

A Comparative Study on Maternal Morbidity after Routine Vs Selective Episiotomy in Primigravida in a Tertiary Care Hospital in Kishanganj, Bihar**Diksha Deshraj Yadav¹, Shivangi Sahay², Swapan Kumar Kundu³, Shubham Yadav⁴, Saket Krishna⁵**^{1,2}Post Graduate Trainee, ³Associate Professor, Department of Obstetrics & Gynaecology, ⁵Post Graduate Trainee, Department of Dermatology, Venereology & Leprosy, Mata Gujri Memorial Medical College & Lions Seva Kendra Hospital, Mata Gujri University, Kishanganj, Bihar 855107, India⁴Post Graduate Trainee, Department of Orthopedics, M.M. Institute of Medical Sciences & Research, Maharishi Markandeshwar University, Mullana, Ambala, Haryana 133207, India

Received: 25-08-2024 / Revised: 23-09-2024 / Accepted: 26-10-2024

Corresponding Author: Dr. Yadav Diksha Deshraj

Conflict of interest: Nil

Abstract:**Background:** The aim is to investigate the risk of short-term maternal morbidity caused by routine vs selective episiotomy in primigravida in a tertiary care hospital in Kishanganj, Bihar.**Methodology:** This prospective cohort study was undertaken in Department of Obstetrics and Gynaecology, MGM Medical College and LSK Hospital, Kishanganj, Bihar. Most of the referred study with same indication conducted for 3 months of follow up post-delivery per subject. Women fulfilling the criteria were undergone detailed clinical examinations. A detailed history was taken regarding menstrual and obstetrical history with onset of labour pain, duration and associated with rupture of membrane or not. A thorough general physical examination, respiratory system and cardiovascular and CNS examinations was done. In obstetrical examination like uterine height in weeks; lie of the fetus, presentation and position; fetal heart sounds; and estimated fetal weight were noted. Per vaginal examination was done to assess cephalo-pelvic disproportion and the status of cervix by bishop score. Informed consent form was taken. In follow up visits vitals observations like (BP, pulse rate, temp, respiratory rate); episiotomy related complications like skin tag, asymmetry, excessive narrowing of introitus, rectovaginal fistula were noted.**Results:** In our study in routine episiotomy group, the mean age (mean± s.d.) of patients was 25.38± 4.3887yrs and in selective episiotomy group, the mean Age (mean± s.d.) of patients was 25.08± 3.8377yrs. Difference of mean age with both groups was not statistically significant (p=0.7160). We found that the mean gestational age GA (mean± s.d.) of patients was higher in routine episiotomy group [38.7260± .9847] compared to selective episiotomy group patients [38.6140± .8788] which was not statistically significant (p=0.5499).**Conclusion:** Routine episiotomy, while once a common practice in obstetrics, may lead to increased rates of anterior vaginal trauma and vaginal tears, particularly first and second-degree tears, compared to the selective episiotomy approach. These findings underscore the potential risks associated with routine episiotomy, including increased maternal discomfort and potential long-term sequelae such as pelvic floor dysfunction. Despite the higher incidence of perineal trauma observed in the routine episiotomy group, no significant differences were observed in other maternal outcomes such as urinary and anorectal incontinence, dyspareunia, or NICU admission rates.**Keywords:** Primigravida, Routine Episiotomy, Selective Episiotomy, Maternal Morbidity, Bihar.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Episiotomy is a surgically planned incision on the perineum and the posterior vaginal wall by a skilled birth attendant to enlarge the vaginal opening for birth during second stage of labour (FIGO 2012). Episiotomy, an inflicted second-degree perineal injury, is a widely performed intervention during childbirth despite poor scientific evidence for its benefit. It is the incision of the pudenda, whereas periniotomy is the incision of perineum. Over the

years Episiotomy has become synonymous with periniotomy [1]. This is the only surgical procedure performed without patient's specific consent and despite being performed for nearly 280 years, the use of this procedure remains highly controversial. The widely accepted justification for Episiotomy is that it facilitates delivery, spares baby's head from trauma and prevents perineal laceration and undue stretching of the pelvic floor which could predis-

pose to subsequent utero vaginal prolapse. Some clinicians believe that routine episiotomy, a surgical cut of the vagina and perineum, will prevent serious tears during childbirth [2,3].

