Original Article

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Feto-Maternal Outcome In Caesarean Sections Performed In Second Stage of Labour

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Abstract

The second stage caesarean section is associated increased maternal and foetal morbidity due to its inherent technical difficulties.

This was a prospective observational study of 25 cases of caesarean sections done in second stage of labour in Teaching Hospital Batticaloa, Sri Lanka. The main aim of the study was to identify the maternal and perinatal outcomes of second stage caesarean sections. The findings of this study will help for auditing of current practices and improve the standards of care.

Blood stained urine was the major complication observed in 60% of patients followed by difficulty in extraction of the baby in 48%. The lower uterine segment tear and angle extension were observed in 12% of patients; PPH and Broad ligament hematoma were noted in one in each patient.

Mean duration of hospital stay is 2.28 days. Longer duration was 5 days as she underwent total abdominal hysterectomy due to extensive uterine tears during caesarean section.

All the babies had APGAR score of more than 7 at 5 minutes. Nearly 20% (n=5) of the babies were admitted to PBU, among them one required neonatal resuscitation at birth and two received IV antibiotics for possible sepsis. There were no maternal and neonatal mortality reported in this study.

Key words

Second stage caesarean section, Feto-maternal outcome, maternal complications, neonatal complications

Introduction

Worldwide nearly 10-20% of deliveries require intervention which is frequently cesarean section1. It is the most commonly performed major abdominal surgery in women all over the world.(2,3)

Caesarean sections are effective in saving maternal and infant lives, when they are performed for medically indicated reasons. If the caesarean section rates are higher than 10% they are not associated with reductions in maternal and new-born mortality rates. (4, 5)

However, in the present context, caesarean section rates for non-obstetric indications are rising. It can be attributed mainly to increasing maternal age, increased number of multiple births, and higher rates of obesity among women. The fear of labour pain, fear of medical litigation and the belief of caesarean sections prevents trauma and damage to the pelvic floor and less traumatic to the baby are also considered as reasons for the caesarian section.

According to the Royal College of Obstetricians and Gynecologists audit figures, about 35% of caesareans for singleton pregnancies are performed following failure to progress in labour, of which a quarter occur at full cervical dilatation.(6)

Second stage of labor lasts between full cervical dilatation and the fetal delivery. In the past the duration of second stage of labor was limited to < 2 hours.(7, 8) Recently it is extended up-to three hours with regional anaesthesia.(9)

When an intervention is needed in the second stage of labour to facilitate delivery of the fetus, it is usually in the form of assisted vaginal delivery.(10) However, a drop in the rates of operative vaginal

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delivery has been noted with a corresponding rise in the cesarean deliveries during second stage of labor.(11)

A great deal of technical difficulty is faced during the second stage cesarean due to engagement of the fetal head and is the main reason for the associated increased maternal and fetal morbidity.(12, 13)

Allen et al found that maternal operative trauma and perinatal asphyxia were significantly increased in women undergoing caesarean section at full cervical dilatation compared to caesarean section at less than full dilatation.(14)

Moreover, maternal morbidity may be higher when a caesarean section is done during the second stage of labour, as it is more difficult, especially in cases of malposition (such as in the occipito-posterior position), cephalopelvic disproportion (CPD) or after attempted instrumental delivery. The major maternal risks that lead to increased maternal morbidity and mortality during second stage caesarean sections are major haemorrhage, trauma to the surrounding structures (such as the bladder, bowel and urethra), lacerations of the lower segment and involvement of the broad ligament. The second stage caesareans increase the maternal risks such as extension tears of the uterine angle leading to broad ligament haematoma, major obstetric haemorrhage, longer hospital stay and greater risk of bladder trauma.(14) An increase in neonatal mortality and morbidity is mainly due to hypoxia and fetal trauma.(15, 16)

Methodology

This is a prospective observational study of 25 cases of cesarean sections done in second stage of labour in Teaching Hospital Batticaloa, Sri Lanka from June - October 2019. This study was approved by Institutional ethics committee.

Data regarding the factors influencing maternal and perinatal outcomes during second stage caesarean sections and the associated maternal and perinatal morbidities were collected using a data sheet.

