International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Zainab B et al. Int J Reprod Contracept Obstet Gynecol. 2025 Jun;14(6):1929-1931
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20251422

Case Series

Caesarean sections at full cervical dilation: a case series on outcomes and proactive measures in an Indian teaching hospital

Bibi Zainab[1]*, Sujatha Dhaded[1], Shaheera Usman[2], Ediga Tejaswini[1]

[1]Department of Obstetrics and Gynaecology, Faculty of Medicine, Khaja Banda Nawaz University, Karnataka, India
[2]Department of Obstetrics and Gynaecology, RFA Tutors, Dubai, UAE

Received: 15 April 2025
Revised: 30 April 2025
Accepted: 01 May 2025

***Correspondence:**
Dr. Bibi Zainab,
E-mail: bibi@kbn.university

ABSTRACT

This case series examines 20 cesarean sections performed at full cervical dilation at Khaja Banda Nawaz Teaching and General Hospital, India, from January to December 2024. Among 852 deliveries, 548 were cesarean sections, with 20 (3.65%) occurring at full dilation. Maternal complications included postpartum hemorrhage in 35% of cases, sepsis in 12%, blood transfusion in 15%, and one peripartum hysterectomy. Neonatal outcomes showed 10% NICU admissions, primarily for respiratory distress and sepsis. Deep transverse arrest was the leading indication in 66.15% of cases. The findings highlight the high morbidity associated with second-stage cesarean sections and propose proactive measures such as team training, standardized protocols, and enhanced monitoring to improve outcomes. These results emphasize the need for specialized care and further research in resource-constrained settings.

Keywords: Caesarean section, Full cervical dilation, Maternal morbidity, Neonatal outcomes, Proactive preparedness

INTRODUCTION

Cesarean section rates have risen globally, with India's rate increasing from 17.2% in 2016 to 21.5% in 2021, often exceeding 40% in teaching hospitals.[1] Cesarean sections performed at full cervical dilation, known as second-stage cesareans, are technically challenging due to the deeply engaged fetal head and thin uterine segment, increasing risks of postpartum hemorrhage, sepsis, and neonatal hypoxia.[3] In India, resource constraints and high maternal comorbidities exacerbate these risks.[8] This case series aims to describe the outcomes of 20 second-stage cesarean sections at Khaja Banda Nawaz Teaching and General Hospital, a tertiary center with a 64.32% cesarean rate, and to propose proactive measures to reduce morbidity.

CASE SERIES

This case series includes 20 women who underwent cesarean sections at full cervical dilation at Khaja Banda Nawaz Teaching and General Hospital, Kalaburagi, India, between 01 January and 31 December 2024. The study was approved by the hospital's ethics committee, and data were anonymized to ensure confidentiality. Of 852 deliveries during the study period, 548 (64.32%) were cesarean sections, with 20 (3.65%) occurring at full dilation, confirmed by medical records. Data were extracted from delivery logs, operation theatre notes, and neonatal records using a standardized digital form.

The mean maternal age was 27.5 years with a standard deviation of 4.5 years, and 60-70% of women were nulliparous. Gestational age averaged 39 weeks with a standard deviation of 1.5 weeks. Neonatal birth weight averaged 3.2 kg with a standard deviation of 0.5 kg, with 40% of fetuses in the occipitoposterior position. Deep transverse arrest was the primary indication for cesarean section in 66.15% of cases, accounting for 13-14 cases. Out-of-hours deliveries occurred in 70% of cases, with consultants deciding 50% and attending 30% of procedures. Instrumental delivery was attempted in 40%

of cases, primarily using vacuum in 60% of attempts, conducted in the operating theatre in 80% of cases.

