



Original Research Article

RATE OF EPISIOTOMY USE DURING VAGINAL DELIVERIES IN A TERTIARY CARE CENTER: A THREE-MONTH OBSERVATIONAL STUDY

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ABSTRACT

Background: Episiotomy is one of the most commonly performed obstetric procedures during vaginal delivery. Although restrictive episiotomy practices are recommended worldwide, the procedure continues to be frequently used in many tertiary healthcare settings. Unnecessary episiotomy has been associated with increased maternal morbidity and adverse postpartum outcomes. The objective is to assess the rate of episiotomy, use during vaginal deliveries and identify factors associated with its practice in a tertiary care center.

Materials and Methods: This prospective observational study was conducted at District Hospital, Sheoganj, Sirohi, Rajasthan, over a three-month period from November 2025 to January 2026. A total of 130 deliveries were recorded during the study period, including 70 vaginal deliveries and 60 caesarean section deliveries. Women with singleton vaginal deliveries were included in the final analysis. Data regarding maternal demographics, obstetric characteristics, indications for episiotomy, delivery details, maternal outcomes, and neonatal outcomes were collected from labor room records and case sheets. Statistical analysis was performed using SPSS version 26.0. Categorical variables were expressed as frequencies and percentages, and associations were analyzed using the Chi-square test. A p-value <0.05 was considered statistically significant.

Results: Among the 70 vaginal deliveries, episiotomy was performed in 29 women, resulting in an overall episiotomy rate of 41.4%. Episiotomy was significantly more common among primigravida women (65.5%), instrumental vaginal deliveries (80.0%), and neonates with birth weight >3 kg (55.2%) (p<0.05). The most common indication for episiotomy was prevention of severe perineal tear (44.8%), followed by fetal distress (24.1%). Women undergoing episiotomy experienced higher rates of postpartum perineal pain and wound-related complications compared with women who delivered without episiotomy.

Conclusion: The study demonstrated a relatively high rate of episiotomy use in the tertiary care setting. Primigravidity, instrumental delivery, and higher birth weight were significant predictors of episiotomy. Adoption of evidence-based restrictive episiotomy policies and regular institutional audits may help reduce unnecessary episiotomy and improve maternal outcomes.

Keywords: Episiotomy; Vaginal delivery; Primigravida; Maternal outcomes; Obstetric practice; Tertiary care center.

INTRODUCTION

Episiotomy is a surgically planned incision made on the perineum during the second stage of labor to enlarge the vaginal outlet and facilitate childbirth. It has historically been one of the most commonly

performed obstetric procedures during vaginal delivery. Traditionally, episiotomy was routinely performed with the belief that it could prevent severe perineal tears, reduce pelvic floor damage, shorten the second stage of labor, and improve neonatal outcomes.^[1] In the past 20 years, however, there is

growing scientific evidence to question the routine use of the episiotomy, suggesting that the liberal use may not confer any significant maternal or fetal benefit and may add to maternal morbidity.^[2,3]

Current obstetric practice has moved towards restrictive episiotomy policies. The World Health Organization (WHO) does not recommend routine episiotomy, except when there are specific clinical indications for performing the procedure, for example, instrumental delivery, fetal distress, shoulder dystocia, or complicated vaginal birth.^[4] WHO also suggests that restrictive episiotomy practices are associated with better maternal outcomes and lower rates of unnecessary perineal trauma. Several international studies have indicated a downward trend in episiotomy rates in developed countries due to increased awareness of evidence-based labor management and adherence to clinical guidelines.^[2,5]

However, episiotomy continues to be widely practiced in many low- and middle-income countries, particularly in tertiary care institutions where deliveries are likely to be high-risk.^[6] Episiotomy rates vary considerably between countries, between different hospitals and between different obstetric units. Reported episiotomy rates range from less than 10% in some European centres to over 60% in some developing areas.^[7] This variation might be tied to institutional policies, obstetrical training, maternal features, parity, and physician preferences.

