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Original Research Article

Operative difficulties in second stage caesarean section: an obstetrician's nightmare

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ABSTRACT

Background: By definition second stage caesarean section are performed in advanced labour at full cervical dilatation and usually after an unsuccessful attempt at vaginal delivery. It is an undesirable situation owing to the difficulties and fetomaternal complications related to it.
Methods: This was a prospective observational study conducted at department of obstetrics and gynaecology, B. J. Medical College and Civil Hospital Ahmedabad between April 2022 to March 2023. All the second stage caesarean section performed were included in this study and were analysed in terms of indications, intra-operative difficulties and postoperative complications along with fetal outcome. During this one-year time period there were a total 7867 deliveries. Out of which 2569 were done by caesarean section. Out of total caesarean sections 51 were performed in second stage of labour. This contributes to 0.64% of total deliveries and 1.98% of all caesarean sections. The overall incidence was 0.64%.
Results: During the study period there were a total 7867 deliveries. Out of which 2569 were done by caesarean section, out of this 51 were conducted in the second stage of labour. This contributes to 0.64% of total deliveries and 1.98% of all caesarean sections. Out of all indications the most common was non reassuring fetal heart sound. Intra-operative difficulties include extension of uterine incision (11.76%), blood transfusion was required in 19.60% of cases, 19.60% of cases had blood-tinged urine and there was bladder injury in one case. Baby was delivered by Patwardhan and modified Patwardhan method in 27.45% of cases. In post operative period 19.60% of cases were complicated by febrile illness and 11.76% by wound infection. There was total 10 NICU admissions and one perinatal mortality.
Conclusions: Caesarean section in second stage of labour is a technically difficult associated with intraoperative maternal complications and adverse neonatal outcome.

Keywords: Non progression of labor, Patwardhan method, Second stage caesarean section

INTRODUCTION

By definition second stage caesarean section is defined as caesarean section performed at full cervical dilatation and this is performed usually after unsuccessful attempt at vaginal delivery. The incidence of caesarean section has risen steadily in last two decades, with this CS in second stage has also rise. According to the Royal College of Obstetricians and Gynecologists (RCOG), 6% of primary CS occur at full cervical dilatation.[1] One of the common indications of emergency caesarean section in second stage is non progression of labor which is indicated by non-descent of head. Normal progression of labor requires inspection of three P's (power, passage and passenger). Non progression of labor is considered when second stage exceeds 3 hours of pushing in primigravida and 2 hours in multigravida.[2] Disproportion of the fetus and pelvis frequently become apparent during second stage of labor. In these situations, the head is usually in a mal-rotated position (eg: persistent occipitoposterior) and/or has a deflexed attitude. An outlet obstruction results in a failure to deliver at very last stage of vaginal delivery.

Increasing trend of caesarean section in second stage is multifactorial, along with non-progression of labor there is combination of lack of training for junior staff in second stage decision making and lack of expertise in assisted vaginal delivery.[3]

CS in second stage of labor is a technically difficult operation due to deeply impacted fetal head in maternal pelvis and the presence of thinned out edematous lower segment, and it is a nightmare for all obstetricians. It entails complications which includes bladder injury while opening up of abdomen, extension of uterine incision due to swollen and distended lower segment, postpartum haemorrhage exacerbated due to uterine stony due to prolonged labor. Sometime uterine incision may extend up to broad ligament leading to broad ligament hematoma or inadvertent extension into vagina (laproeltrotomy).[4] Difficulties are encountered during delivery of impacted fetal head, head can be delivered either by push or pull method. Patwardhan and modified Patwardhan method, vertex method and reverse breech extraction are used for delivering baby with impacted head in pull method. Operative time is increased in second stage CS complicating post operative period with febrile illness, wound infection. Babies born by caesarean section at full cervical dilatation are 1.5 times more likely to have perinatal asphyxia than those born by caesarean section during the first stage of labour.[5] Aim of this study was to review second stage caesarean section and analyse difficulties and complications associated with it.

METHODS

This was a prospective observational study conducted at department of obstetrics and gynecology, B. J. Medical College and Civil Hospital Ahmedabad between April 2022 to March 2023. All the second stage caesarean section performed were included in this study and were analysed in terms of indications, intra-operative difficulties and postoperative complications along with fetal outcome. During this one-year time period there were a total 7867 deliveries. Out of which 2569 were done by caesarean section. Out of total caesarean sections 51 were performed in second stage of labour. This contributes to 0.64% of total deliveries and 1.98% of all caesarean sections. The overall incidence was 0.64%.

RESULTS

In our study, most common indication for second-stage CS was fetal distress (43.13%) followed by arrest in the second stage of labor (either due to deflexed head 19.6% or persistent occipitoposterior position 11.76%) followed by deep transverse arrest (23.52%) and least common was unsuccessful forceps and unsuccessful ventouse (1.96%) (Table 1).

Table 1: Indications of second stage caesarean section.