Recent studies proved that these claims lack of any scientific basis. In addition, the high level of pain reported by a series of women after Episiotomy led to comment on the need for firm evidence to support or refute the belief “that a clean surgical incision in the perineum, correctly timed and repaired, is more likely than a ragged, bruised tear to heal by first intention and cause less trouble at that time and later”. Two most common types of Episiotomies are midline or median and mediolateral. Midline or median Episiotomy is favored in USA and Canada. While mediolateral ones are more commonly performed in India and UK [4].

On the other hand, hypothesized adverse effects of routine use of episiotomy include: a) extension of episiotomy either by cutting the anal sphincter or rectum, b) unsatisfactory anatomic results such as skin tags, asymmetry or excessive narrowing of the introitus, vaginal prolapse, rectovaginal fistula, c) increased blood loss and haematoma, d) pain, oedema, infection and dehiscence in the episiotomy region, and e) sexual dysfunction. The lack of consensus about routine or restricted use of episiotomy is reflected in the wide variation of the episiotomy rates being reported in different studies [5].

Limiting the use of episiotomy to strict indications has been done in some countries through adherence to standard protocols, training/retraining, and supervision and quality improvement processes. Our institute has a busy labour room with an annual delivery of approximately 3,000 per year. It is not known whether women in labour room at our set-up will be benefited more by selective episiotomy or routine episiotomy.

This study was to determine the possible benefits and risks of the use of selective episiotomy versus routine episiotomy during delivery in primigravida. Aim of this study was to analyze and compare the maternal outcomes following routine versus selective use of episiotomy in primigravida.

Materials & Methods

This prospective cohort study was undertaken in Department of Obstetrics and Gynaecology, MGM Medical College and LSK Hospital, Kishanganj, Bihar.

Most of the referred study with same indication conducted for 3 months of follow up post-delivery per subject. So, a total of 20 months study including 3 months of follow up per subject is designed.

Inclusion Criteria:

1. Uncomplicated primigravida with singleton live gestation
2. More than 37 weeks gestational age (gestational age 37-40 weeks assessed by menstrual dates, clinical examination and ultrasound examination)
3. Vertex presentation (occipito-anterior position)

Exclusion Criteria: Multigravida; multiple pregnancy; assisted breech deliveries; non-vertex presentations including malposition; instrumental deliveries; associated systemic diseases; BMI>30; maternal exhaustion; preterm deliveries; fetal macrosomia; and premature rupture of membranes

Patients were divided in two groups:

Group A: comprised of selective episiotomy cases. Patients was included where episiotomy was given selectively, based on clinical judgment, as foetal distress, a prolonged second stage of labor, rigid perineum, imminent perineal tear, significant maternal cardiac disease or any other medical reason to minimize intra-abdominal pressure changes,

Group B: comprised of routine episiotomy cases.

A multidisciplinary approach is best used for this type of researches. In case of comparative studies, quantitative data of secondary analysis are outspread. Therefore, this study required minimum 57 samples for each group. Hence, 120 patients were divided in two groups and with Group-A and Group-B 60 patients each. Period of study was 1 year & 8 months (September 2022 to April 2024).

Women fulfilling the criteria were undergone detailed clinical examinations. A detailed history was taken regarding menstrual and obstetrical history with onset of labour pain, duration and associated with rupture of membrane or not. A thorough general physical examination, respiratory system and cardiovascular and CNS examinations was done. In obstetrical examination like uterine height in weeks; lie of the fetus, presentation and position; fetal heart sounds; and estimated fetal weight were noted. Per vaginal examination was done to assess cephalo-pelvic disproportion and the status of cervix by bishop score. Informed consent form was taken.