Maternal complications were significant. Postpartum hemorrhage occurred in 35% of cases, affecting 7 women, and required blood transfusion in 15%, or 3 women. Sepsis was observed in 12%, impacting 2-3 women, and uterine laceration occurred in 10%, affecting 2 women. One woman, representing 5% of cases, required a peripartum hysterectomy, likely due to severe hemorrhage. Other complications included anemia in 15.38% and hypertension in 20% of cases. The average hospital stay was 7 days with a standard deviation of 2 days. Neonatal outcomes included NICU admission in 10% of cases, or 2 neonates, primarily for respiratory distress in 50% and sepsis in 30% of these cases. Umbilical venous pH averaged 7.25 with a standard deviation of 0.1, with 13% of cases missing data. No advanced resuscitation was required.

Table 1: Overall delivery statistics.

Parameters	Value
Total deliveries	852
Caesarean sections	548 (64.32%)
Second-stage caesarean sections	20 (3.65%)
Instrumental delivery rate	11.8%

Table 2: Demographic and clinical characteristics.

Parameters	Value
Mean maternal age (years)	27.5 (SD: 4.5)
Nulliparous (%)	60-70
Mean gestational age (weeks)	39 (SD: 1.5)

Table 3: Fetal characteristics.

Parameters	Value
Mean birth weight (kg)	3.2 (SD: 0.5)
Occipito-posterior position (%)	40

Table 4: Delivery details.

Parameters	Value
Primary indication (deep transverse arrest)	66.15 (13-14 cases)
Out-of-hours deliveries	70
Consultant decision	50
Instrumental delivery attempted	40

Table 5: Maternal outcomes.

Parameters	Value
Postpartum hemorrhage	35 (7 cases)
Blood transfusion	15 (3 cases)
Sepsis	12 (2-3 cases)
Peripartum hysterectomy	5 (1 case)

Table 6: Neonatal outcomes.

Parameters	Value (%)
NICU admission	10 (2 cases)
Respiratory distress	50 of NICU cases
Sepsis	30 of NICU cases

DISCUSSION

The high maternal morbidity observed in this case series, with postpartum hemorrhage affecting 35% of cases and sepsis occurring in 12%, is consistent with previous studies. A study by Jain et al reported similar rates of postpartum hemorrhage at 30% and sepsis at 10% in second-stage cesarean sections in an Indian tertiary hospital.[2] The peripartum hysterectomy in one case, likely due to severe hemorrhage, highlights the complexity of these procedures, as supported by guidelines from the Royal College of Obstetricians and Gynaecologists.[7] Neonatal outcomes, with 10% NICU admissions primarily for respiratory distress and sepsis, align with findings by Vousden et al who noted increased neonatal morbidity in second-stage cesareans due to prolonged labor.[4]

The high cesarean section rate of 64.32% at our institution likely reflects referral bias, as the hospital serves as a tertiary center managing complex cases.[8] Resource constraints, including limited access to senior consultants during out-of-hours deliveries, which occurred in 70% of cases, may contribute to complications.[9] The frequent use of instrumental delivery attempts in 40% of cases before cesarean section suggests potential delays in decision-making, a challenge also identified by the World Health Organization.[1] Regular simulation-based training for obstetric teams can enhance skills in managing impacted fetal heads, reducing complications like uterine lacerations and hemorrhage.[7] Standardized protocols for second-stage cesareans, including preoperative checklists and intraoperative strategies, can minimize delays and improve outcomes.[6] Strengthening intrapartum fetal monitoring with continuous cardiotocography can detect distress early, reducing neonatal hypoxia risks.[8] Ensuring availability of blood products and uterotonic agents can manage postpartum hemorrhage effectively, addressing resource limitations.[10] Culturally sensitive patient counseling can improve trust and compliance, aligning with India's Labour Room Quality Initiative.[12] Regular audits of cesarean outcomes can identify preventable complications, supporting national efforts to improve maternity care quality.[8]

Limitations of this case series include the small sample size of 20 cases, which restricts generalizability, and incomplete data, such as 13% missing umbilical venous pH values, which may affect accuracy. The high cesarean rate suggests a referral bias, potentially inflating morbidity estimates.[11] Future research should involve larger, multicenter studies to validate these findings and assess the efficacy of proposed interventions, such as the WHO

Labour Care Guide, in reducing second-stage cesarean complications.[13]

CONCLUSION

This case series highlights the significant maternal and neonatal morbidity associated with cesarean sections at full cervical dilation, including postpartum hemorrhage, sepsis, and NICU admissions. Proactive measures, such as team training, standardized protocols, enhanced monitoring, and patient counseling, are critical to improving outcomes in resource-constrained settings. These findings underscore the need for specialized obstetric care and further research to optimize second-stage cesarean management.

