

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20240801>

Original Research Article

Maternal and fetal outcome in second stage caesarean section: a retrospective study

Anusha B. Chandrashekhar, Hemalata C. Ramakrishnappa*,
Rakshith Nagaraj, Swati L. Iyengar

Department of Obstetrics and Gynaecology, Mysore Medical College and Research Institute, Mysore, Karnataka, India

Received: 20 February 2024

Revised: 10 March 2024

Accepted: 11 March 2024

***Correspondence:**

Dr. Hemalata C. Ramakrishnappa,
E-mail: hemalathacr82@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: This study aims to observe the maternal and neonatal outcomes of caesarean delivery performed in the second stage of labor.

Methods: This was retrospective observational study conducted at Cheluvamba hospital, Mysore medical college, Mysore, in the department of Obstetrics and Gynaecology. All second stage caesarean sections performed between January 2023 to June 2023 were analyzed in terms of incidence, indications of caesarean-section, intra-operative and postoperative complications, maternal and fetal outcome.

Results: During the study period there were total 4194 deliveries. Out of this 1771 deliveries were done by caesarean section. Out of them 48 were 2nd stage caesarean sections contributing to 2.71% of total sections. Patwardhan method was used in 41.6% cases for delivery of deeply engaged head. Intra-operative complications were higher in terms of atonic pph (25%), hematuria (16.66 %). 14% cases had postoperative fever and 41.6% cases need prolonged catheterization. 20.83% babies required NICU admissions and neonatal death was 4.16%.

Conclusions: Caesarean section in the 2nd stage of labour is associated with increased maternal and neonatal morbidity. A proper judgement is required by a skilled obstetrician to take a decision for caesarean section at full cervical dilatation.

Keywords: Postpartum hemorrhage, Second stage section, Patwardhan

INTRODUCTION

The second stage of labour is a period from full dilatation until the delivery of the fetus. Caesarean section is a common surgical procedure performed in obstetrics. Its rate has been increasing over years. Second stage CS has been reported as a concerning increase trend within the increasing CS rate.^{1,2}

Caesarean section at full dilatation is technically a more challenging procedure than CS in early labour.³ Second stage caesarean section is a difficult procedure as it is associated with difficult in the delivery of the deeply

engaged fetal head, less amount of liquor and edematous and thinned out the lower uterine segment, thus it can lead to high risk of maternal morbidities, such as extension of the uterine incision, postpartum hemorrhage, injury to the urinary bladder, postpartum pyrexia, prolonged catheterization, and hospitalization.⁴⁻⁷ Neonatal morbidities in terms of neonatal intensive care unit (NICU) admission, birth asphyxia, fetal birth injuries, and even neonatal death is higher in second stage section.^{8,9}

METHODS

This retrospective study was carried out during January 2023 to June 2023 at Cheluvamba hospital, MMCRI

Mysore. The study included primi- or multigravida women with singleton pregnancy, period of gestation >37 weeks, cephalic presentation, and full dilatation of cervix. The study excluded multiple pregnancies, preterm deliveries, and malpresentation. Data was obtained from medical records department and analysed. Women who underwent second stage caesarean sections were analysed in terms of age, parity, indications, intraoperative complications, postoperative complications, and perinatal outcomes. Intraoperative complications like haematuria, uterine angle extension, atonic postpartum haemorrhage, and blood transfusion were observed. Post-operative complications like fever, prolonged catheterization, wound infection, and perinatal outcome were noted. All the collected data were recorded and entered in the master chart. Data analysis was done using SPSS version- 21.

RESULTS

During the study period there were total 4194 deliveries. Out of this 1771 deliveries were done by caesarean section. Out of them 48 were 2nd stage caesarean sections contributing to 2.71% of total sections. Majority of the subjects belonged to the 21-25 years of age group. There were 32 primi and 16 multigravida cases.

Table 1: Demographic details-age and parity wise distribution.