In follow up visits vitals observations like (BP, pulse rate, temp, respiratory rate); episiotomy related complications like skin tag, asymmetry, excessive narrowing of introitus, rectovaginal fistula were noted. The data was expressed in number, percentage, mean and standard deviation. Statistical Package for Social Sciences (SPSS 22.0 version) used for analysis. Categorical variables are expressed as Number of patients and percentage of patients and compared across the groups using

Pearson's Chi Square test for independence of attributes/ Fisher's Exact Test as appropriate. Unpaired t test applied to find the statistical significance between the groups. P value less than 0.05 ($p < 0.05$) was considered statistically significant at 95% confidence interval.

In routine episiotomy group, the mean age (mean \pm S.D.) of patients was 25.3800 \pm 4.3887. In selective episiotomy group, the mean age (mean \pm S.D.) of patients was 25.0800 \pm 3.8377.

Difference of mean age with both groups was not statistically significant ($p=0.8950$) [Table 1/ Fig.1].

Results

Table 1: Age distribution in the episiotomy groups

Group		Age
Routine Episiotomy	Mean	25.38
	Median	25.00
	Std. Deviation	4.39
Selective Episiotomy	Mean	25.08
	Median	25.00
	Std. Deviation	3.84
	p Value	0.895
	Significance	Not Significant

In routine episiotomy group, the mean gestational age [GA] (mean \pm s.d.) of patients was 38.723. In selective episiotomy group, the mean GA (mean \pm s.d.) of patients was 38.61. Difference of mean GA with both groups was not statistically significant ($p=0.574$) [Table 2].

Table 2: Gestational age (GA) distribution in the episiotomy groups

Group		GA
Routine episiotomy	Mean	38.73
	Median	39.00
	Std. Deviation	0.98
Selective episiotomy	Mean	38.61
	Median	38.70
	Std. Deviation	0.88
	p Value	0.574
	Significance	Not Significant

In routine episiotomy group, the mean birth weight (mean \pm s.d.) of patients was 2.75. In selective episiotomy group, the mean birth weight (mean \pm s.d.) of patients was 2.75. Difference of mean birth weight with both groups was not statistically significant ($p=0.891$) [Table 3].

Table 3: Birth weight distribution in the episiotomy groups

Group		Birth Weight
Routine episiotomy	Mean	2.75
	Median	2.75
	Std. Deviation	0.16
Selective episiotomy	Mean	2.75
	Median	2.70
	Std. Deviation	0.18
	p Value	0.891
	Significance	Not Significant

