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A Pilot Study on Feasibility of Restrictive Episiotomy at TDMCH Alappuzha – A Tertiary Rural Referral Centre

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ABSTRACT

Background Episiotomy is among the most frequently performed surgical procedures in obstetric practice globally, yet robust evidence supporting its routine application is lacking. Restrictive episiotomy has been consistently shown to reduce perineal morbidity compared with routine practice. In India, routine episiotomy persists across parity groups, driven by institutional convention rather than clinical evidence. At Travancore Medical College Hospital (TDMCH), Alappuzha—a tertiary rural referral centre in Kerala—routine episiotomy constituted the prevailing institutional norm for all vaginal deliveries irrespective of parity.

Objectives To assess the feasibility and immediate safety of implementing a restrictive episiotomy policy among multiparous women at a tertiary rural referral centre, and to document associated maternal and neonatal outcomes.

Methods A prospective before-and-after pilot study was conducted in the Department of Obstetrics and Gynaecology, TDMCH, Alappuzha, during January 2015 (study period), with December 2014 as the historical control. A restrictive episiotomy protocol was applied to all multiparous women undergoing normal vaginal delivery. Primigravidas, instrumental deliveries, macrosomic fetuses, abnormal presentations, short perineum, and multiple gestations were excluded. Primary outcomes were episiotomy rate and obstetric anal sphincter injury (OASI; third- and fourth-degree perineal tears, classified by the Ranne and Thacker system). Secondary outcomes included postpartum haemorrhage (PPH), anterior vaginal wall tears, neonatal trauma, and pelvic floor pain.

Results Seventy-six multiparous women delivered normally during the study period, and 97 during the control period. Episiotomy rate declined significantly from 71.1% (69/97) in December 2014 to 44.7% (34/76) in January 2015 (χ^2=12.43, p<0.001). Intact perineum or first-degree tears increased from 17.5% to 46.1%, and second-degree tears decreased from 11.3% to 6.6%. Two third-degree perineal tears (OASI) occurred in the study group versus none in the control group (2.6% vs 0%; p=0.19, Fisher's exact test). No fourth-degree tears or PPH occurred in either period. Perineal pain was significantly lower in the study group (2.6% vs 10.3%; p=0.031). Neonatal outcomes were equivalent (one shoulder dystocia each).

Conclusion Restrictive episiotomy is feasible and safe to implement in a tertiary rural Indian setting, starting with multiparous women. The policy yielded a substantially lower episiotomy rate and improved perineal outcomes without

adversely affecting neonatal safety. A larger multicentre trial is warranted, particularly to evaluate OASI risk in this population.

Keywords*: Restrictive episiotomy; routine episiotomy; perineal tear; obstetric anal sphincter injury; postpartum complications; multiparous; pilot study; India.*

INTRODUCTION

Episiotomy—a deliberate surgical incision of the perineum and posterior vaginal wall during the second stage of labour—was first described in obstetric literature in the eighteenth century and gained widespread clinical adoption through the early twentieth century.[1,2] The theoretical rationale for its routine use encompassed the premise that a controlled incision would heal more satisfactorily than an uncontrolled tear, would protect the pelvic floor musculature from trauma, prevent urinary and faecal incontinence, and shorten the second stage of labour to avert fetal compromise.[1,3] These assumptions, however, were derived from clinical anecdote rather than rigorous scientific evidence, and routine episiotomy became embedded in global obstetric practice in the absence of demonstrable benefit.

From the mid-twentieth century, episiotomy became one of the most commonly performed surgical procedures in the world, with reported rates ranging from 9.7% in Scandinavian settings to over 90% in several developing nations.[4] In India, large-scale prospective data from 18 tertiary care hospitals encompassing 120,243 vaginal deliveries revealed an episiotomy rate of 63.4%, with nulliparous women 8.8 times more likely to receive episiotomy than multiparous women.[6] This widespread use persists despite the progressive accumulation of evidence questioning the benefit of routine application.[5]

The scientific basis for challenging routine episiotomy began to consolidate in the 1980s through prospective trials and systematic reviews. The landmark Cochrane systematic review by Jiang et al. (2017), incorporating data from 12 randomised controlled trials encompassing 6,177 women, concluded that selective episiotomy policies result in approximately 30% fewer women experiencing severe perineal or vaginal trauma (RR 0.70, 95% CI 0.52–0.94) relative to routine episiotomy, without adversely affecting blood loss at delivery, perineal infection, or neonatal Apgar scores.[7] These high-certainty findings fundamentally undermined the foundational justification for universal episiotomy practice.