Indications N= 51	Non reassuring fetal heart sound	Deep transverse arrest	Deflexed head	Persistent occipitoposterior position	Failed instrumental vaginal delivery
Number of cases	22	12	10	6	1
Percentage	43.13	23.52	19.60	11.76	1.96

Table 2: Intraoperative complications.

Intraoperative complications encountered	Number of cases N=51	Percentage
Extension of uterine incision	6	11.76
Atonic PPH	6	11.76
Blood-stained urine	10	19.60
Bladder injury	1	1.96
Blood transfusion	10	19.60

The intraoperative complications reported in our study were extension of uterine incision among 11.76%, atonic PPH among 11.76%, blood-stained urine 19.6%, bladder injury among 1.96% and blood transfusion among 19.6% cases (Table 2).

In our study group, engaged heads delivered by vertex methods were 58.82%, by Patwardhan and modified Patwardhan were 27.45% and reverse breech extraction method were 1.72% (Table 3).

Table 3: Methods used for delivering deeply engaged fetal head.

Technique for delivering deeply impacted head	Number of cases N=51	Percentage
Vertex method	30	58.82
Patwardhan and modified Patwardhan method	14	27.45
Reverse breech extraction	7	13.72
Push method	0	0

Most common postoperative complications in our study were febrile illness (19.6%), wound infection (11.76%), prolonged catheterization (11.76%) and ICU admission (3.91%) (Table 4).

Table 4: Post operative complications.

Post operative complications	number of cases N=51	Percentage
Febrile illness	10	19.60
Wound infection	6	11.76
Prolonged catheterisation	6	11.76
ICU admission	2	3.91

In our study 19.6% of babies were admitted to NICU, 19.6% of babies had APGAR score <7 at 5 minutes, 23.52% babies had neonatal hyperbilirubinemia and there was one perinatal mortality.

Table 5: Neonatal outcome.

Neonatal outcome	Number of cases	Percentage
NICU admission	10	19.60
Perinatal mortality	1	1.96
APGAR <7 at 5 minutes	10	19.60
Neonatal hyperbilirubinemia	12	23.52

DISCUSSION

During the study period there were a total 7867 deliveries. Out of which 2569 were done by caesarean section, out of this 51 were conducted in the second stage of labour. This contributes to 0.64% of total deliveries and 1.98% of all caesarean sections.

Most common indication of caesarean section at full dilatation was non reassuring fetal heart sound beacause uteroplacental blood flow is impaired in active aka perineal phase of second stage of labor, second most common cause was arrest in second stage of labor (either due to deflexed head or persistent occipitoposterior position). According to Babre et al, the most frequent signs were non-descending head, deflexed head, DTA, failed vacuum, and occipito-posterior.[6]

The most common maternal operative complications seen in our study was blood-stained urine due to advanced overstretched edematous bladder during second stage of labour and intraoperative blood transfusion due to PPH and anemia in 10 women (19.60%). 6 cases (11.76%) had extension of uterine incision during delivery of baby, this might be due to the thinned and edematous lower segment with deeply impacted fetal head. Bladder injury was seen in 1 case (1.96%) and 6 cases (11.76%) were complicated with atonic PPH which was managed medically. Similarly, in a study conducted by Khaniya et al, 20/36 patients experienced intraoperative complications. Blood-stained urine was the most common, occurring in 14 patients (33.88%), followed by uterine incision extension in five patients (13.88%).[6]

Deeply impacted head were delivered by vertex method in 30 cases (58.82%) and Patwardhan and modified Patwardhan method in 14 cases (27.45%) and reverse breech extraction in 7 cases (13.72%) unlike many other studies.

Post operative period was complicated by febrile illness in 10 cases (19.6%), wound infection in 6 cases (11.76%), prolonged catheterisation in 6 cases (11.76%) and in 2 cases (3.91%) there was ICU admission due to bladder injury and anemia. Khaniya et al reported that the maternal operative complications were hematuria (38.88%), febrile illness (27.77%), prolong catheterization (38.88%), and prolonged hospitalization (13.88%).[5,7]

Babies born by caesarean section at full cervical dilatation are 1.5 times more likely to have perinatal asphyxia than those born by caesarean section during the first stage of labour.[8-10] Out of 51 babies born, APGAR score was less than seven at five minute in 10 cases (19.60%), 10 (19.60%) were admitted to neonatal intensive care unit, out of which there was perinatal mortality in one case. A study given by Gurung et al. demonstrated Apgar score <7 at 5 minutes including 13 (9%), and fresh stillbirth involving one (0.6%).[11]

The limitations of the study mainly consisted of shorter duration of the study period and small sample size which may be overcome in future studies to highlight more prominent obstetric outcomes of second-stage CS.

CONCLUSION

Caesarean section in full cervical dilation is an undesirable situation associated with maternal and fetal complications. And it should be performed by or under observation of experienced obstetrician who can anticipate potential difficulties and pays careful attention.

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