Episiotomy may be beneficial in selected clinical situations, but its unnecessary or routine use has been associated with several maternal complications. Women who undergo episiotomy may suffer more postpartum pain, wound infection, excessive bleeding, delayed healing, dyspareunia, urinary incontinence, and psychological distress.^[8,9] Research has also shown that routine episiotomy is not effective in preventing serious obstetric anal sphincter injuries and may increase the risk of long-term pelvic floor dysfunction.^[10] Concerns have reinforced the need to carefully evaluate the practice of episiotomy and to promote policies for its restrictive use.

Episiotomy is still performed frequently in India especially in primigravida women and instrumental vaginal deliveries. However, there is a paucity of recent literature related to assessment of episiotomy rates and associated factors from the tertiary care setting and specifically from Sirohi and other resource-limited settings. There are few institutional data to assess adherence to evidence-based recommendations and opportunities for improvement in obstetric care.

Assessment of the rate and factors associated with episiotomy use is of clinical importance to understand current obstetric practice, reduce unnecessary maternal interventions and improve the quality of maternity care. Institutional audits may also help in developing standardized protocols and training programs aimed at promoting safe and evidence-based vaginal delivery practices.

Therefore, this study aimed to assess the rate of episiotomy use during vaginal deliveries at District Hospital, Sheoganj, Sirohi, Rajasthan, over a three-month period.

MATERIALS AND METHODS

Study Design: This study was conducted as a prospective observational study to evaluate the rate of episiotomy use during vaginal deliveries and to identify obstetric factors associated with its practice in a tertiary care setting. The observational study design was selected to assess prevailing clinical practices related to episiotomy without influencing labor management or obstetric decision-making.

Study Setting: The study was carried out at District Hospital, Sheoganj, Sirohi district, Rajasthan, a secondary-level government healthcare institution providing comprehensive maternal and neonatal healthcare services to both urban and rural populations. The hospital serves as a referral center for nearby primary healthcare facilities and manages routine as well as high-risk obstetric cases.

Study Duration: The study was conducted over a period of three months from November 2025 to January 2026.

Study Population: The study population included all women who underwent vaginal delivery in the labor ward during the study period. Women admitted in labor and fulfilling the eligibility criteria were consecutively included in the study. Both primigravida and multigravida women were considered for analysis.

Sample Size: A total of 130 deliveries were recorded during the study period, including 70 vaginal deliveries and 60 cesarean section deliveries. Only women who underwent vaginal delivery were included in the final analysis. Thus, the final sample size for the study comprised 70 eligible vaginal deliveries.

Inclusion Criteria

Women fulfilling the following criteria were included in the study:

- Women aged 18 years and above
- Singleton pregnancies
- Women who underwent vaginal delivery during the study period
- Gestational age ≥ 37 completed weeks
- Women with complete labor and delivery records

Exclusion Criteria

The following cases were excluded from the study:

- Women who underwent cesarean section
- Multiple pregnancies
- Preterm deliveries (< 37 weeks gestation)
- Women with incomplete or missing medical records
- Women with known fetal congenital anomalies
- Instrumental vaginal deliveries with incomplete documentation or unclear indications

Data Collection: Data were collected prospectively from labor room registers, delivery records, hospital

medical records, and patient case sheets using a structured predesigned data collection form. Demographic, obstetric, and clinical variables relevant to the study objectives were systematically documented.

The recorded variables included maternal age, parity, gestational age at delivery, duration of labor, fetal birth weight, type of vaginal delivery, indication for episiotomy, and maternal and neonatal outcomes. Neonatal outcome variables included Apgar score at 5 minutes and requirement for neonatal intensive care unit (NICU) admission. Additional details regarding whether episiotomy was performed, clinical indications for the procedure, and postpartum maternal complications such as perineal pain, wound infection, postpartum hemorrhage, and perineal tears were also documented.

All collected data were cross-verified from patient records to ensure completeness, consistency, and accuracy of information.