A well-designed multicentre randomised controlled trial by Sangkomkamhang et al. (2020), conducted among 3,006 Southeast Asian women at four hospitals in Thailand, confirmed these findings in an Asian obstetric population directly comparable to the Indian clinical context. Restrictive episiotomy resulted in significantly more intact perineums in multiparous women (RR 3.09, 95% CI 2.10–4.56) and produced comparable risks of severe perineal laceration, cervical laceration, postpartum haemorrhage, birth asphyxia, and neonatal intensive care unit admission between the two policies.[8] The relevance of this evidence to Indian obstetric populations, given physiological and institutional parallels, is considerable.

Concern about long-term pelvic floor morbidity has been central to the episiotomy debate. A prospective French comparative study by Fritel et al. (2008) followed 774 nulliparous women for four years after first delivery and demonstrated that far from protecting pelvic floor integrity, routine episiotomy was associated with nearly twice the risk of anal incontinence compared with a restrictive policy (OR 1.84, 95% CI 1.05–3.22), with no difference in urinary incontinence, perineal pain, or dyspareunia between the groups at four years.[5] The relationship between episiotomy and postpartum sexual dysfunction has similarly attracted scrutiny; Rosen et al. (2022) found in a prospective cohort of 582 primiparous women that biomedical factors including episiotomy did not significantly predict dyspareunia trajectories at 24 months postpartum, with psychosocial factors being more determinative.[9] The contribution of perineal trauma to pelvic floor dysfunction at 6 months has also been examined, with Leeman et al. (2016) demonstrating in a nulliparous cohort with low episiotomy rates that second-degree lacerations did not confer significant risk of urinary or faecal incontinence compared with an intact perineum.[10]

Obstetric anal sphincter injuries (OASI)—comprising third- and fourth-degree perineal tears—represent the most clinically consequential complication of vaginal birth, carrying significant implications for anal incontinence and quality of life.[11] The relationship between episiotomy and OASI is nuanced. A systematic review and meta-analysis by Verghese et al. (2016), pooling data from over 651,000 women predominantly nulliparous, found that mediolateral episiotomy reduced the risk of OASI in vaginal delivery (RR 0.67, 95% CI 0.49–0.92), particularly in nulliparous spontaneous deliveries.[12] In the Indian subcontinent, Gundabattula and Surampudi (2018) reported an OASI incidence of 2.1% of vaginal births at a tertiary centre in south India, identifying primiparity, instrumental delivery, and shoulder dystocia as the most significant risk factors, with selective episiotomy conferring protection specifically in forceps and ventouse deliveries.[13]

Global temporal trends in OASI rates underscore the feasibility and impact of structured preventive programmes. A comparative register study by Gyhagen et al. (2021) from Austria, Canada, Norway, and Sweden found that Norway's introduction of a structured perineal protection programme in 2004 produced a consistent, sustained reduction in OASI rates across all delivery modes, including a decrease from approximately 20% to 6.2% following forceps delivery over a

12-year period.[14] These findings demonstrate that evidence-based policy reform can meaningfully reduce the burden of OASI at a population level.

The World Health Organization (WHO) and international clinical practice guidelines have uniformly endorsed the selective or restrictive use of episiotomy. A systematic review of 11 international clinical practice guidelines on uncomplicated birth by Zhao et al. (2020) identified routine episiotomy as one of four key recommendations addressed across five or more guidelines, with consensus supporting its abandonment as a routine procedure.[15] The WHO intrapartum care guidelines explicitly state that routine or liberal use of episiotomy is not recommended for women undergoing spontaneous vaginal birth.

Despite this international evidence and policy consensus, routine episiotomy remains entrenched in Indian obstetric practice. Singh et al. (2016) documented episiotomy rates exceeding 60% across 18 Indian tertiary hospitals, with significant variation but universal overuse relative to evidence-based recommendations.[6] Limited awareness of the evidence against routine practice, institutional inertia, medicolegal concerns, and the absence of institution-specific protocols governing episiotomy use collectively sustain this practice.[6,16] At TDMCH, Alappuzha, routine episiotomy was performed across parity groups without formal protocol guidance, driven partly by departmental convention and partly by insufficient dissemination of the evidence base among obstetric staff.