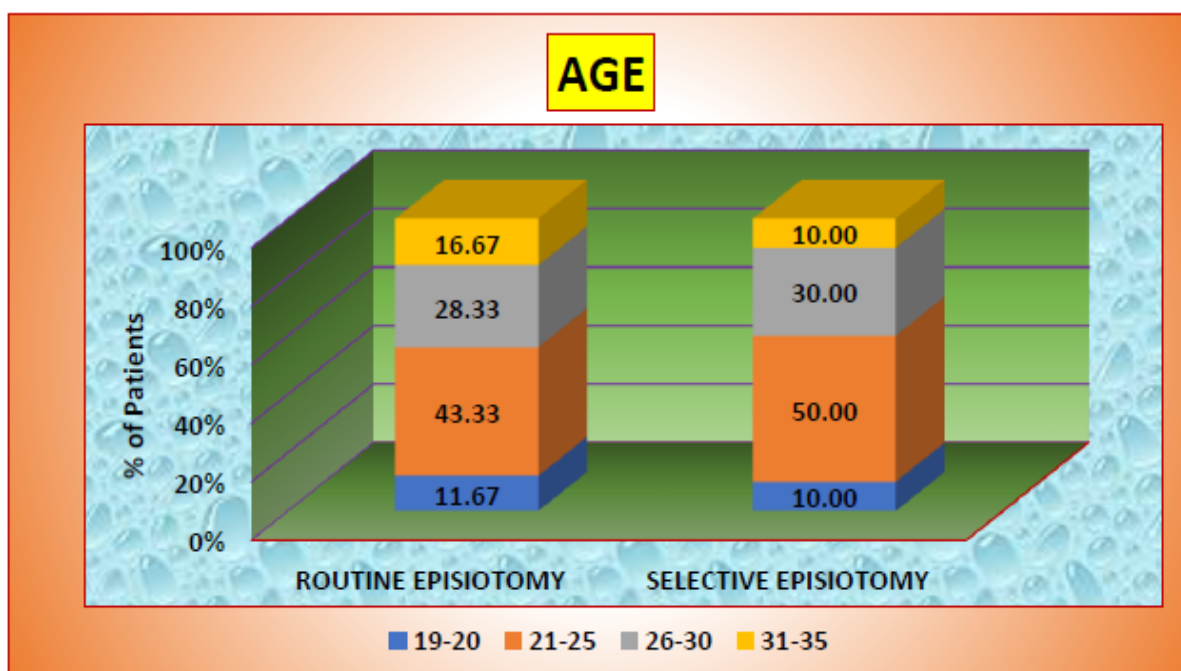


Figure 1: Age distribution in the episiotomy groups

In routine episiotomy group, 24 patients had anterior vaginal trauma and in selective episiotomy group, 12 patients had anterior vaginal trauma. Association of anterior vaginal trauma vs group was statistically significant (p=0.029).

In routine episiotomy group, 60 (100%) patients had first degree vaginal tear. In selective episiotomy group, 18 (30%) patients had first degree vaginal tear. Association of first-degree vaginal tear vs group was statistically significant (p<0.0001). In routine episiotomy group, 60

(100%) patients had second degree vaginal tear. In selective episiotomy group, 24 (40%) patients had second degree vaginal tear.

Association of second-degree vaginal tear vs group was statistically significant (p<0.0001). In routine episiotomy group, 4 (6.67%) patients had third degree vaginal tear. In selective episiotomy group, 2 (3.33%) patients had third degree vaginal tear. Association of third-degree vaginal tear vs group was not statistically significant (p=0.6463) [Table 4/Figs 2-4].

Table 4: Anterior vaginal wall tear, 1st degree 2nd degree and 3rd degree vaginal tear in the episiotomy groups

Characteristics		Group		Total (%)	P value	significance
		Routine Episiotomy	Selective Episiotomy			
Anterior vaginal trauma	No	36(60%)	36(60%)	36(60%)	0.029	Significant
	Yes	24(40%)	24(40%)	24(40%)		
	Total	60(100%)	60(100%)	120(100%)		
First degree vaginal tear	No	0(0)	42(70%)	42(35%)	0.000	Significant
	Yes	60(100%)	18(30%)	78(65%)		
Second degree vaginal tear	No	0(0)	36(60%)	36(30%)	0.000	Significant
	Yes	60(100%)	24(40%)	84(70%)		
Third degree vaginal tear	No	56(93.33%)	58(96.67%)	114(95%)	0.646	Not Significant
	Yes	4(6.67%)	2(3.33%)	6(5%)		

