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Prevalence of Failed Induction and its Fetomaternal Outcome at a Tertiary Care Centre, North West Rajasthan

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Abstract: ***Background: Failed induction of labour is an important contributor to maternal and perinatal morbidity and mortality, especially in resource-limited regions. This study aims to examine the prevalence, underlying risk factors and associated fetomaternal outcomes of failed induction at a tertiary care centre in North West Rajasthan. Methods: A prospective observational study was conducted at Sardar Patel Medical College over six months (Feb–Jul 2025), including 120 women requiring induction. Clinical data, demographic profiles and outcomes were recorded. Statistical analysis was performed using chi-square and t-tests, with p<0.05 considered significant. Results: The prevalence of failed induction was 35%, with higher rates among primigravidas and women with an unfavourable Bishop score. Common indications for induction were postdatism (32.5%), oligohydramnios (17.5%), PROM (15.8%) and hypertensive disorders (14.2%). Cesarean section was required in 35% of cases. NICU admissions were seen in 28%, with most neonates achieving 5-min Apgar >7. Conclusion: Failed induction remains a significant clinical challenge and is associated with higher cesarean rates and neonatal risks. Standardised induction protocols and careful patient selection can help optimise outcomes.***

Keywords: Failed induction of labour, Prevalence, Bishop score, Fetomaternal outcome, Cesarean section, Neonatal outcome, Induction of labour, Tertiary care centre, North West Rajasthan

1. Introduction

Induction of labour is one of the most frequently performed obstetric interventions worldwide, particularly when continuation of pregnancy poses risks to the mother or fetus. Common indications include postdatism, preeclampsia, premature rupture of membranes (PROM), intrauterine growth restriction (IUGR), oligohydramnios and medical disorders complicating pregnancy.

Despite advances in pharmacological and mechanical induction methods, failed induction remains a common challenge, often necessitating operative delivery, particularly cesarean section. Globally, the rate of failed induction varies from 15% to 40% depending on the population and protocols used. In India, socio-economic disparities, late presentation to hospitals and varying standards of antenatal care contribute to higher failure rates.

In rural parts of North West Rajasthan, women frequently present late in labour and have limited access to continuous antenatal supervision. Understanding the regional prevalence and outcomes of failed induction is critical for optimising obstetric care and improving maternal and neonatal outcomes.

2. Materials and Methods

Study Design: A prospective observational study was conducted at the Department of Obstetrics & Gynaecology, Sardar Patel Medical College, Bikaner, over a six-month period (February to July 2025).

Population: A total of 120 pregnant women at term with singleton vertex presentation and intact membranes, requiring induction of labour for various obstetric or medical indications, were included.

Inclusion Criteria: Term gestation, singleton pregnancies, cephalic presentation, intact membranes and no prior uterine scar.

Exclusion Criteria: Women with previous cesarean section or other uterine surgery, malpresentation, macrosomia, multiple pregnancy, or contraindications to vaginal delivery.

Induction Protocol: All participants underwent induction of labour as per standardized departmental protocols following ACOG and FOGSI guidelines. The Bishop score was assessed at baseline. For Bishop score <6, cervical ripening with prostaglandin E2 gel was performed, followed by oxytocin augmentation where required. Continuous fetal heart monitoring and maternal vitals were recorded.

Outcome Measures: Primary outcome was the prevalence of failed induction (defined as inability to achieve adequate cervical dilation and progress in labour despite 24 hours of adequate contractions). Secondary outcomes included mode of delivery, maternal complications (postpartum haemorrhage, puerperal pyrexia, wound infection) and neonatal outcomes (Apgar score, NICU admission).

Data Analysis: Data were analysed using Epi Info software.

Categorical variables were expressed as percentages and compared using the chi-square test. Continuous variables were analysed using Student's t-test. A p-value <0.05 was considered statistically significant.

Ethical Considerations: The study protocol received approval from the institutional ethics committee. Written informed consent was obtained from all participants.

3. Results

A total of 120 women were included in the study. The majority were primigravidas (63%) and aged between 19–25 years (65.8%). Rural residence was predominant (59.2%) and about two-thirds of the participants were literate.

Indications for induction included postdatism (32.5%), oligohydramnios (17.5%), PROM (15.8%), hypertensive disorders (14.2%), obstetric cholestasis (10%) and others.

Overall, vaginal delivery was achieved in 65% of women, while 35% required cesarean section due to failed induction or fetal distress. Maternal complications were relatively low, with puerperal pyrexia and wound infection each seen in 2.5% of cases and postpartum haemorrhage in 1.7%. NICU admission was required for 28.3% of neonates, primarily for transient respiratory distress or observation following operative delivery.