A pilot quality improvement intervention was therefore conceived as the appropriate first step towards evidence-based policy reform at TDMCH. This study was designed to evaluate the feasibility and immediate safety of transitioning to a restrictive episiotomy policy beginning with multiparous women—the population at lowest risk for OASI and most likely to benefit from reduced perineal incision—and to generate preliminary outcome data to inform a larger definitive institutional trial.

OBJECTIVES

Primary Objective

To assess the feasibility of implementing a restrictive episiotomy policy in multiparous women undergoing spontaneous vaginal delivery at TDMCH, Alappuzha, as evidenced by the episiotomy rate achieved during the study period compared with the historical control.

Secondary Objectives

(1) To compare the rate of obstetric anal sphincter injury (OASI; third- and fourth-degree perineal tears) between the restrictive episiotomy (study) and routine episiotomy (control) periods.
(2) To compare maternal outcomes including postpartum haemorrhage, anterior vaginal wall tears, and pelvic floor pain between the two periods.
(3) To compare neonatal trauma between the study and control periods.
(4) To evaluate the acceptability and safety of the restrictive episiotomy protocol in the institutional setting

METHODOLOGY

Study Design

This was a prospective before-and-after pilot study with a historical control period, designed to assess the feasibility and short-term safety of a restrictive episiotomy policy.

Study Setting

The study was conducted in the Department of Obstetrics and Gynaecology, Travancore Medical College Hospital (TDMCH), Alappuzha, Kerala, India. TDMCH is a tertiary rural referral centre serving Alappuzha district and neighbouring regions of central Kerala, managing a delivery volume of approximately 200–240 vaginal births per month. The institution receives a substantial proportion of high-risk obstetric referrals from peripheral primary and secondary health centres in the rural hinterland.

Study Duration

Study period: 01 January 2015 to 31 January 2015 (implementation of restrictive episiotomy policy).
Control period: 01 December 2014 to 31 December 2014 (prevailing routine episiotomy policy, serving as the historical comparator).

Study Population

All multiparous women who underwent spontaneous vaginal delivery at TDMCH during the study period were included. A multiparous woman was defined as a woman with at least one prior vaginal delivery (gravida ≥2 with parity ≥1).

Inclusion Criteria

Multiparous women (gravida ≥2, parity ≥1) delivering vaginally by spontaneous vertex presentation during the study and control periods.

Exclusion Criteria
The following categories were excluded: primipara (nulliparous women); instrumental vaginal delivery (forceps or vacuum extraction); clinically suspected fetal macrosomia (estimated fetal weight ≥4 kg by clinical assessment or ultrasound); abnormal fetal presentation (breech, face, brow, shoulder); short perineum as determined by the attending obstetrician on clinical assessment; and multiple pregnancy (twin or higher-order gestation).

Study Procedures and Pre-Implementation Training
Prior to commencing the study period, a formal educational session was conducted in the Department of Obstetrics and Gynaecology. This session was attended by all senior residents, junior residents, medical officers, and senior nursing staff participating in intrapartum care. The session included a structured review of the evidence base for restrictive episiotomy, including data from the Cochrane systematic review and relevant randomised controlled trials; a summary of WHO recommendations on episiotomy; and detailed instruction on the protocol for the pilot study, including the criteria for episiotomy, documentation of perineal outcomes, and classification of perineal trauma. A structured data collection proforma was distributed to all labour room staff.

Labour Management Protocol
All women were managed according to the standard institutional intrapartum protocols, including partographic monitoring of labour progress, intermittent auscultation of the fetal heart rate, and active management of the third stage of labour with intramuscular oxytocin 10 IU following delivery of the anterior shoulder.

Restrictive Episiotomy Protocol
Under the restrictive protocol, episiotomy was performed only when there was a clear clinical indication, as defined by the following criteria: (a) anticipated severe spontaneous perineal laceration (as judged by the obstetrician at the time of crowning based on perineal tissue extensibility and rate of descent); (b) evidence of acute fetal compromise during the second stage of labour requiring expedited delivery; or (c) maternal exhaustion impeding effective expulsive efforts. Where episiotomy was clinically indicated and performed, a right mediolateral episiotomy at 45° from the midline was employed, consistent with institutional practice and international recommendations for reduction of OASI risk. Episiotomy repair was performed using standard continuous subcuticular technique with size 2-0 polyglycolic acid sutures.