Outcome Measures

Primary Outcome

The primary outcome measure of the study was the rate of episiotomy use among women undergoing vaginal delivery during the study period. The episiotomy rate was calculated as the proportion of women who underwent episiotomy out of the total number of eligible vaginal deliveries.

Secondary Outcomes

The secondary outcome measures included:

- Association between maternal and obstetric factors and episiotomy use
- Distribution of episiotomy according to maternal age and parity
- Maternal complications associated with episiotomy
- Neonatal outcomes among women undergoing episiotomy

Operational Definitions

For the purpose of the study, the following operational definitions were used:

- Episiotomy: A surgically planned incision made on the perineum during the second stage of labor to enlarge the vaginal opening and facilitate childbirth.
- Primigravida: A woman who is pregnant and delivering for the first time.
- Multigravida: A woman who has experienced one or more previous pregnancies.

- Term Pregnancy: Pregnancy completed at or beyond 37 weeks of gestation.
- Normal Vaginal Delivery: Vaginal birth without forceps or vacuum assistance.
- Low Birth Weight: Neonatal birth weight less than 2.5 kg.
- Postpartum Hemorrhage: Blood loss exceeding 500 mL following vaginal delivery.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) software version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize demographic and clinical characteristics of the study participants.

Continuous variables were expressed as mean \pm standard deviation (SD), while categorical variables were presented as frequencies and percentages. Associations between episiotomy use and categorical variables such as parity, maternal age, birth weight, and type of delivery were analyzed using the Chi-square test or Fisher's exact test where appropriate. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations: The study was conducted after obtaining approval from the Institutional Ethics Committee of the participating institution prior to commencement of data collection. As the study was observational in nature and involved analysis of routinely collected hospital data, no intervention was performed and patient management was not altered in any way.

Confidentiality and privacy of patient information were strictly maintained throughout the study. Personal identifiers were removed during data collection and analysis to ensure anonymity. All study procedures were carried out in accordance with the ethical principles outlined in the Declaration of Helsinki.

RESULTS

A total of 130 deliveries were recorded during the study period from November 2025 to January 2026, including 70 vaginal deliveries and 60 caesarean section deliveries. Only women who underwent vaginal delivery were included in the final analysis. The demographic and obstetric characteristics of the study participants are summarized in [Table 1].

Table 1: Demographic and Obstetric Characteristics of Study Participants (n = 70)

Variable	Frequency (n)	Percentage (%)
Age		
18–24	27	38.6
25–30	32	45.7
>30	11	15.7
Parity		
Primigravida	37	52.9
Multigravida	33	47.1
Gestational Age		
37–39 weeks	46	65.7
≥40 weeks	24	34.3
Birth Weight		

<2.5 kg	8	11.4
2.5–3.0 kg	32	45.7
>3.0 kg	30	42.9
Type of Delivery		
Normal vaginal delivery	65	92.9
Instrumental vaginal delivery	5	7.1

Rate of Episiotomy

Among the 70 vaginal deliveries, episiotomy was performed in 29 women (41.4%), while 41 women (58.6%) delivered without episiotomy. The distribution of episiotomy use among study participants is illustrated in [Figure 1].

Association Between Maternal Factors and Episiotomy Use

Episiotomy was significantly more common among primigravida women compared with multigravida women (65.5% vs 34.5%, $p=0.041$). Instrumental vaginal delivery and higher neonatal birth weight were also significantly associated with increased episiotomy use, as shown in Table 2.

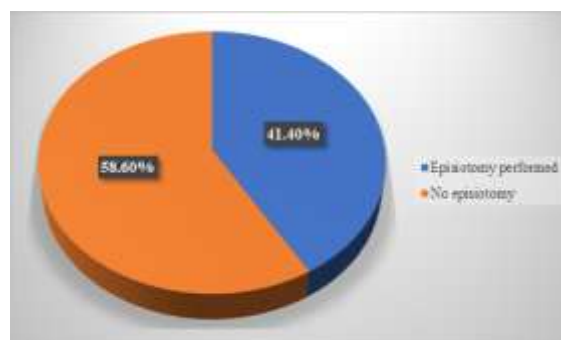


Figure 1: Rate of Episiotomy Among Vaginal Deliveries.