In this study, the onset of labor was defined as the initiation of regular painful uterine contractions. The second stage of labor was defined as the period of time from full cervical dilatation (10cm) to delivery.

The following inclusion criteria were used: Singleton pregnancy irrespective of parity, Period of gestation of >37 weeks, Cephalic presentation and With/without previous LSCS. The medical conditions complicated pregnancies were excluded from the study.

Results

There were total 1912 deliveries during the study period. Among them 637 (30%) cesarean sections were performed including the 25 cases (3.9%) of the second stage LSCS.

The mean age of the patients who underwent cesarean in the second stage was 25.78 year. Among these 25 patients, 15 (60%) were primi gravida and 10 (40%) were multi gravida. The gestational age ranged between 38-40 weeks in nearly 56% and above 40 weeks in 40% patients with only 4% less than 38 weeks (Table 1).

Table 1 Maternal Characteristics

Parity	**Number**	**Percentage**
Primi	15	60%
Multi	10	40%
GESTATIONAL AGE		
<38 weeks	01	4%
38-40 weeks	14	56%
>40 weeks	10	40%

Most common fetal position was the occipito – anterior position (n=17, 68%); Seven (28%) were in occipito-posterior position. Only one (4%) fetus was in occipito-transverse position. (Table 2)

Table 2 Fetal positions during caesarean section

Position of foetus	**Number**	**Percentage**
Occipito - anterior	17	68%
Occipito - posterior	07	28%
Occipito - tranverse	01	4%

All the second stage cesarean sections were performed due to delayed second stage. No

particular causes for the delay were noted in this study. Either vacuum or forceps were attempted and failed in 48% (n=13) of patients. Rest 52% (n-12), instrumental delivery was not attempted.

In three deliveries the operator attempted digital rotation to rotate the fetus from occipito-posterior to occipito-anterior position during section. Except in one case, all the other cases, experienced obstetrician was present and the caesarian section was supervised by them.

Blood stained urine was the major complication observed in 60% (n=15) of patients followed by difficulty in extraction of the baby in 48% (n=12) of deliveries. The lower uterine segment tear and angle extension were observed in 12% (n=3) of patients. Second stage cesareans are associated with increased risk of PPH but only one patient had PPH in our study. Broad ligament hematoma was also observed only in 1 patient.

Mean duration of hospital stay is 2.28 days. Longer duration was 5 days as she underwent total abdominal hysterectomy due to uterine tears during the surgery. There were no other complications happened to them during caesarian section and no maternal mortality in the present study (Table 3).

Table 3 Maternal morbidities

Complication encountered	Number of patients	Percentage
LUS tear, angle extension	03	12%
Broad ligament hematoma	01	4%
PPH	01	4%
Extraction difficulty	12	48%
Bladder damage	00	00
Blood stained urine	15	60%
Post-operative fever	00	00
Wound sepsis	00	00
Ureteric damage	01	4%

Among the 26 babies born 12 (48%) were female and 13 (52%) were male babies. The majority of the babies' weights were within the normal range (2500g-3500). Number of babies with birth weight >3.5 kg is 4 (16%); among those 5 (20%) babies had neonatal complications following caesarian section in second stage labour. Meconium stained amniotic fluid was present in 28% of the cases (n=7) (Table 4).

All the babies had APGAR score of more than 7 at 5 minutes. 20% (n=5) of babies were admitted to PBU, among them one required neonatal resuscitation at birth and two received IV antibiotics. There was no neonatal mortality in the present study.

Table 4 Neonatal outcomes

Sex of baby	Number	Percentage
Male	13	52%
Female	12	48%
Birth weight of Baby (g)		
1500-2500	01	4%
2500-3500	20	80%
>3500	04	16%
Meconium stained liquor		
Yes	07	28%
No	18	72%
Any neonatal complication		
Yes	05	20%
No	20	80%

Discussion

Delayed second stage was the only indication for the caesarian section in this study. Specific causes for the delay were not studied and no fetal distress was noted. But the other related studies show, deep transverse arrest was the most common indication (38.46%) for cesarean section in second stage of labor.(17) The study conducted by Jonna Malathi and Venigalla Sunita had the rate of second stage cesarean section 4.1%. In the same study deep, transverse arrest was the second most common indication (22%) for cesarean section in the second stage.