Outcome Measures
Primary outcomes: (1) episiotomy rate, defined as the proportion of eligible multiparous vaginal deliveries in which episiotomy was performed; and (2) OASI rate, defined as the proportion of deliveries with third- or fourth-degree perineal tears, classified according to the Ranne and Thacker classification system (first degree: skin only; second degree: skin and perineal musculature; third degree: extends to the external anal sphincter; fourth degree: extends through the anal mucosa). Secondary outcomes: (1) postpartum haemorrhage, defined as blood loss ≥500 mL within 24 hours of delivery; (2) anterior vaginal wall tear; (3) neonatal trauma, including shoulder dystocia, birth injury, and Apgar score <7 at 5 minutes; and (4) pelvic floor pain (perineal pain) assessed up to the day of hospital discharge.

Statistical Analysis
Descriptive statistics were used to summarise baseline and outcome data, with categorical variables expressed as frequencies and percentages. Differences between the study and control groups for categorical variables were tested using the chi-square test, with Fisher's exact test applied where expected cell counts were fewer than five. A p-value of <0.05 was considered statistically significant. Data were entered and analysed in Microsoft Excel 2013.

Ethical Considerations
The study was conducted in accordance with the principles of the Declaration of Helsinki. The restrictive episiotomy protocol was reviewed and approved by the Departmental Review Committee of TDMCH as a pilot quality improvement initiative prior to implementation. Written informed consent was obtained from all participants prior to enrolment in the study. Individual patient data were anonymised and maintained in strict confidence.

RESULTS:
Participant Flow and Overall Delivery Volume
During the study period (January 2015), 194 vaginal deliveries were conducted at TDMCH, of which 76 (39.2%) were multiparous women meeting the inclusion criteria. During the control period (December 2014), 236 vaginal deliveries were recorded, of which 97 (41.1%) were eligible multiparous women. The proportion of multiparous eligible deliveries was comparable between the two periods (39.2% vs 41.1%; p=0.65), indicating that the intervention did not substantially alter case mix.

Table 1: Sociodemographic and Structural Characteristics of the Study and Control Periods

Characteristic	Study Group (Jan 2015)	Control Group (Dec 2014)

Total vaginal deliveries (all parities)	194	236
Eligible multiparous normal deliveries	76 (39.2%)	97 (41.1%)
Setting	Tertiary rural referral, TDMCH, Alappuzha	Same setting, historical control
Study population (parity)	Multipara (≥2)	Multipara (≥2)
Episiotomy policy in force	Restrictive (study intervention)	Routine (pre-intervention)

Obstetric Characteristics

In the study group, 34 of 76 multiparous women (44.7%) received episiotomy, while 42 women (55.3%) delivered without episiotomy. In the control group, 69 of 97 women (71.1%) received routine episiotomy, leaving only 28 (28.9%) without episiotomy. This distribution is summarised in Table 2.

Table 2: Obstetric Characteristics and Episiotomy Practice in the Study and Control Groups

Parameter	Study Group (n=76)	Control Group (n=97)
Episiotomy performed	34 (44.7%)	69 (71.1%)
No episiotomy (spontaneous delivery)	42 (55.3%)	28 (28.9%)
p-value (episiotomy vs no episiotomy)	< 0.001 ($\chi^2 = 12.43$)	—

Episiotomy Rate

The implementation of the restrictive episiotomy protocol resulted in a statistically significant reduction in episiotomy rate among eligible multiparous women—from 71.1% in the control period to 44.7% in the study period, a reduction of 26.4 percentage points (chi-square=12.43, p<0.001). This represents a relative reduction of 37.1% in episiotomy use within a single month of policy implementation, demonstrating the feasibility of transitioning to a restrictive approach in this setting. Table 3 presents the episiotomy rate comparison.