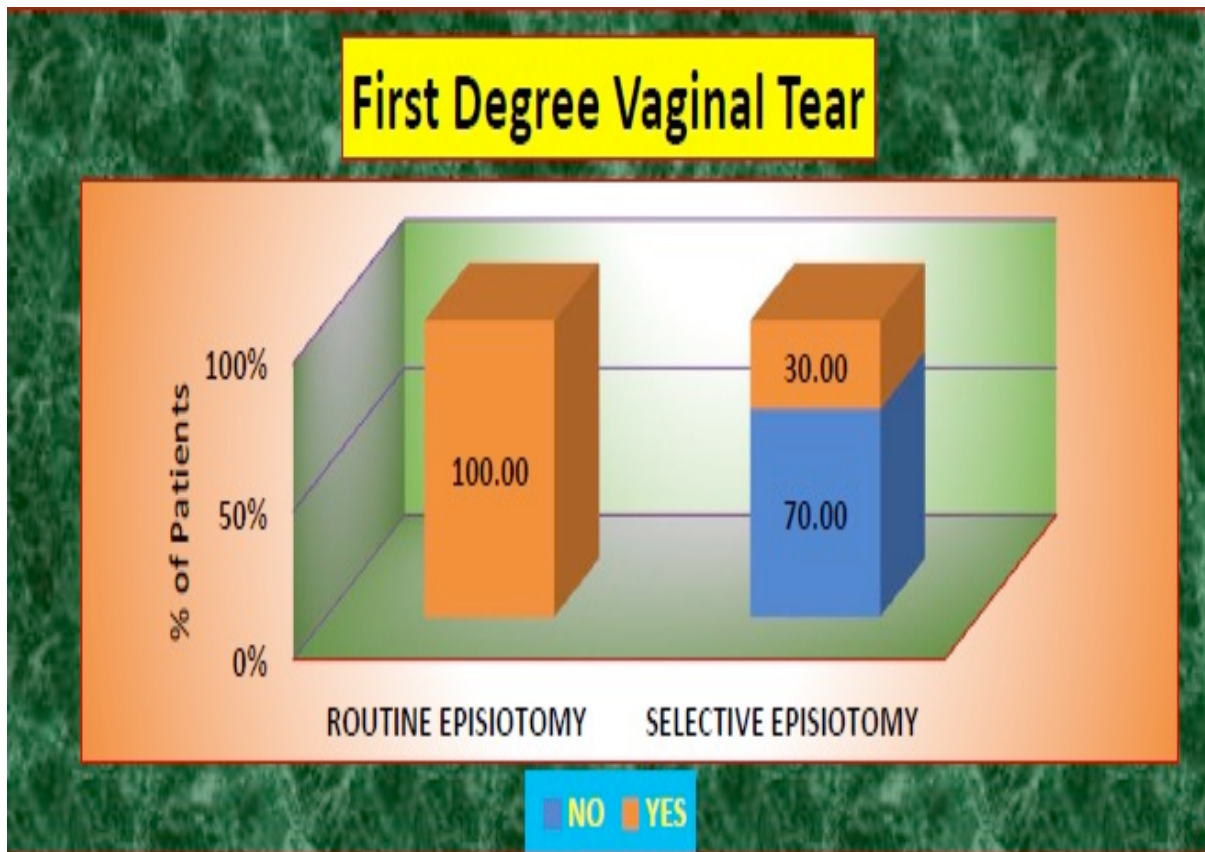


Figure 2: First degree vaginal tear in the episiotomy groups

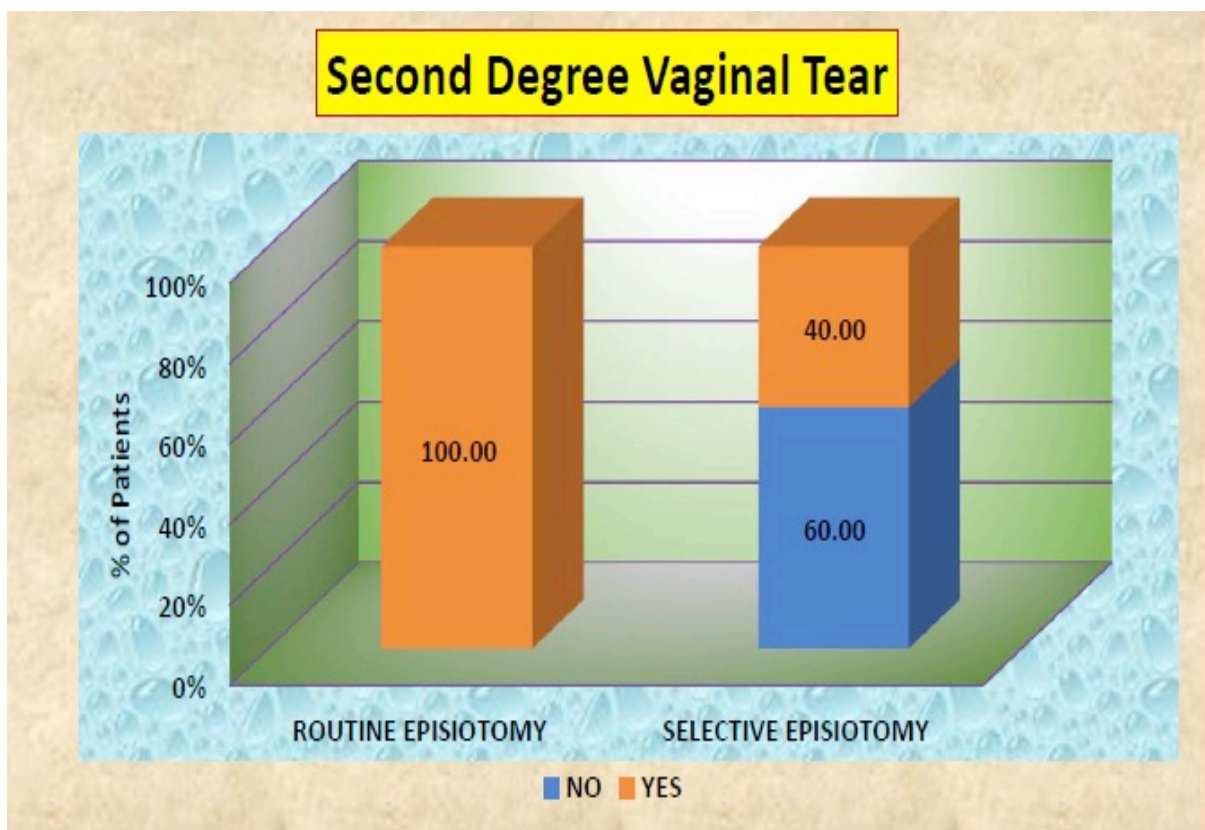


Figure 3: Second degree vaginal tear in the episiotomy groups