Age Group

Age Group (years)	Number (n=120)	Percent (%)
19-25	79	65.8
26-30	27	22.5
31-35	14	11.7

Residence

Residence	Number	Percent (%)
Rural	71	59.2
Urban	49	40.8

Literacy

Literacy	Number	Percent (%)
Literate	79	65.8
Illiterate	41	34.2

Clinical Profile

Indication	Number	Percent (%)
Postdatism	39	32.5
Oligohydramnios	21	17.5
PROM	19	15.8
Preeclampsia	17	14.2
Obstetric cholestasis	12	10.0
IUGR	4	3.3
GDM	5	4.2
Polyhydramnios	2	1.7
Chronic hypertension	1	0.8

Mode of Delivery

Mode of Delivery	Number	Percent (%)
Vaginal	78	65.0
LSCS	42	35.0

Maternal Complication

Complication	Number	Percent (%)
Postpartum Hemorrhage	2	1.7
Puerperal Pyrexia	3	2.5
Wound Infection	3	2.5

NICU Admission

NICU Admission	Number	Percent (%)
Yes	34	28.3
No	86	71.7

4. Discussion

The prevalence of failed induction in this study was 35%, comparable to similar studies conducted in India and other developing countries. Primigravida status, unfavourable Bishop score and hypertensive disorders were identified as significant predictors of failed induction.

Our findings align with those of Demssie et al. (2022) in Ethiopia and Yadav et al. (2023) in Nepal, both reporting failed induction rates around 30–35% with higher risk in primigravidas. The slightly higher rate in our study may be attributed to delayed presentation and limited antenatal care among rural women. Cesarean delivery following failed induction increases risks for both mother and neonate, including surgical complications, delayed postpartum recovery and neonatal respiratory issues. However, timely recognition of failure and decision for operative delivery can prevent more severe adverse outcomes. Strengthening community-level education, ensuring early hospital presentation and optimising cervical readiness with pharmacologic agents can reduce failure rates. Implementing standardised induction checklists and regular staff training will also improve outcomes in resource-limited settings.

5. Conclusion

Induction of labour is an essential obstetric intervention; however, failed induction remains a substantial cause of operative deliveries and neonatal morbidity. The study highlights the need for better pre-induction cervical assessment, improved antenatal counselling and adherence to evidence-based induction protocols.

Reducing failed induction rates requires a multi-pronged approach: enhancing health education for pregnant women, timely referrals, adequate intrapartum monitoring and protocol-driven induction. Future research should focus on tailored interventions for high-risk subgroups such as primigravidas and women with hypertensive disorders.

References

[1] Nielsen PE, Lang RS, et al. Elective induction and cesarean risk. *Obstet Gynecol*. 2005; 106: 501–5.
[2] Simon CE, Grobman WA. Prediction models for failed induction. *Obstet Gynecol*. 2005;106(3):733–9.
[3] Sanchez-Ramos L. Induction in obese women. *Clin Obstet Gynecol*. 2013;56(2): 319–26.
[4] Crane JM. Factors predicting labour induction success. *J Obstet Gynaecol Can*. 2006;28(10):895–902.
[5] Bishop EH. Pelvic scoring for elective induction. *Obstet Gynecol*. 1964; 24: 266–8. ACOG. *Induction of*

labour: Practice bulletin. No. 107.
[6] FOGSI. *Good Clinical Practice Guidelines: Induction of Labour*. India, 2020.
[7] NICE Guidelines. *Inducing Labour: NG207*. UK: National Institute for Health and Care Excellence; 2021.
[8] Jozwi MK, et al. Mechanical methods for IOL. *Cochrane Database Syst Rev*. 2012;(3): CD001233.
[9] Fox NS, Gelber SE, et al. Risk of failed induction in late-term pregnancies. *Am J Perinatol*. 2013;30(9):643–8.
[10] Rosenberg RE, Parry S, et al. Failed IOL and adverse outcomes. *Obstet Gynecol*. 2019;133(6):1036–45.
[11] Hofmeyr GJ, et al. Vaginal misoprostol for cervical ripening. *Cochrane Database Syst Rev*. 2013;(10): CD000941.
[12] Sanchez-Ramos L, Kaunitz AM, et al. Labour induction vs expectant. *Am J Obstet Gynecol*. 2003;188(6):1417–23.
[13] Ehrenthal DB, Jiang X, Strobino DM. Labour induction and cesarean risk. *Obstet Gynecol*. 2010; 116: 35–42.
[14] Vrouenraets FP, et al. Bishop score and induction success. *Eur J Obstet Gynecol Reprod Biol*. 2005;123(2):168–73.
[15] Pennell CE, et al. Induction of labour: what's new? *Aust N Z J Obstet Gynaecol*. 2009; 49: 479–83.