time, increased postoperative fever, maternal intraoperative trauma and composite maternal morbidity.

This study was carried out to determine the maternal and neonatal outcome associated with cesarean section in the second stage of labour and compare it with outcome in women undergoing cesarean delivery in first stage of labour.

### MATERIALS AND METHODS

This was a prospective observational study of a cesarean sections performed between the months of November 2014 October 2016 done in Department of Obstetrics and Gynaecology at Rajah Muthiah Medical College and Hospital, Annamalai University, Chidambaram. This study compared cesarean sections done in the second stage of labour (Cases, Group I) with cesarean sections in the first stage of labour (Controls, Group II).

During this study period, there were 4725 deliveries, including 3071 cesarean sections. Of 2600 emergency

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cesarean sections, 60 were performed in second stage of labour, Inclusion criteria for the study, was singleton live pregnancy of 37 weeks or more gestation. Women with previous cesarean section were excluded.

Information was collected in structured format and included demographic data, relevant obstetric data, indications for cesarean section and intrapartum complications associated with cesarean section. Any complications in the mother and the baby that developed post operatively were also noted.

Maternal morbidity outcome variables included need for blood transfusions, intra operative trauma [laceration of the uterine artery, laceration of bladder or extension of uterine incision etc, post partum haemorrhage, puerperal fever, wound infection, wound dehiscence. Neonatal morbidity variables included 5 minute APGAR score <4, asphyxia, neonatal death; and need for NICU admissions, meconium aspiration syndrome.

Differences in the outcome, frequencies between the cases and controls were analysed using mean and rate and P values of less than 0.05 were accepted as indicating statistical significance.

## RESULTS

During the study period, there were 4725 deliveries, with an overall cesarean delivery rate of 64.99%. Of these 55.02 % were emergency cesarean deliveries. There were 60 second stage cesarean sections. The rate of second stage cesarean section was 1.26%. Obstructed labour and fetal distress were the most common indications for second stage sections (45%) and (40%). Fetal distress and cephalo pelvic disproportion were the most common indication in the first stage cesarean section 58.8% and 33.3% respectively.

**Table 1** Socio demographic profile in mother undergoing cesarean section in second stage and first stage of labour

Variable	Second stage	First stage
<b>Age (Years)</b>		
Under 20	5 (8.3%)	9 (15%)
21-30	45(75%)	46(76.7%)
30-40	10 (16.7%)	5(8.3%)
<b>Parity</b>		
Primigravida	49 (81.7%)	46 (76.7%)
Multigravida	11(18.3%)	14 (23%)

Table I shows the demographic data of the mother in both the groups. Most of the women undergoing cesarean sections were primigravida (81.7%) belonging to age group of 21 to 30 years (75%).

**Table 2** Comparison of maternal outcome among women undergoing cesarean section in second stage of labour with first stage of cesarean section

Maternal Morbidity	Second stage (Group I)	First stage (Group II)	P value
Extension of uterine incision	15(25%)	0	<0.001
Atonic PPH (medical management)	5(8.3%)	0	0.002
Post Partum Fever	9(15%)	6(10%)	0.408
Wound infection	12(20%)	3(5%)	0.013
Prolonged bladder catheterisation	21(35%)	0	<0.001
Blood transfusion	8(13%)	4(6.7%)	0.224
Deeply impacted fetal head	26(43%)	0	<0.001

Table 2 shows the maternal outcome among women undergoing cesarean section in the second stage of labour with first stage of labour. The maternal morbidity was more in women undergoing second stage cesarean section Morbidity included extension of uterine incision in 15(25%) cases, post partum haemorrhage in 5(8%) cases, post partum fever in 9(15%) cases, wound infection in 12(20%) cases, prolonged bladder catheterization in 21 (35%) cases, need for blood transfusion in 8(13%) cases. There were 5 cases of postpartum haemorrhage in Group I, controlled by medical management using oxytocics. In Group II there was no case of postpartum haemorrhage. There were no cases of extension of uterine incision, post partum fever. 6 cases (10%) wound infection, 3(5%) prolonged catheterisations blood transfusion 4(6.7%) in Group II. There was statistically significant difference in prolonged catheterizations, wound infection, prolonged hospital stay between second stage and first stage cesarean sections.