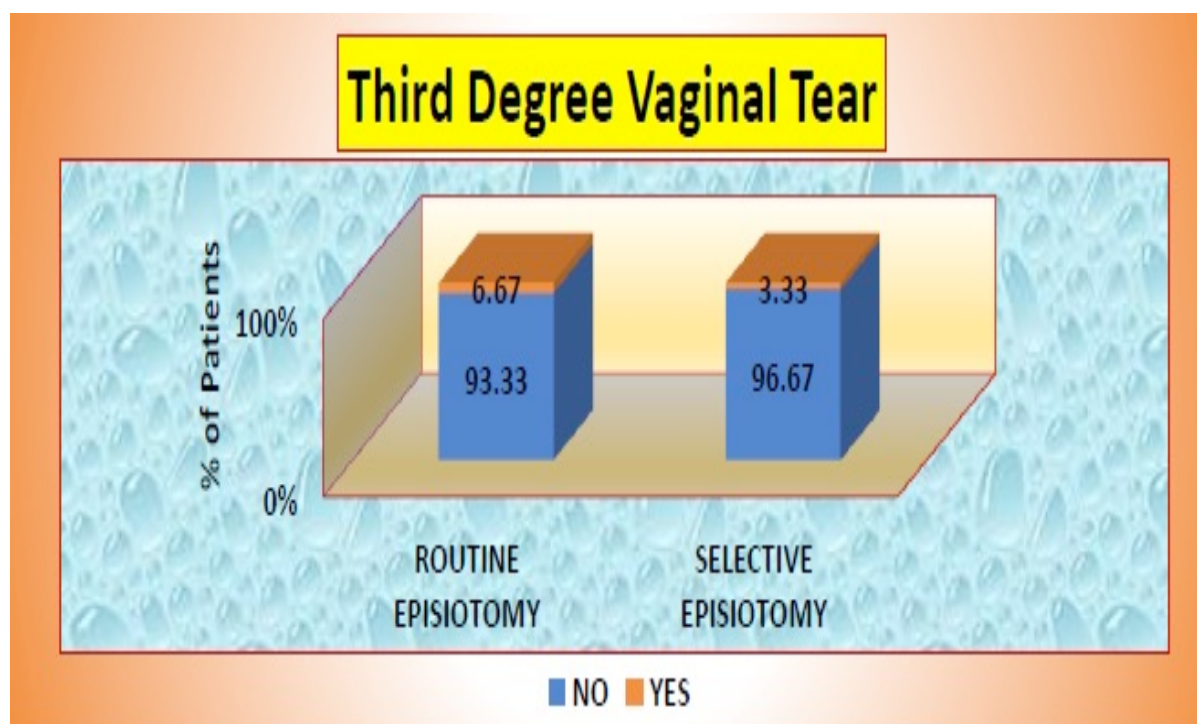


Figure 4: Third degree vaginal tear in the episiotomy groups

In routine episiotomy group, 5(8.33%) patients had urinary incontinence.

