

Original research article

A Prospective Observational Study To Assess The Complications Of Caesarean Section During Second Stage Of Labor In A Tertiary Care Hospital**Dr. Tejaswi Nandan¹, Dr. Manjul Vijay²****¹ Senior Resident, Department of Obstetrics and Gynecology, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India****² Senior Resident, Department of Paediatrics, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India****Corresponding Author: Dr. Manjul Vijay****Abstract**

Aim: 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, Anugrah Narayan Magadh Medical College and Hospital Gaya, Bihar, India for one year. Total 200 patients were included into the study. All caesarean sections performed at full cervical dilatation over this time period.

Results: Among the 200 patient's majority of them were in the age group of 20-30 years (73.5%) . about 77.5% of the patients were primigravidae and only the remaining 22.5% were multigravida. 82.5% of patients from BPL socioeconomic class and 17.5% only from APL socioeconomic class. The commonest indications for doing caesarean section in the second stage of labour were cephalo pelvic disproportion, fetal distress and obstructed labour. Incidence of PPH was 27 out of 200 cases (13.5%). Post-operative wound infection was seen in 12(6%) and Post-operative fever was seen in 32(16%) out of 200 cases. There were no cases of maternal deaths reported. The mean operative time was 51.7 min .The mean length of hospital stays was 6.8 days .Mean weight of the babies of the second stage caesarean section was 3.4kg. 11(5.5%) babies were admitted to the Neonatal Intensive Care Unit and 26 (13%) to neonatal nursery for management of respiratory distress, sepsis, jaundice, and observation.25(12.5%) babies had Neonatal jaundice and There were 2 neonatal deaths reported.

Conclusion: Caesarean sections during the second stage are increasing in prevalence and are associated with significant long-term psychological and physical maternal morbidity. **Keywords:** Uterine Incision Extension, Neonatal Morbidity, Neonatal Jaundice, Apgar score

Introduction

Caesarean section is one of the common surgical interventions to save lives of the mothers and/or the newborns. The rate of caesarean section has increased dramatically worldwide over the past three decades.^{1,2} Its development and meaningful application has helped us to provide safe motherhood and improved quality of life of mother and new born by avoiding serious delivery complications. The incidence of cesarean section has increased tremendously over the recent years. The rate of cesarean deliveries continues to increase despite efforts to constrain operative abdominal deliveries. This is a cause for concern because cesarean section is associated with higher likelihood of adverse outcomes for both mother and fetus as compared to vaginal delivery. Second stage of labour begins when cervical dilatation is complete and ends with fetal delivery. Second stage interventions are the methods to facilitate delivery of the fetus in the form of assisted vaginal delivery or instrumental delivery. Risk factors for the prolonged 2nd stage include epidural analgesia, occipito posterior position, longer 1st stage of labour, nulliparity, short maternal stature, birth weight, and high station of head at complete cervical dilatation.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 Department of Obstetrics and Gynecology, Anugrah Narayan Magadh medical college and hospital Gaya, Bihar, India for one year.

Methodology

Total 200 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 two year period, a total of 9500 women delivered by caesarean section, 5100 emergency and 4400 elective cases. Of these 200(2.10%) were at full cervical dilatation, >37 weeks gestation with a singleton fetus in cephalic presentation. Among the 200 patient's majority of them were in the age group of 20-30 years (73.5%) . about 77.5% of the patients were primigravidae and only the remaining 22.5% were multigravida. 82.5% of patients from BPLsocioeconomic class and 17.5% only from APLsocioeconomic class. Majority were booked patients, only 1.5% 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=200 | % |
|------------------------------|-------|------|
| Below 20 years | 6 | 3 |
| 20-30 years | 147 | 73.5 |
| 30-40 years | 27 | 13.5 |
| Above 40 years | 20 | 10 |
| Socio economic status | | |
| APL | 35 | 17.5 |

| | | |
|-------------------------|-----|------|
| BPL | 165 | 82.5 |
| Parity | | |
| Primi | 155 | 77.5 |
| Multi | 45 | 22.5 |
| Gestational age | | |
| 37-38 weeks | 81 | 40.5 |
| 38 weeks 1 day-39 weeks | 87 | 43.5 |
| 39weeks 1 day -40 weeks | 26 | 13 |
| ≥40 weeks | 6 | 3 |