Neonatal outcome among the two groups is shown in table 3. There were 3 perinatal deaths (5%) and 40 neonatal admissions (66%) in group I, while there were one death in group II and 24(40%) neonatal admissions in group II. There was statistically significant difference in APGAR score <4 at 5 minutes, birth asphyxia, NICU admissions, need for resuscitation, between second stage cesareans compared with first stage cesarean sections.

**Table 3** Comparison of neonatal outcome among women undergoing section at second stage of labour with first stage of labour

Neonatal morbidity	Second stage (Group I)	First stage (Group II)	P value
APGAR Score <4 at 5 minutes	11(18.3%)	1(1.7%)	0.002
Meconium aspiration syndrome	12(20%)	8(13.3%)	0.327
NICU admissions	40(66%)	24(40%)	0.003
Resuscitation with bag and mask	6(10%)	0	0.012
Birth asphyxia	16(26%)	0	<0.001
Neonatal death	3(5%)	1(1.7%)	0.309

## DISCUSSION

Recent data from Nova Scotia suggests that cesarean delivery in labour is associated with increased maternal morbidity compared with cesarean delivery with no labour. The second stage interventions are associated with increased maternal and neonatal morbidity and mortality. Our hospital is a major referral hospital and majority of patients were unbooked and were referred late from different hospitals after getting failed trial of labour or being mismanaged in labour.

In our study, second stage cesareans were more in primigravida, more common among the age group of 21-30 years. In the study by Shah la Baloch and colleagues, primigravida and para 5 and above, both needed more frequent second stage intervention, and most of the women who need second stage intervention were between 21-30 years,

The frequency of second stage intervention in the form of instrumental vaginal delivery and cesarean section was found high in primigravidas. This could be due to high rate of mismanagement and cephalo pelvic disproportion,

rigid perineum, and lack of experience of previous labour in this group of women. Increase in the rate of primary cesarean section is known to be a consequence of changes in maternal characteristics and obstetric practice, such as increase in maternal age, weight, weight gain during pregnancy, labour induction rates and associated with use of epidural anaesthesia.

Estimated blood loss, blood stained urine, post partum fever, post partum haemorrhage were greater in the second stage cesarean section group. In our study, there were 5 cases of postpartum haemorrhage, 21 cases of prolonged bladder catheterisation, 8 cases of blood transfusion. In study by Moodley and colleagues, there were 3 cases of postpartum haemorrhage, 8 cases of prolonged catheterisation, 7 cases of blood transfusion.

Cebekulu and Buchmann from Johannesburg, South Africa, reporting on 39 cases and 39 controls, found that second stage cesarean section were associated with more post operative fever, a significantly greater number of neonatal complications and a significantly greater operative time. They reported that in one-third of women in their study, the foetal head was deeply impacted in the pelvis. The deeply impacted fetal head was found in 34% of cases in our study.

Neonatal morbidity was significant in our study, with almost half of the infants requiring NICU admissions. Intraoperative foetal hypoxia was therefore the most common and serious complication associated with second stage cesarean sections. The higher fetal morbidity could be because of prolonged labour and manipulation by different birth attendants before coming to our hospital. Sheiner F *et al* have demonstrated lower APGAR scores with cesarean in first stage of labour, while Murphy DJ and colleagues, demonstrated higher risk of trauma with cesarean section in labour. Garret K *et al*, in their study found no difference in APGAR score of new born delivered with cesarean section in second stage.

## CONCLUSION

Second stage cesarean sections are associated with significant intraoperative and neonatal morbidity. Higher birth weight of 2.9kg or more is a risk factor for cesarean section in second stage of labour. Labour monitoring with partogram and early referral of high risk women, will reduce the incidence of second stage cesarean sections.

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