In selective episiotomy group, 4(6.67%) patients had urinary incontinence. Association of urinary incontinence vs group was not statistically significant ($p=0.695$). In routine episiotomy group, 4(6.67%) patients had anoorectal incontinence. In selective episiotomy group, 2(3.33%) patients had

anoorectal incontinence. Association of anoorectal incontinence vs group was not statistically significant ($p=0.646$).

In routine episiotomy group, 6(10%) patients had dyspareunia. In selective episiotomy group, 4(6.67%) patients had dyspareunia. Association of dyspareunia vs group was not statistically significant ($p=0.715$) [Table 5].

Table 5: Maternal morbidity after routine vs selective episiotomy in primigravida

Characteristics	Group		Total (%)	P value	significance
	Routine Episiotomy	Selective Episiotomy			
Urinary Incontinence	No	55(91.67%)	56(93.33%)	0.695	Not significant
	Yes	5(8.33%)	4(6.67%)		
	Total	60(100%)	60(100%)		
Anorectal Incontinence	No	56(93.33%)	58(96.67%)	0.646	Not significant
	Yes	4(6.67%)	2(3.33%)		
Dyspareunia	No	54(90%)	56(93.33%)	0.715	Not significant
	Yes	6(10%)	4(6.67%)		

Discussion

This prospective, randomised, comparative study was undertaken in Department of Obstetrics and Gynaecology, MGM Medical College and Hospital, Kishanganj, Bihar. Most of the referred study with same indication conducted for 3 months of follow up post-delivery per subject.

So, a total of 20 months study contains 3 months of follow up per subject is designed. The study was done on pregnant women who were undergoing normal vaginal delivery. Patients with

uncomplicated pregnancy, primigravida, singleton live gestation, >37 weeks gestational age (gestational age 37-40 weeks assessed by menstrual dates, clinical examination and ultrasound examination) and vertex presentation (occipito anterior position) were included in this study.

Total 120 patients were present in this study.

- Group A: This comprised of selective Episiotomy cases = 60 patients
- Group B: This comprised of routine Episiotomy cases = 60 patients

We found that in routine episiotomy, 7(11.67%) patients were ≤ 20 years old, 26(43.33%) patients were 21-25 years old, 17(28.33%) patients were 26-30 years old and 10(16.67%) patients were 31-35 years old. In selective episiotomy, 6(10.0%) patients were ≤ 20 years old,

30(50.0%) patients were 21-25 years old, 18(30.0%) patients were 26-30 years old and 6(10.0%) patients were 31-35 years old. It was not statistically significant ($p=0.7990$). In our study in routine episiotomy group, the mean age (mean \pm s.d.) of patients was 25.38 ± 4.3887 yrs and in selective episiotomy group, the mean age (mean \pm s.d.) of patients was 25.08 ± 3.8377 yrs. Difference of mean age with both groups was not statistically significant ($p=0.7160$). We found that the mean gestational age GA (mean \pm s.d.) of patients was higher in routine episiotomy group [38.7260 ± 0.9847] compared to selective episiotomy group patients [$38.6140\pm .8788$] which was not statistically significant ($p=0.5499$).