Table 2: Association Between Maternal and Obstetric Factors and Episiotomy Use

Variable	Episiotomy Performed n (%)	No Episiotomy n (%)	p-value
Parity			
Primigravida	19 (65.5)	18 (43.9)	0.041
Multigravida	10 (34.5)	23 (56.1)	
Maternal Age			
18–24 years	13 (44.8)	14 (34.1)	0.318
25–30 years	12 (41.4)	20 (48.8)	
>30 years	4 (13.8)	7 (17.1)	
Type of Delivery			
Normal vaginal delivery	25 (86.2)	40 (97.6)	0.047
Instrumental delivery	4 (13.8)	1 (2.4)	
Birth Weight			
<2.5 kg	2 (6.9)	6 (14.6)	0.036
2.5–3.0 kg	11 (37.9)	21 (51.2)	
>3.0 kg	16 (55.2)	14 (34.2)	

Indications for Episiotomy: Among the 29 women who underwent episiotomy, the most common indication was prevention of severe perineal tear in 13 women (44.8%). This was followed by fetal distress in 7 women (24.1%). Instrumental vaginal delivery accounted for 5 cases (17.2%), while rigid perineum was identified in 4 women (13.8%). The distribution of indications for episiotomy is illustrated in [Figure 2].

Maternal Outcomes Following Delivery: Women who underwent episiotomy experienced higher rates of postpartum perineal pain and wound-related complications compared with women who did not undergo episiotomy. However, severe perineal tears were slightly lower in the episiotomy group.

Maternal outcomes according to episiotomy status are summarized in [Table 3].

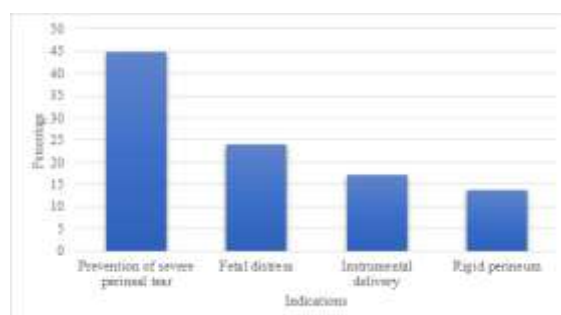


Figure 2: Indications for Episiotomy Among Study Participants.

Table 3: Maternal Outcomes in Women with and Without Episiotomy

Maternal Outcome	Episiotomy Group n (%)	No Episiotomy Group n (%)	p-value
Perineal pain	10 (34.5)	6 (14.6)	0.048
Wound infection	2 (6.9)	1 (2.4)	0.331
Severe perineal tear	2 (6.9)	4 (9.8)	0.672
Postpartum hemorrhage	1 (3.4)	1 (2.4)	0.811

Neonatal Outcomes: No statistically significant difference was observed in neonatal outcomes between the episiotomy and non-episiotomy groups.

Neonatal outcomes according to episiotomy status are summarized in [Table 4].

Table 4: Neonatal Outcomes According to Episiotomy Status

Neonatal Outcome	Episiotomy Group n (%)	No Episiotomy Group n (%)	p-value
Apgar score <7 at 5 min	2 (6.9)	1 (2.4)	0.331
NICU admission	3 (10.3)	2 (4.9)	0.389
Birth asphyxia	1 (3.4)	1 (2.4)	0.811

Overall, the study demonstrated a relatively high rate of episiotomy use during vaginal deliveries, particularly among primigravida women, instrumental deliveries, and neonates with higher birth weight. Maternal morbidity in the form of postpartum perineal pain was significantly higher among women undergoing episiotomy.