In this study, the mean age of patients who underwent cesarean in the second stage was 25.78 years. Among these, the percentage of primi gravida (57.6%) is slightly higher than multi gravida (42.4%). These results are somewhat similar to the study conducted in rural medical college, Adichunchangiri institute of medical sciences (primi was 61.53%) and study by Shahla Baloch et al.(10) The higher frequency

of second stage cesareans in primi gravidas could be cephalopelvic disproportion, rigid perineum and lack of experience of previous labour.(17)

In this study, the gestational age ranged between 38-40 weeks in nearly 56% and above 40 weeks in 40% patients with only 4% less than 38 weeks.

In a study on frequency of second stage interventions and it`s outcome in relation with instrumental vaginal delivery by Shahla Baloch et al.10 48% were attempted either vacuum or forceps and failed before deciding on caesarean section. Probably due to less skill in operative vaginal delivery and concerns over maternal and neonatal morbidity associated with difficult or failed instrumental delivery.(18)

Blood stained urine (60%) the most common maternal complication seen in the present study, probably due to bladder congestion, oedema and obstruction. This may also be due to unrecognized bladder mucosal damage without complete bladder wall damage. It is similar (76.2%) to the study done in the department of Obstetrics and Gynaecology in a tertiary care Hospital, Bangalore, Karnataka, India. It is followed by difficulty in extraction of the baby (n=12, 48%). Other complications are rare occurrence in our study though they were some of the common problems in other studies such as study done by Malathi and Sunita.(17) and Shahla B.(10)

Mean duration of hospital stay in our present study is 2.28 days. This is much lesser than the study done by Jyoti Jayaram et al. In their study, longer hospital stay is one of the complications and the mean duration being 8.9 days.(24)

The cesarean section performed in second stage of labor was technically difficult because fetal head was engaged in the pelvis, uterine muscles were thin & tense and the identification of the bladder and lower segment was difficult.

Neonatal morbidity was not much significant in the present study. The majority of the babies weigh between 2.5 kg to 3.5 kg. Meconium stained amniotic fluid was present in 28% cases. There were controversies regarding the fetal outcome in the cases of caesarean sections in second stage of labour. Study by Asicioglu.(19) Malathi.(17) etc. had proved adverse prognostic impact on foetal outcome. But many studies like Allen et al, Alexander.(20), Selo-Ojeme.(21) etc. including the current study failed to demonstrate an increased foetal complication.

In this study. five neonates (20%) were admitted to the neonatal unit. Among them only one neonate required neonatal resuscitation as the baby was found floppy at birth and two were given with prophylactic antibiotics. This is less when compared to the studies by Sandya MR et al.(22) and by Unterscheider J.(23) where the PBU admission rate was above 30%.

This study showed that either vacuum or forceps were attempted and failed in 48% (n=13) of patients. This figure is similar to the audit results of the Royal College of Obstetricians and Gynecologists in UK. It showed that about 35% of caesareans for singleton pregnancies were performed because of failure to progress in labour, of which a quarter occur at full cervical dilatation. In 55% of these cases no attempt was made to achieve a vaginal birth with either forceps or ventouse. In those births where instrumental delivery was attempted, the audit noted a "failed" rate of 35% for ventouse and 2% for forceps.(6)

There is a worrying rise in the overall rate of caesarean section at full dilatation. Better training in instrumental delivery may reduce rates of second stage caesarean section. Audit of the second stage caesarean section rate is a useful measure of clinical standards. Strategies for improved care include increased consultant assessment of the patient, more supervision and training of junior obstetric staff by consultant to ensure safe intrapartum care.

Conclusion

The choice between a difficult caesarean section in second stage of labour and instrumental delivery is challenging. Although second stage caesarean section is sometimes appropriate, many could be prevented by the attendance of a more skilled obstetrician. The involvement of senior obstetrician is desired during the process of decision making. Better training in instrumental delivery may reduce rates of second caesarian sections.

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