Table 3: Comparison of Episiotomy Rates between Study and Control Groups

Outcome	Study Group Jan 2015 (n=76)	Control Group Dec 2014 (n=97)
Episiotomy performed, n (%)	34 (44.7%)	69 (71.1%)
Reduction in episiotomy rate	↓ 26.4 percentage points	—
Chi-square (χ^2)	12.43	—
p-value	< 0.001	—

Perineal Tear Distribution

The perineal outcome data across the 76 study group women showed that 35 women (46.1%) achieved an intact perineum or first-degree perineal tear—a nearly three-fold increase compared with 17 women (17.5%) in the 97-woman control group (p<0.001). Five women in the study group (6.6%) sustained a second-degree perineal tear, compared with 11 women in the control group (11.3%; p=0.27). Of note, two women in the study group (2.6%) sustained third-degree perineal tears (OASI), compared with none in the control group (0%; Fisher's exact test p=0.19). No fourth-degree tears occurred in either period. The internal consistency of these data was verified: study group totals (34 episiotomy + 35 intact/1st + 5 second degree + 2 third degree = 76) and control group totals (69 episiotomy + 17 intact/1st + 11 second degree = 97) account for all deliveries in each period. Detailed perineal outcome data are presented in Table 4.

Table 4: Distribution of Perineal Outcomes among Multiparous Women in Study and Control Groups

Perineal Outcome	Study Group (n=76)	Control Group (n=97)
Episiotomy	34 (44.7%)	69 (71.1%)
Intact perineum & 1st degree tear	35 (46.1%)	17 (17.5%)

2nd degree perineal tear	5 (6.6%)	11 (11.3%)
3rd degree perineal tear (OASI)	2 (2.6%)	0 (0%)
4th degree perineal tear	0 (0%)	0 (0%)
p-value (intact/1st degree vs control)	< 0.001	—

Maternal Outcomes

Postpartum haemorrhage did not occur in either the study or the control period. Anterior vaginal wall tears were observed in 6 women in the study group (7.9%) compared with 2 in the control group (2.1%), a difference that did not reach statistical significance (Fisher's exact p=0.14). All six anterior vaginal wall tears in the study group were superficial mucosal lacerations that did not require suturing or any additional clinical intervention. Perineal pain (assessed up to the day of discharge) was significantly less prevalent in the study group: 2 women (2.6%) versus 10 women (10.3%) in the control group (chi-square=4.67, p=0.031).

Neonatal Outcomes

Neonatal outcomes were comparable between the two periods. One case of shoulder dystocia was recorded in each group (1.3% in the study group vs 1.0% in the control group; p=0.88). No birth asphyxia, Apgar score less than 7 at 5 minutes, or other neonatal injury was documented in either period. Table 5 summarises maternal and neonatal outcomes.

Table 5: Maternal and Neonatal Outcomes in Study and Control Groups

Outcome	Study Group (n=76)	Control Group (n=97)
Postpartum haemorrhage	0 (0%)	0 (0%)
Anterior vaginal wall tear*	6 (7.9%)	2 (2.1%)
Perineal pain (up to discharge)	2 (2.6%)	10 (10.3%)
p-value (perineal pain)	0.031 ($\chi^2 = 4.67$)	—
Shoulder dystocia (neonatal trauma)	1 (1.3%)	1 (1.0%)
Other neonatal injury	0 (0%)	0 (0%)

** All anterior vaginal wall tears were superficial lacerations not requiring suturing.*

DISCUSSION

This pilot study from TDMCH, Alappuzha, demonstrated that a restrictive episiotomy policy could be feasibly and rapidly implemented in a tertiary rural referral centre in India beginning with multiparous women. The episiotomy rate decreased by more than 26 percentage points—from 71.1% to 44.7%—within a single calendar month of protocol implementation, and the proportion of women achieving an intact perineum or minor perineal tear nearly tripled, from 17.5% to 46.1%. Perineal pain in the postpartum period was significantly reduced, and no increase in postpartum haemorrhage, serious neonatal trauma, or perineal infection was observed.

The reduction in episiotomy rate achieved in this pilot study is consistent with the totality of international evidence. The pivotal Cochrane systematic review by Jiang et al. (2017) established that selective episiotomy policies reduce severe perineal and vaginal trauma by approximately 30% compared with routine use, across 12 trials and over 6,000 women, without adversely affecting other maternal or neonatal outcomes.[7] The increase in intact perineum rates from 17.5% to 46.1% observed in our study is numerically coherent with the multicentre RCT by Sangkomkamhang et al. (2020) from Thailand, which reported a three-fold increase in intact perineum rates among multiparous women randomised to restrictive episiotomy (RR 3.09, 95% CI 2.10–4.56), lending considerable external validity to our findings in an analogous Asian context.[8]

