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Complications of caesarean section during second stage of labor in a tertiary care hospital

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Abstract
Background: Lack of training and supervision for junior doctors in second stage decision-making, loss of technique related with difficult-assisted delivery [2] and concerns associated to maternal and neonatal morbidity might have contributed to this disturbing trend. The increased maternal as well as foetal complications are related with the second stage caesarean section.
Materials and methods: This is a retrospective study that assessed all caesarean sections performed at full cervical dilatation over the time period of three year at a private hospital. Caesarean section cases were identified through data log of the operating theatre. Record of labor and operation reports, were reviewed for all CS cases over the study period. Women with a singleton foetus in cephalic presentation at term (≥37 weeks) who underwent CS at full dilatation were included in the study.
Results: Table-1 summarizes maternal operative complications in second stage labor and table 2 outlines the perinatal complications. Operative complications associated with emergency CS in second stage of labor. Mean weight of the babies of the second stage caesarean section was 3.5 kg. 3.5% babies were admitted to the Neonatal Intensive Care Unit and 14% to neonatal nursery for management of respiratory distress, sepsis, jaundice, and observation. 3% babies were delivered by breech extraction at CS due to difficulty in delivering the deeply impacted fetal head.
Conclusion: Cesarean section in full cervical dilation is an undesirable situation which is associated with maternal and fetal complications. This can be avoided by careful judgement for cephalopelvic disproportion, attendance of skilled health care provider during the time of labor and deliveries and implementation of effective instrumental delivery for a better fetomaternal outcome. The focus should be on ensuring normal progression of labor, proper use of the pain relief measures, oxytocin augmentation and the promotion of effective pushing techniques.

Keywords: Uterine Incision Extension**,** Neonatal Morbidity, Neonatal Jaundice, Apgar score

Introduction
The most commonly performed major abdominal surgery in women is Caesarean section(C-section). There is an alarming rise in Caesarean section that lead to the increased adverse outcomes for mother as well as foetus when compared with vaginal delivery [1]. There is a significant increase in the rate of second stage caesarean section [2]. The prevalence rate of instrumental delivery has been decline recently [1]. Lack of training and supervision for junior staff in second stage decision-making, loss of technique related with difficult-assisted delivery [2] and concerns associated to maternal and neonatal morbidity might have contributed to this disturbing trend. The increased maternal as well as fetal complications are related with the second stage caesarean section due to the difficulty in the technique to perform deeply impacted fetal head in the pelvis as well as the presence of thinned out edematous lower segment [3]. The objective of this study is to evaluate the complications related with the the second stage cesarean deliveries.

Materials and methods
This is a retrospective study that assessed all caesarean sections performed at full cervical dilatation over the time period of three year at a private hospital. Caesarean section cases were identified through data log of the operating theatre. Record of labor and operation reports, were reviewed for all CS cases over the study period. Women with a singleton fetus in cephalic presentation at term (≥37 weeks) who underwent CS at full dilatation were included in the study while the multigravida with comorbid conditions like diabetes and preeclampsia were excluded from the study. Indications, instrumentation before caesarean section, intra operative

Complications like haemorrhage, uterine incision extension, atonic post-partum haemorrhage (PPH), postoperative complications like febrile illness, wound infection and neonatal morbidity and mortality were evaluated. Data analysis was done using SPSS version 17. The ethical approval was obtained from the review committee.

Results

Table 1 summarises the maternal operative complications and table 2 outlines the perinatal complications. Operative complications were associated with emergency CS in second stage of labor. Mean weight of the babies of the second stage caesarean section was 3.5 kg. 3.5% babies were admitted to the Neonatal Intensive Care Unit and 14% to neonatal nursery for management of respiratory distress, sepsis, jaundice, and observation. 3% babies were delivered by breech extraction at CS due to difficulty in delivering the deeply impacted fetal head. Of the study population, 71.7% second stage CS was operated by senior gynaecologists and 28.2% by junior gynaecologists. There were no significant differences in the operating time, incidence of extensions, febrile morbidity, duration of hospital stay and adverse fetal outcome in the surgeries done by medical officers when compared to the obstetricians.

Table 1: Maternal Complications

Maternal Complications	Number	Percentage
Atonic PPH	10	6.66%
Uterine incision extension	16	10.66%
Postoperative fever	29	19.33%
Wound infection requiring resuturing	5	3.33%

Table 2: Fetal and New Born Complications

Perinatal complications		Number	Percentage
Meconium stained liquor		50	33.33%
Admission to nursery		21	14.00%
NICU admission		6	4.00%
Neonatal jaundice		15	10.00%
Cephalhematoma		1	0.66%
Apgar score <7 at 5	min	12	8.00%
Fresh still birth		1	0.66%

Discussion

The literature 2, 4 shows that within a rising CS rate, there is an increasing trend to perform CS at full cervical dilatation. Concerns over neonatal and maternal morbidity associated with difficult or failed instrumental delivery added to this trend [2]. The overall CS rate was higher than international rates [2, 4] might be because it was a referral centre where high-risk patients are referred, mostly for operative deliveries. Our rates of CS at full cervical dilatation are lower than other published cohorts [4]. The lower rate may be explained by more women not reaching full dilatation because of an arrest in the first stage of labor or unsuccessful induction of labor.

Caesarean section in the second stage of labor is a difficult operation with distortion of pelvic anatomy and the fetal head which is often deeply impacted in the maternal pelvis. Women delivered by CS at full dilation have a higher risk of obstetric haemorrhage, bladder injury, extended uterine tear leading to broad ligament hematoma, infection and longer hospital stay [3].

A study from Canada has mentioned that women delivered by Caesarean sections at full dilatation of the cervix were 2.6 times likely to have intraoperative traumatic complications [3]. In the present study uterine incision extension was seen in 12.58%, which is higher compared to the other studies [5, 6]. This might be because of the fact that the most common indication of second stage in our study was cephalopelvic disproportion with moulding formation making the delivery of the fetal head challenging. One of the most common maternal operative complications seen in the presented study was blood stained urine, febrile illness and wound infection labor. Fresh still birth and perinatal deaths were recorded 23 (4.9%) and 7 (1.5%), respectively in a study [7]. while we had only 1 fresh stillbirth and one early neonatal death. Similarly, the same study [7] reported 37 (6.6%) cases with Apgar score less than five at five minutes while only 12 (8.0%) of our babies had an Apgar score of <7 at 5 min. The limitation of this study is its retrospective nature. Therefore, any suggestions made should be taken with caution.

Conclusion

Cesarean section in full cervical dilation is an undesirable situation which is associated with maternal and fetal complications. This can be avoided by careful judgement for cephalopelvic disproportion, attendance of skilled health care provider during the time of labor and deliveries and implementation of effective instrumental delivery leads to a better fetomaternal outcome. The focus should be on ensuring normal progression of labor, proper use of the pain relief measures, oxytocin augmentation and the promotion of effective pushing techniques.

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