Variables	N	%
Age (years)		
18-20	10	20.83
21-25	23	47.91
26-30	12	25
>30	03	6.25
Parity		
Primi	32	66.66
Multi	16	33.33
Antenatal care		
Booked	27	56.25
Unbooked	21	43.75

Table 2: Indication for LSCS

Indication for CS	N	%
Arrest in descent	20	41.66
DTA	14	29.16
Obstructed labour	10	20.83
Fetal distress	05	10.41

Table 3: Technique of delivery of engaged head

Technique	N	%
Patwardhan	20	41.66
Modified Patwardhan	07	14
Vertex	15	31.25
Reverse breech	02	4.16
Push method	04	8.33

DISCUSSION

Royal college of obstetricians and gynaecologists (RCOG) reported that 6% of primary CS occurs at full dilatation and in 50% of these patients there was no attempt of instrumental vaginal delivery.¹⁰ Regarding the recent obstetric procedure, making a choice for CS during second stage of labour has been extremely difficult.

CS at second stage, endangering both mother and the fetus. As the duration for second stage increases, there would be more difficulties due to oedematous lower segment, overstretched and thinned out lower segment and more impaction of presenting part in pelvis. Operative time was also increased due to difficulty of delivery of deeply engaged head.

Table 4: Intra-operative complications

Complications	N	%
Atonic PPH	12	25
Angle extension	6	12.5
Angle hematoma	3	6.25
Haematuria	8	16.66
Blood transfusion	10	20.83

Table 5: Post-operative complications

Complications	N	%
Fever	7	14
Wound infection	4	8.33
Prolonged catheterization	20	41.66

Table 6: Neonatal outcome.

Outcomes	N	%
NICU admission	10	20.83
Birth asphyxia	8	16.66
Respiratory distress	20	41.66
Meconium aspiration	12	25
Fresh still birth	2	4.16

During our study period, CS was performed for 1771 deliveries out of 4194. Of these, 48 were performed at second stage. The incidence of caesarean section at full dilatation is 2.71% in our study which is similar to the study conducted by Goswami et al.¹¹ Majority of the subjects belonged to the 21-25 years of age group. There were 66.66% primi and 33.33% multigravida cases.

Nandan et al among the 200 patient's majority of them were in the age group of 20-30 years (73.5%) and about 77.5% of the patients were primigravidae and only the remaining 22.5% were multigravida.¹² The most common indication was arrest of descent which accounts for 41.66%, followed by DTA and obstructed labour. Least common indication was found to be fetal distress. The results were similar to study done by Balasaheb et al and Yadav et al.^{13,14}

Delivery of deeply engaged head is challenge to obstetrician, this can be done by various methods as Vertex method, pull method i.e. Patwardhan's method, modified Patwardhan method, push method in this method head is pushed vaginally and then head is delivered through uterine incision.

In our study deeply engaged head delivered by Patwardhan method were 41.6%, vertex method was 31.25%, modified Patwardhan were 14% and by push method 8.33%. This result was comparable with Goswami et al.¹¹ Atonic PPH was seen in 25% of patients which was similar to study done by Patra et al.¹⁵ But lesser to study done by Gupta et al.¹⁶ In current study, uterine incision extension was reported among 12.5% cases which was quite similar to the findings by Khaniya et al.¹⁷ Uterine incision extension was reported among 13.88% cases. Hematuria was noted on 16.66% cases and 10 cases required blood transfusion.

Post-operative complications like febrile illness in 14% cases and wound infection in 8.3% cases which was similar to study done by Goswami et al, Khaniya et al reported prolong catheterization in 38.88% cases which was similar to our study, where 41.66 cases required prolonged catheterization.^{11,17}

In the present study atonic PPH and hematuria were the most prevalent intra-operative complications while prolonged catheterization and fever were the most common postoperative complications.