The magnitude of episiotomy rate reduction—from 71.1% to 44.7% within one month—achieved without extended training programmes or structural changes to the labour ward environment is notable. In the Indian institutional context, Gadappa and Deshpande (2021) reported a significant reduction in episiotomy rates following implementation of an intrapartum birth companion policy in a tertiary centre in Maharashtra, suggesting that relatively focused interventions can substantially alter established episiotomy behaviour.[16] The high baseline episiotomy rate of 71.1% is consistent with the national data reported by Singh et al. (2016) from 18 Indian tertiary hospitals, where rates frequently exceeded 70% for multiparous

women.[6] Our intervention therefore addresses a well-characterised and widely prevalent problem in Indian institutional obstetrics.

The occurrence of two third-degree perineal tears (OASI) in the study group (2.6%) compared with none in the control group merits careful and nuanced interpretation. The difference did not achieve statistical significance (Fisher's exact p=0.19), and the small sample size of 76 women in the study group is critically insufficient to draw conclusions regarding OASI risk—a rare outcome. An adequately powered study to detect a 2.6% difference in OASI rates with 80% power would require several hundred participants per arm. The pilot RCT by Murphy et al. (2008), comparing routine versus restrictive episiotomy at operative vaginal delivery in nulliparous women, reported third- or fourth-degree tear rates of 8.1% versus 10.9% respectively (OR 0.72, 95% CI 0.28–1.87; p=not significant), concluding that a definitive trial would require a large sample size to determine whether a difference exists.[17] The findings of Macleod et al. (2013), in a prospective cohort embedded within that RCT, also demonstrated that morbidity—including perineal pain—was greater in the immediate postpartum period with restrictive episiotomy (predominantly due to uncontrolled tears) but resolved by one year, with no long-term differences in incontinence.[18]

The risk of OASI specifically in multiparous women undergoing spontaneous vaginal delivery is considerably lower than in primiparous or instrumentally delivered women. Gundabattula and Surampudi (2018) demonstrated at their south Indian tertiary centre that primiparity was a more potent independent risk factor for OASI than multiparity, and that most severe sphincter injuries occurred in nulliparous women undergoing instrumental delivery.[13] Commencing the restrictive episiotomy pilot in multiparous women therefore represents the clinically and statistically appropriate choice to maximise safety during the transition period. The four-year follow-up study by Fritel et al. (2008) further confirmed that restricting episiotomy in primiparous women was associated with reduced anal incontinence at four years, demonstrating the long-term benefit of the restrictive approach even in higher-risk groups.[5]

Postpartum dyspareunia, frequently cited as a consequence of perineal trauma, was not assessed in this short-term pilot study. Rosen et al. (2022) found in a large prospective cohort that biomedical factors including episiotomy, perineal laceration, and mode of delivery did not independently predict dyspareunia trajectories at 24 months postpartum, with psychosocial factors—particularly pain catastrophising—emerging as the most significant predictors.[9] The long-term sexual and pelvic floor implications of episiotomy policy change therefore warrant assessment in any future definitive study.

The increase in anterior vaginal wall tears in the study group (6 vs 2) is a mechanistically plausible finding in the context of a restrictive perineal incision policy. When posterior perineal structures are not incised, expulsive forces during fetal crowning may preferentially redirect towards anterior structures, including periurethral and labial tissues. Sangkomkamhang et al. (2020) similarly reported significantly higher rates of vaginal laceration in both primiparous (RR 1.96) and multiparous women (RR 2.21) in the restrictive episiotomy group; however, crucially, this did not result in more suturing, additional complications, or worse maternal outcomes.[8] All six anterior vaginal wall tears in our study were superficial lacerations not requiring intervention, consistent with the notion that these represent clinically benign minor mucosal trauma rather than a meaningful substitution injury.

The significant reduction in perineal pain in the study group (2.6% vs 10.3%; p=0.031) is consistent with established evidence that episiotomy, contrary to historical belief, increases rather than reduces short-term perineal discomfort. The Cochrane review by Jiang et al. (2017) noted that selective episiotomy was not associated with worse pain outcomes at three days postpartum, and the long-term evidence from Fritel et al. (2008) confirmed no difference in perineal pain or dyspareunia at four years between restrictive and routine policies.[5,7] The reduction in perineal pain observed in our study likely reflects the combined effect of fewer episiotomies and a predominance of intact perineums or minor first-degree tears in the study group.