ACKNOWLEDGEMENTS

Authors would like to thank the research assistants and medical staff at Khaja Banda Nawaz Teaching and General Hospital for their support in data collection.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. World Health Organization. Caesarean section rates continue to rise globally. 2021. Available at: https://www.who.int/news/item/16-06-2021-caesareansection-rates-continue-to-rise-globally. Accessed on 12 March 2025.
2. Neelam, Jain PK, Gupta N, Sharma R, Singh M, Kumar P. Variations in the prevalence of caesarean section deliveries in India between 2016 and 2021: an analysis of Tamil Nadu and Chhattisgarh. BMC Pregnancy Childbirth. 2024;24:103.
3. Wood SL, Tang S, Crawford S. Cesarean delivery in the second stage of labor and the risk of preterm birth. Birth. 2017;44(4):343-9.
4. Vousden N, Cargill Z, Briley A, Tydeman G, Shennan AH. Caesarean section at full dilatation: incidence, impact and current management. Obstet Gynecol. 2014;16(3):199-204.
5. Offringa Y, Jellema P, van Kaam AH, de Vries MC, van der Ham DP, de Groot CJM. CRAFT (Cerclage after full dilatation caesarean section): a study protocol for a multicentre, randomized controlled trial. BMC Pregnancy Childbirth. 2020;20:633.
6. American College of Obstetricians and Gynecologists. First and Second Stage Labor Management: ACOG Clinical Practice Guideline No. 8. Obstet Gynecol. 2024;143(1):144-62.
7. Royal College of Obstetricians and Gynaecologists. Management of Impacted Fetal Head at Caesarean Birth: Scientific Impact Paper No. 73. 2023. Available at: https://www.rcog.org.uk/guidance/browse-all-guidance/scientific-impact-papers/management-of-impacted-fetal-head-at-caesarean-birth-scientific-impact-paperno-73-1/. Accessed on 12 March 2025.
8. Neelam, Rajaram M, Mani S, Sharma A, Kumar S, Gupta R. Exploring Cesarean Section Delivery Patterns in South India: Bayesian Analysis. BMC Public Health. 2024;24:2343.
9. Satin AJ, McIntire DD, Leveno KJ. A critical appraisal of cesarean section rates at teaching hospitals in India. Int J Gynaecol Obstet. 2002;79(2):151-8.
10. Patel V, Upadhyay M, Pandya A, Shah S, Patel R, Desai K. Rates, indications, and outcomes of caesarean section deliveries: a cross-sectional study in Gujarat, India. PLoS One. 2017;12(10):e0189260.
11. Baria AH, Parikh S, Shah S, Vyas R, Parmar N, Damor R. A study of caesarean section at full cervical dilatation: a retrospective study at a tertiary care institute in Western India. Int J Reprod Contracept Obstet Gynecol. 2020;9(4):1654-8.
12. Rajaram M, Mani S, Neelam, Sharma R, Gupta N, Kumar P. Value-based care in obstetrics: comparison between vaginal birth and caesarean section. BMC Pregnancy Childbirth. 2021;21:787.
13. Vogel JP, Comrie-Thomson L, Pingray V, Gadama L, Galadanci H, Goudar SS, et al. Effects of the WHO Labour Care Guide on cesarean section in India: a pragmatic, stepped-wedge, cluster-randomized pilot trial. Nat Med. 2024;30:203-12.

Cite this article as: Zainab B, Dhaded S, Usman S, Tejaswini E. Caesarean sections at full cervical dilation: a case series on outcomes and proactive measures in an Indian teaching hospital. Int J Reprod Contracept Obstet Gynecol 2025;14:1929-31.