

Assessment of Caesarean Section Complications in a Tertiary Care Hospital during the Second Stage of Labour: A Prospective Observational Study

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Conflict of interest: Nil

Abstract

Aim: To evaluate the maternal and neonatal outcome of caesarean section in second stage of labour.

Methods: This prospective observational study was carried out in the Department of Obstetrics and Gynecology, NSMCH, Amhara, Bihta, Patna, Bihar India . Total 100 patients were included into the study. All caesarean sections performed at full cervical dilatation over this time period.

Results: During the study period, a total of 2400 women delivered by caesarean section, 1700 emergency and 700 elective cases. Of these 100 (2.27%) were at full cervical dilatation, >37 weeks gestation with a singleton fetus in cephalic presentation. The commonest indications for doing caesarean section in the second stage of labour was cephalo pelvic disproportion, fetal distress and obstructed labour. Incidence of PPH was 12 out of 100 cases (12%). There were no cases of bowel or bladder injury reported. Post-operative wound infection was seen in 8(8%) and Post-operative fever was seen in 17(17%) out of 100 cases. There were no cases of maternal deaths reported. The mean operative time was 52.2 min .The mean length of hospital stays was 6.6 days. Mean weight of the babies of the second stage caesarean section was 3.5kg. 6(6%) babies were admitted to the Neonatal Intensive Care Unit and 12 (12%) to neonatal nursery for management of respiratory distress, sepsis, jaundice, and observation. 14(14%) babies had Neonatal jaundice and There were 2 neonatal deaths reported.

Conclusion: The women delivered by cesarean in second stage have a higher risk of post-partum hemorrhage, operative morbidity with visceral injury, sepsis and prolonged hospital stay. Hence it is recommended that second stage cesarean should ideally perform and supervised by an experienced obstetrician. Timely decision for cesarean section should be taken especially when risk factors for failure to progress are present and there should be good neonatology support.

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

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Introduction

Cesarean Section is the most commonly performed abdominal operation in women all over the world. [1] Recent data suggest that cesarean delivery in labour is associated with increased maternal morbidity compared with cesarean delivery with no labour. One fourth of the primary cesarean section is reported to be performed in the second stage of labour and is more complicated compared to the ones performed in the first stage. The second stage of labour is defined as the time elapsed from full dilatation of the cervix to expulsion of the fetus. More importantly, the extension of time given to the second stage of labour has been shown to increase the overall rate of vaginal births without adversely affecting neonatal morbidity. However, maternal morbidities are increased and include operative vaginal delivery, anal sphincter tears, postpartum hemorrhage and emergency cesarean sections (C/S). [2] Neonatal mortality and morbidity due to hypoxia and fetal trauma remains to be one of the major issues regarding the cesarean section performed in the second stage of labour. 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. [3] Worldwide 30-40% of deliveries require some form of intervention which is usually cesarean section. Second stage cesarean is a challenging procedure with high maternal fetal morbidity rates. There are multiple etiological factors for this increasing trend of second stage caesareans; there are pitfalls in the supervision of second stage decision making, increasing litigious issues related to maternal morbidity. Primary cesarean section has many important implications for future

pregnancies and subsequent labour and delivery. The morbidity related to a prolonged second stage is directly correlated with the incidence of extension of uterine angles and prolonged surgical time, bladder injury, and increased incidence of postpartum haemorrhage and hospital stay. [4] Studies have shown that 30 - 80% of women with one previous lower segment caesarean section can achieve vaginal delivery when trial of scar is done. [5] Offering trial of scar and subsequent vaginal delivery can contribute to reduction of the rate of caesarean section. However, the risk of uterine rupture and other morbidities associated with failed trial of the scar, remain the major concern for many practitioners. [6] The aim of this study to evaluate the maternal and neonatal outcome of caesarean section in second stage of labour.

Material and methods

This prospective observational study was carried out in the Department of Obstetrics and Gynecology, NSMCH, Amhara, Bihta, Patna, Bihar India

Methodology

Total 100 patients were included into the study. All caesarean sections performed at full cervical dilatation over the time period of one year. 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.

Results

During the study period, a total of 4400 women delivered by caesarean section, 2900 emergency and 1500 elective cases. Of these 100(2.27%) were at full cervical dilatation, >37 weeks gestation with a singleton fetus in cephalic presentation. Among the 100 patient's majority of them were in the age group of 20-30 years

(73%) . about 74% of the patients were primigravidae and only the remaining 26% were multigravida. 80% of patients from BPL socioeconomic class and 20% only from APL socioeconomic class. Majority were booked patients, only 2% was unbooked from remote areas near the district. The commonest indications for doing caesarean section in the second stage of labour was cephalo pelvic disproportion, fetal distress and obstructed labour.