In the present study 20.83% babies required NICU admission due to birth asphyxia (08) and respiratory distress (20) and two babies were found to be stillbirth. These results were similar to study done by Balasaheb et al.¹³

CONCLUSION

Caesarean sections done in the second stage of labor is an undesirable situation associated with maternal and fetal complications. A proper judgment and skilled obstetrician are required to perform a second-stage CS. Second stage CS can be avoided by using partograph, rational use of oxytocin, selective instrumental delivery, and lastly but most importantly the presence of senior obstetricians in decision making.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Vousden N, Cargill Z, Briley A, Tydeman G, Shennan AH. Caesarean section at full dilatation: incidence, impact and current management. *Obstet Gynaecol.* 2014;16(3):199-205.

2. Unterscheider J, McMenamin M, Cullinane F. Rising rates of caesarean deliveries at full cervical dilatation: a concerning trend. *Eur J Obstet Gynecol Repro Biol.* 2011;157(2):141-4.
3. McKelvey A, Ashe R, McKenna D, Roberts R. Caesarean section in the second stage of labour: a retrospective review of obstetric setting and morbidity. *J Obstet Gynaecol.* 2010;30(3):264-7.
4. Govender V, Panday M, Moodley J. Second stage caesarean section at a tertiary hospital in South Africa. *J Maternal Fetal Neonat Med.* 2010;23(10):1151-5.
5. Sung JF, Daniels KI, Brodzinsky L, El-Sayed YY, Caughey AB, Lyell DJ. Cesarean delivery outcomes after a prolonged second stage of labor. *Am J Obstet Gynecol.* 2007;197(3):306.
6. Alexander JM, Leveno KJ, Rouse DJ, Landon MB, Gilber S, Spong CY, et al. Comparison of maternal and infant outcomes from primary cesarean delivery during the second compared with first stage of labor. *Obstet Gynecol.* 200;109(4):917-21.
7. 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. *Arch Gynecol Obstet.* 2008;278(3):245-9.
8. Murphy DJ, Liebling RE, Verity L, Swingler R, Patel R. Early maternal and neonatal morbidity associated with operative delivery in second stage of labour: a cohort study. *Lancet.* 2001;358(9289):1203-7.
9. Davis G, Fleming T, Ford K, Mouawad MR, Ludlow J. Caesarean section at full cervical dilatation. *Aust NZ J Obstet Gynaecol.* 2015;55(6):565-71.
10. Thomas J, Paranjothy S. The national sentinel caesarean section audit report. *Nat Sent Caesar Sect Rep.* 2001.
11. Goswami KD, Parmar MM, Kunjadiya AN. Study of fetomaternal outcome in second stage caesarean section. *Int J Reprod Contracept Obstet Gynecol.* 2019;8:2169-71.
12. Nandan T, Vijay M. A prospective observational study to assess the complications of caesarean section during second stage of labor in a tertiary care hospital. *EJMCM.* 2020;7(10):3062-7.
13. Khadbade B, Kale P, Mane S. Indication and outcome of second stage caesarean section; a longitudinal study. *Sch Int J Obstet Gynec.* 2022;8235:573-7.
14. Yadav J, Shrestha R, Sah A, Bhagat R. Feto-maternal outcome of second stage cesarean section in B. P. Koirala institute of health sciences: a retrospective study. *Int J Reprod Contracept Obstet Gynecol.* 2023; 12:801-5.
15. Patra KK, Chattopadhyay S, Roy A, Bhattacharyya SK. Indications and outcomes of caesarean section in the second stage of labour at a tertiary care hospital in West Bengal. *J Cardiovasc Dis Res.* 2022;13(5):768-79.
16. Gupta K, Garg A. Fetomaternal outcome in caesarean section at full dilatation. *Int J Reprod Contracept Obstet Gynecol.* 2019;8(8):3098-102.

17. Khaniya B. Fetomaternal outcome in second stage caesarean section. *NMJ*. 2020;3(1):279-81.

Cite this article as: Chandrashekhar AB, Ramakrishnappa HC, Nagaraj R, Iyengar SL. Maternal and fetal outcome in second stage caesarean section: a retrospective study. *Int J Reprod Contracept Obstet Gynecol* 2024;13:993-6.