DISCUSSION

The present study evaluated the rate of episiotomy use and associated obstetric factors among women undergoing vaginal delivery at District Hospital, Sheoganj, Sirohi over a three-month period. The overall episiotomy rate observed in this study was 41.4%, which remains substantially higher than the restrictive episiotomy rates recommended by the World Health Organization. These findings highlight the continued predominance of routine or selective liberal episiotomy practices in many tertiary healthcare settings, particularly in developing countries.^[1,2]

Globally, the rate of episiotomy has been decreasing gradually as the use of evidence-based obstetric care and restrictive episiotomy policies has increased.^[2] However, there remains substantial variation by institution and geography. Raia-Barjat et al,^[6] found important differences in episiotomy practice among French maternity centers, while Bandeira et al,^[2] demonstrated decreasing trends in Portuguese public maternities. In contrast, studies from low- and middle-income countries continue to report relatively high episiotomy rates, particularly in tertiary referral hospitals managing high-risk pregnancies.^[4,7,8] The findings of the present study are therefore consistent with previous evidence suggesting that restrictive episiotomy recommendations are not yet uniformly implemented in routine obstetric practice.

Primigravidity was significantly associated with episiotomy use in the present study. Almost two-thirds of the women who had an episiotomy were primigravida, which is in agreement with the findings from previous research in Ethiopia and India.^[4,7,8] Primigravida women are considered to be at a higher risk for uncontrolled perineal tears by obstetricians due to a decrease in perineal elasticity and an increased length of the second stage of labor. Jacewicz-Świecka et al,^[1] similarly identified nulliparity as one of the strongest predictors of episiotomy. Although selective episiotomy may be justified in specific high-risk situations, increasing evidence indicates that routine episiotomy among primigravida women may not significantly reduce severe obstetric anal sphincter injuries.^[3]

Instrumental vaginal delivery was another major factor associated with episiotomy in the current

study. Instruments deliveries, episiotomy was done in more than four fifth of cases, similar to the findings of Rochelson et al,^[3] and Mousa et al.^[10] Instrument-assisted deliveries are often associated with fears of fetal distress, prolonged labor and severe perineal trauma which leads to clinicians performing episiotomy to facilitate delivery. However, recent literature has shown that a restrictive and individualized use of episiotomy during instrumental deliveries may lead to favorable maternal outcomes without increasing neonatal morbidity.^[3]

The present study also showed a significant association between higher neonatal birth weight and episiotomy use. Similar findings have been reported by Feleke et al,^[9] and Austad et al,^[5] who identified fetal macrosomia as an important predictor of episiotomy. Larger fetal size may contribute to difficult perineal stretching and increase clinicians' preference for episiotomy to reduce the risk of extensive perineal injury.

Importantly, women undergoing episiotomy in the present study experienced significantly higher rates of postpartum perineal pain and wound-related complications. These findings corroborate previous reports demonstrating increased maternal morbidity associated with unnecessary episiotomy.^[11,12] According to Bohren et al,^[12] restrictive policies on episiotomy have been associated with improved maternal recovery and lower rates of perineal trauma. Episiotomy has been traditionally believed to prevent severe tears, but newer data increasingly favors a selective rather than routine approach.^[13]

The findings of this study highlight the need for institutional audits, evidence-based obstetric training and implementation of restrictive episiotomy protocols in tertiary care centers overall. Reducing unnecessary episiotomy may contribute significantly to improved maternal outcomes, enhanced postpartum recovery, and better quality of obstetric care.

CONCLUSION

The present study demonstrated a relatively high rate of episiotomy use during vaginal deliveries at District Hospital, Sheoganj, Sirohi, despite global recommendations favoring restrictive episiotomy practices. Increased neonatal birth weight, instrumental vaginal delivery and primigravidity were factors significantly associated with episiotomy use. Episiotomy has been associated with increased postpartum perineal pain and wound-related complications, emphasizing the need for careful clinical decision making. The findings point to the necessity for the adoption of evidence-based obstetric protocols, regular institutional audits and continued

training of clinicians in order to reduce unnecessary episiotomy and improve maternal outcomes and quality of intrapartum care in district healthcare settings.

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