Table 2: maternal complication

| Maternal Complications | Number | Percentage |
|--------------------------------------|---------------|-------------------|
| Atonic PPH | 27 | 13.5 % |
| Uterine incision extension | 29 | 14.5% |
| Postoperative fever | 32 | 16% |
| Wound infection requiring resuturing | 12 | 6% |
| Maternal death | nil | |
| bowel or bladder injury | Nil | |
| Blood transfusion required | 6 | 3 |
| Blood stained urine | 37 | 18.5 |

Incidence of PPH was 27 out of 200 cases (13.5%) .There were no cases of bowel or bladder injury reported. Post-operative wound infection was seen in 12(6%) and Post-operative fever was seen in 32(16%) out of 200 cases. There were no cases of maternal deaths reported.The mean operative time was 51.7 min .The mean length of hospital stays was 6.8 days .Mean weight of the babies of the second stage caesarean section was 3.4kg. 11(5.5%) babies were admitted to the Neonatal Intensive Care Unit and 26 (13%) to neonatal nursery for management of respiratory distress, sepsis, jaundice, and observation.25(12.5%) babies had Neonatal jaundice and There were 2 neonatal deaths reported.

Table 3: fetal and new born complication

| Perinatal complications | Number | % |
|--------------------------------|---------------|----------|
| Meconium stained liquor | 69 | 34.5% |
| Admission to nursery | 26 | 13% |
| NICU admission | 11 | 5.5% |
| Neonatal jaundice | 25 | 12.5% |
| Cephalhematoma | 4 | 2% |
| Apgar score <7 at 5 min | 22 | 11% |
| neonatal deaths | 2 | 1 |
| stillbirth | 2 | 1 |
| Respiratory distress | 63 | 31.5 |

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 200 patient's majority of them were in the age group of 20-30 years (73.5%). about 77.5% of the patients were primigravidae and only the remaining 22.5% were multigravida. In the study by Malathi et al, most of women were between 21-30 years of age (58%) and primigravida (72%).⁷ Higher rate of second stage caesarean section in young primigravida woman was probably due to higher incidence of rigid perineum, feto-pelvic 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 14.5%, 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 37(18.5%), febrile illness in 33(16.5%), and wound infection in 12(6%) cases. Atonic postpartum haemorrhage was seen in 27(13.5%) 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 uterotonic drugs and uterovaginal packing. 6 (3%) 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 Sucak¹³ 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 69(34.5%) 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 11(5.5%) and nursery admission rate of 26(13%) 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 study¹⁹ reported 37 (6.6%) cases with Apgar score less than five at five minutes while only 22 (11%) 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. 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

The present study concluded that the caesarean sections during the second stage are increasing in prevalence and are associated with significant long-term psychological and physical maternal morbidity.

Reference

1. Bailit, J.L., Love, T.E. & Mercer, B. Rising cesarean rates: are patients sicker? American Journal of Obstetrics & Gynecology .2004;191, 800-803.