Adjunctive perineal protection strategies were not formally incorporated into the protocol of this pilot study, but the literature supports their combined use with restrictive episiotomy to further minimise OASI risk. The Cochrane review by Aasheim et al. (2017) found moderate-quality evidence that warm compresses applied to the perineum during the second stage of labour reduce the incidence of third- and fourth-degree tears (RR 0.46, 95% CI 0.27–0.79).[21] Similarly, a systematic review and meta-analysis by Venugopal et al. (2022) demonstrated that intrapartum perineal massage significantly reduces the rate of severe perineal trauma (RR 0.52, 95% CI 0.29–0.94), and reduces episiotomy rates (RR 0.71).[23] Integration of these techniques into a comprehensive second-stage perineal protection protocol, alongside restrictive episiotomy, is recommended for the next phase of implementation at TDMCH.

Neonatal outcomes were equivalent between the two periods, with one shoulder dystocia each and no fetal trauma, birth asphyxia, or low Apgar scores in either group. This finding is consistent with the Cochrane review evidence showing no neonatal detriment from selective episiotomy policy.[7] The OASI Care Bundle evaluation by Thornton and Dahlen (2020) noted that selective application of mediolateral episiotomy, integrated with a structured bundle of perineal protection

manoeuvres, represents the most defensible evidence-based approach to reducing severe perineal birth trauma without compromising maternal or neonatal safety.[20]

The systematic review by Dwan et al. (2024), the most recent Cochrane review on perineal techniques in the second stage of labour, confirmed that the evidence base for individual perineal techniques—including hands-off, warm compresses, and massage—remains of low to moderate certainty, and that further well-designed trials are needed to establish optimal second-stage perineal protection strategies, particularly in low- and middle-income settings.[19] Our pilot findings contribute to this emerging evidence landscape, specifically from a tertiary rural Indian institution.

Finally, the medium- and long-term complications of episiotomy—urinary incontinence, anal incontinence, pelvic organ prolapse, and sexual dysfunction—have all been examined in the literature. Gun et al. (2016) concluded in a review that routine episiotomy does not prevent urinary incontinence or pelvic organ prolapse, and that there is a linear relationship between perineal laceration degree and postpartum dyspareunia.[3] Schmidt and Fenner (2023) emphasised that systematic perineal examination including rectal assessment after every vaginal birth is essential to accurately diagnose and classify lacerations, and that episiotomy should be reserved for cases with clear clinical indication and performed with precise mediolateral technique to minimise OASI risk.[4] Okeahialam et al. (2022), in a systematic review of 703,977 patients from 31 studies, confirmed that mediolateral/lateral episiotomy significantly reduces OASI in operative vaginal delivery (OR 0.60, 95% CI 0.42–0.84), particularly in nulliparous ventouse (OR 0.51) and forceps deliveries (OR 0.32), but noted that evidence quality was very low due to critical risk of bias.[22]

STRENGTHS AND LIMITATIONS

Strengths

The study provides the first published evidence from TDMCH, and to our knowledge from a tertiary rural referral centre in Kerala, on the feasibility of a structured restrictive episiotomy policy. The before-and-after design permitted rapid implementation without the logistical complexity of concurrent randomisation. A structured pre-implementation educational intervention was delivered to all labour ward staff. Outcome data were collected using a predefined proforma with standardised outcome definitions and perineal tear classification. The study successfully achieved its primary objective—demonstrating a significant reduction in episiotomy rate—and generated a preliminary data set to inform power calculations and design of a definitive trial.

Limitations

Several limitations must be acknowledged. First, the historical control design is susceptible to confounding, as differences in seasonal case mix, case complexity, or unmeasured variables between December 2014 and January 2015 cannot be excluded. Second, the small sample size (76 study, 97 control) renders the study critically underpowered to detect or exclude differences in rare outcomes such as OASI; the two third-degree tears observed in the study group cannot be interpreted as a definitive safety signal nor as an incidental finding without a larger study. Third, detailed baseline obstetric data—including maternal age, gestational age, birth weight, duration of second stage, and body mass index—were not systematically collected, limiting adjustment for potential confounders. Fourth, the one-month study period is vulnerable to the Hawthorne effect, whereby staff performance may have been influenced by awareness of being observed. Fifth, postpartum follow-up was limited to the period of hospital discharge, with no data on longer-term outcomes such as dyspareunia, pelvic floor dysfunction, wound complications, or anal incontinence. Sixth, the single-centre design in a specific institutional and geographical context limits generalisability to other Indian settings with different population characteristics or institutional cultures.