Table 1: Maternal demographic features

Age	N=100	%
Below 20 years	2	2
20-30 years	73	73
30-40 years	14	14
Above 40 years	11	11
Socio economic status		
APL	20	20
BPL	80	80
Parity		
Primi	74	74
Multi	26	26
Gestational age		
37-38 weeks	39	39
38 weeks 1 day-39 weeks	44	44
39weeks 1 day -40 weeks	12	12
≥40 weeks	5	5

Table 2 Maternal complication

Maternal Complications	Number	Percentage
Atonic PPH	12	12
Uterine incision extension	15	15
Postoperative fever	17	17
Wound infection requiring resuturing	8	8
Maternal death	Nil	Nil
bowel or bladder injury	Nil	Nil
Blood transfusion required	4	4
Blood stained urine	20	20

Incidence of PPH was 12 out of 100 cases (12%) .There were no cases of bowel or bladder injury reported. Post-operative wound infection was seen in 8(8%) and Post-operative fever was seen in 17(17%) out of 100 cases. There were no cases of maternal deaths reported. The mean operative time was 52.2 min .The mean

length of hospital stays was 6.6 days. Mean weight of the babies of the second stage caesarean section was 3.5kg. 6(6%) babies were admitted to the Neonatal Intensive Care Unit and 12 (12%) to neonatal nursery for management of respiratory distress, sepsis, jaundice, and observation. 14(14%) babies had Neonatal

jaundice and There were 2 neonatal deaths reported.

Table 3 Fetal and new born complication

Perinatal complications	Number	%
Meconium stained liquor	35	35
Admission to nursery	12	12
NICU admission	6	6
Neonatal jaundice	14	14
Cephalhematoma	3	3
Apgar score <7 at 5 min	10	10
neonatal deaths	2	2
stillbirth	2	2
Respiratory distress	30	30

Discussion

The present study shows that the caesarean section performed in the second stage of labour have significantly higher maternal and neonatal morbidity. In our study among the 100 patient's majority of them were in the age group of 20-30 years (73%) . about 74% of the patients were primigravidae and only the remaining 26% were multigravida. 80% of patients from BPL socioeconomic class and 20% only from APL socioeconomic class. [7] Higher rate of second stage caesarean section in young primigravida woman was probably due to higher incidence of rigid perineum, fetopelvic disproportion and uterine inertia.

The international literature suggests that within a rising CS rate, there is an increasing trend to perform CS at full cervical dilatation. The strong medico-legal mind set in current obstetrics, and concerns over neonatal and maternal morbidity associated with difficult or failed instrumental delivery may contribute to this trend. [8] Over the 2-year study period, the overall CS rate was higher than international rates. [9,10] However, our rates of CS at full cervical dilatation are lower than other published cohorts. [10] The lower rate may be explained by more women not reaching full dilatation due to an arrest in the first stage of labor or unsuccessful induction of labor. Caesarean section in the second stage of labor is a technically difficult

operation with distortion of pelvic anatomy and the fetal head that 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 retrospective study from Canada has shown that women delivered by Caesarean sections at full dilatation of the cervix were 2.6 times likely to have intraoperative traumatic complications. [3]

In our study uterine incision extension was seen in 15%, which is slightly higher compared to the other studies. [11,12] This might be due to the fact that the most common indication of second stage in our study was cephalopelvic disproportion with major caput and moulding formation making the delivery of the fetal head challenging. The most common maternal operative complications seen in our study was blood stained urine in 20(20%), febrile illness in 15(15%), and wound infection in 8(8%) cases. Atonic postpartum haemorrhage was seen in 12(12%) cases, which is near to in the previous studies. [11,12] The use of prophylactic uterotonics in second stage Caesarean could have contributed to this decreased number. One woman returned to the operating room for management of postpartum haemorrhage. The rest of the PPH cases were managed with utero tonic drugs and utero vaginal packing.

4 (4%) of these women required blood transfusion. Controversies regarding the fetal outcome in the cases of caesarean sections in second stage of labor are seen throughout literature. Adverse prognostic impact on fetal outcome was noted in the studies conducted by Sucak [13] and Asicioglu et al. [14] However this was contradicted by other studies. [15,16] The most common fetal complication was meconium stained amniotic fluid, seen in 35(35%) cases which is comparable to other studies. [17] This might be due to intra-operative fetal hypoxia caused by strong uterine contraction, deeply impacted fetal head and longer duration of second stage labor. Neonatal Intensive Care Unit admission rate of 6(6%) and nursery admission rate of 12(12%) seen in our study is consistent with published literature. [18] This was mostly due to newborns requiring septic screening and intravenous antibiotics. Fresh still birth and perinatal deaths were recorded 23 (4.9%) and 7 (1.5%), respectively in a study. [19] while we had only 2 fresh stillbirth and 2 early neonatal death. Similarly, the same study [19] reported 37 (6.6%) cases with Apgar score less than five at five minutes while only 10 (10%) of our babies had an Apgar score of complications. It can be avoided by careful judgement for cephalopelvic disproportion, attendance of skilled health care provider during labor and deliveries and implementation of effective instrumental delivery leading to a better fetomaternal outcome. [20] The focus should be on ensuring normal progression of labor, proper use of the partogram, pain relief measures, oxytocin augmentation and the promotion of effective pushing techniques.

Conclusion

Cesarean section performed during second stage of labour is technically difficult because fetal head engagement in the maternal pelvis has already been completed and maternal uterine muscles

are very thin and tense. Additionally, identification of bladder and lower uterine segment of uterus is difficult. These factors contributing to increased duration of surgery and increased intraoperative complications. Women delivered by cesarean in second stage have a higher risk of post-partum hemorrhage, operative morbidity with visceral injury, sepsis and prolonged hospital stay. Hence it is recommended that second stage cesarean should ideally performed and supervised by an experienced obstetrician. Timely decision for cesarean section should be taken especially when risk factors for failure to progress are present and there should be good neonatology support.

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