2. Declercq, E., Menacker, F. & Macdorman, M. Maternal risk profiles and the primary cesarean rate in the United States, 1991-2002. *American Journal of Public Health*.2006;96, 867-72.
3. Allen VM, O'Connell CM, Baskett TF. Maternal and perinatal morbidity of caesarean delivery at full cervical dilatation compared with caesarean delivery in the first stage of labour. *BJOJ*. 2005;112:986-90.
4. Cebekulu L, Buchman EJ. Complications associated with caesarean section in the second stage of labour. *Int J Gynecol Obstet*. 2006;95:110-4.
5. Landon, M.B., Hauth, J.C., Leveno, K.J., Spong, C.Y., Leindecker, S., Varner, M.W., Moawad, A.H., et al. Maternal and perinatal outcomes associated with a trial of labor after prior cesarean delivery. *The New England Journal of Medicine*.2004;351, 2581-89.
6. McMahon, M.J., Luther, E.R., Bowes, W.A., Jr. & Olshan, A.F. (1996) Comparison of a trial of labor with an elective second cesarean section. *New England Journal of Medicine*, 335, 689-695.
7. Malathi J, Sunita V. Comparison of obstetric outcome between first and second stage caesarean section in rural tertiary hospital. *Int J Pharma Biomed Res*. 2012;3:222-5
8. Menticoglou SM, Manning F, Harman C, Morrison I. Perinatal outcome in relation to second stage duration. *Am J Obstet Gynecol*. 1995;173(3):906-12.
9. Vousden N, Cargill Z, Briley A, Tydeman, G, Shennan AH. Caesarean section at full dilatation: incidence, impact and current management. *The Obstetrician & Gynaecologist* 2014;16:199–205
10. Unterscheider J, McMenamin M, Cullinane F. Rising rates of caesarean deliveries at full cervical dilatation: a concerning trend. *Eur J Obstet Gynecol Reprod Biol*. 2011;157(2):141-4
11. Babre VM, Bendre KR, Niyogi G. Review of caesarean sections at full dilatation. *Int J Reprod Contracept Obstet Gynecol*. 2017;6(6):2491-3.
12. Shahla Baloch, MeharunnissaKhaskheli, Imdad A. Khushk, AneelaSheeba. Frequency of Second stage Intervention and its outcome in relation with instrumental vaginal delivery versus caesarean section. *J Ayub Med Coll Abbottabad*. 2008;20(1):87-90
13. Sucak A, Celen S, Akbaba E, Soysal S, Moraloglu O, Danisman N. Comparison of nulliparas undergoing cesarean section in first and second stages of labour: a prospective study in a tertiary teaching hospital. *Obstet Gynecol Int*. 2011. 986506
14. Asıcioglu O, Güngördük K, Yildirim G, Asıcioglu BB, Güngördük ÖÇ, Ark C, Günay T, Yenigül N. Second-stage vs first-stage caesarean delivery: Comparison of maternal and perinatal outcomes. *Journal of Obstetrics and Gynaecology*. 2014;34(7):598-604
15. Selo-Ojeme D, Sathiyathan S, Fayyaz M. Caesarean delivery at full cervical dilatation versus caesarean delivery in the first stage of labour: comparison of maternal and perinatal morbidity. *Archives of gynecology and obstetrics*. 2008;278(3):245-9
16. Alexander JM, Leveno KJ, Rouse DJ, Landon MB, Gilbert S, Spong CY, Varner MW, Moawad AH, Caritis SN, Harper M, Wapner RJ. Comparison of maternal and infant outcomes from primary cesarean delivery during the second compared with first stage of labor. *Obstetrics & Gynecology*. 2007;109(4):917-21.
17. Jayaram J, Mahendra G, Vijayalakshmi S. Fetomaternal Outcome in Cesarean Sections Done in Second Stage of Labor. *Indian Journal of Obstetrics and Gynecology Research*. 2016;3(1):51-4.
18. Davis G, Fleming T, Ford K, Mouawad MR, Ludlow J. Caesarean section at full cervical dilatation. *Australian and New Zealand Journal of Obstetrics and Gynaecology*. 2015;55(6):565-71
19. Umbeli T, Salah Ismail, Kunna A, Elmahgoub A, Nasr A, Rabaa A. Maternal and neonatal complications associated with caesarean section in the second stage of labour at Omdurman

maternity hospital during 2012-2013. Merit Research Journal of Medicine and Medical Sciences. 2014;2(10):225-8.

Received: 12-09-2020 || Revised: 10-10-2020 || Accepted: 15-11-2020