CLINICAL IMPLICATIONS

This pilot study carries direct and actionable clinical relevance for obstetric departments across Indian tertiary hospitals where routine episiotomy persists as an institutional norm. The study demonstrates that a protocol-driven transition to restrictive episiotomy is achievable in a short timeframe through education and a clearly defined institutional protocol, without compromising immediate maternal or neonatal safety. The significant reduction in perineal pain in the study group suggests a tangible benefit to multiparous women even within a brief observation period. The acceptability of the policy among delivery room staff, as evidenced by the episiotomy rate achieved, indicates that educational interventions and structured protocols can effectively modify deeply entrenched clinical behaviours at the institutional level. However, the occurrence of two third-degree tears reinforces the importance of maintaining rigorous perineal protection manoeuvres during crowning, adherence to strict clinical criteria for episiotomy, systematic perineal assessment following all deliveries, and continued clinician vigilance for OASI even in multiparous women. Clinical upskilling in OASI recognition and repair should accompany any institutional transition to restrictive episiotomy.

RECOMMENDATIONS

Based on the findings of this pilot study, the following recommendations are proposed:

1. A formal restrictive episiotomy policy should be adopted for multiparous women undergoing spontaneous vaginal delivery at TDMCH, supported by a written institutional protocol clearly defining clinical indications, documentation requirements, and escalation pathways.

2. The policy should be extended to primiparous women in a subsequent phase, following a larger study that specifically confirms OASI safety data in this higher-risk group, potentially incorporating warm compress and perineal massage as adjunctive preventive strategies.
3. A validated clinical scoring system stratifying the indication for episiotomy on the basis of parity, fetal parameters, perineal characteristics, and intrapartum factors should be developed and piloted at TDMCH.
4. A multicentre prospective randomised controlled trial should be designed and conducted across obstetric units in Kerala and India to generate definitive evidence on OASI risk, perineal morbidity, postpartum pelvic floor function, and neonatal outcomes associated with restrictive versus routine episiotomy in this population.
5. Mandatory training in evidence-based perineal protection techniques—including warm compresses, manual perineal support, controlled delivery of the fetal head, and optimal maternal birth positioning—should be integrated into junior resident and midwifery training programmes alongside the restrictive episiotomy policy.
6. Episiotomy rates and perineal outcome data (including OASI) should be recorded as key quality indicators in institutional maternal audit systems and subjected to annual departmental review

CONCLUSION:

This pilot study from TDMCH, Alappuzha, establishes that a transition from routine to restrictive episiotomy is operationally feasible and achievable within a short intervention period through education and protocol implementation at a tertiary rural referral centre in India. The episiotomy rate among eligible multiparous women decreased significantly from 71.1% to 44.7% ($p<0.001$), and the proportion of women achieving an intact perineum or first-degree tear increased from 17.5% to 46.1%. Postpartum perineal pain was significantly reduced, and there were no episodes of postpartum haemorrhage, fetal injury attributable to the policy change, or fourth-degree perineal tears in either period. The two third-degree tears in the study group did not achieve statistical significance and are most appropriately regarded as a pilot signal warranting evaluation in a larger, adequately powered study rather than as definitive evidence of increased OASI risk.

These findings support the extensive international body of evidence endorsing selective episiotomy and align with WHO recommendations and the consensus of international clinical guidelines. In India, where episiotomy rates in institutional deliveries remain well above globally recommended thresholds and there is a substantial unmet need for evidence-based perineal care, the implementation of restrictive policies beginning with multiparous women represents a clinically appropriate, technically feasible, and patient-beneficial strategy. The concept of restrictive episiotomy is promising, and the planning of a scoring system to guide clinical decisions, the extension of the policy to primipara, and its eventual institutionalisation as a formal departmental protocol represent the natural progression of this work. Broader adoption across Indian tertiary institutions, supported by staff training, systematic audit, and multicentre research, has the potential to substantially reduce perineal morbidity among the millions of women delivering vaginally in India each year.

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