Shmueli A et al (2017) found that only birth weight (nulliparous) and previous vaginal deliveries (multiparous) were contributors for episiotomy in the OVD group. Episiotomy does not protect nulliparous women, and may be associated with an increased risk for multiparous, for OASI. Therefore, the practice of routine episiotomy should be abandoned, and the practice of selective episiotomy reconsidered [6]. We also found that in routine episiotomy group, the mean birth weight (mean \pm s.d.) of patients was 2.752 ± 0.1594 kg and in selective episiotomy group, the mean birth weight (mean \pm s.d.) of patients was 2.754 ± 0.1832 kg. It was not statistically significant ($p=0.9537$). In our study in routine episiotomy, 60 (100%) patients were present and in selective episiotomy, 60 (100%) patients were present. Ali SS et al (2004) the two interventions compared were selective (limited to specified maternal or fetal indications) and routine episiotomy (following the hospital policy). 200 primigravida were included in the study, 100 women in each group. Anterior vaginal/ periurethral trauma was more common in the selected group. However, posterior surgical repair, perineal pain, wound dehiscence and other healing complications were all less frequent in selected group [7].

In our study, it was found that higher number of patients from routine episiotomy group had anterior vaginal trauma [24(40.0%)] compared to selective episiotomy group patients [12(20.0%)] which was statistically significant ($p=0.0290$). Apurva A. et al (2016) conducted a study included 200 patients of routine episiotomy and 200 patients of restricted episiotomy. In the study group, 75% of women had first degree of tear and 22.5% women had second degree tear without any post-partum haemorrhage and in the control group; 95% pregnant women had

episiotomy without any extension, 10 pregnant women had third degree of tear. Our study showed that in routine episiotomy group, all [60(100%)] patients had first degree vaginal tear where in selective episiotomy group, only 18(30.0%) patients had first degree vaginal tear and it was also statistically significant ($p<0.0001$) [8]. We found that in Routine Episiotomy Group, all [60(100.0%)] patients had Second degree vaginal tear and in Selective Episiotomy Group, only 24(40.0%) patients had Second degree vaginal tear. It was statistically significant ($p<0.0001$). We also found that in routine episiotomy group, 4(6.67%) patients had third degree vaginal tear and in selective episiotomy group, 2(3.33%) patients had third degree vaginal tear. This was not statistically significant ($p=0.6463$).

Our study showed that in routine episiotomy group, 4(6.67%) patients had anorectal incontinence and in selective episiotomy group, 1(1.67%) patient had anorectal incontinence. It was not statistically significant ($p=0.617$). Apurva A. et al (2016) [8] conducted a study included 200 patients of routine episiotomy and 200 patients of restricted episiotomy. During follow-up, only 2 patients reported dyspareunia in study group, while 3 patients reported faulty wound healing, 1 patient each reported urinary incontinence and anorectal incontinence, also 4 patients reported dyspareunia among control group.

We found that urinary incontinence was higher in routine episiotomy group [5(8.33%)] patients compared to selective episiotomy group [4(6.67%)] patients which was not statistically significant ($p=0.6951$). We also found that most of the patients from routine episiotomy group had dyspareunia [6(10.0%)] compared to selective episiotomy group [4(6.67%)] patients and it was not statistically significant ($p=0.715$).

Radner G et al study (2024) included 10992 women who delivered vaginally between 2008-2018. Episiotomy was performed in 171 patients (1.55%), three of whom (1.75%) experienced severe perineal tears compared to 156 (1.44%) in the control cohort. The adjusted odds ratio of severe perineal tears was 2.06 (95% confidence interval [CI]: 0.51, 8.19 with 0.3 p value). Multivariate linear regression showed that episiotomy increased blood loss by 96.3 ml (95% CI: 6.4, 186.2 with 0.03 p value). Episiotomy was performed in 23% (95% CI: 0.228, 0.23) of vaginal deliveries in the state of Hessen, with a risk of severe perineal tears of 0.0143 (95% CI: 0.0139, 0.0147) compared to 0.0145 (95% CI: 0.0123, 0.0168) in our entire cohort [9].

Limitations

In spite of every sincere effort our study has lacunae. The sample size was small. Only 120

cases are not sufficient for this kind of study. The study has been done in a single center. The study was carried out in a tertiary care hospital, so hospital bias cannot be ruled out.

Conclusion

The study aimed to compare the outcomes of routine episiotomy versus selective episiotomy in obstetric patients. Analysis of demographic characteristics revealed no significant differences in age, gestational age, or birth weight between the two groups. Age distribution also showed comparable proportions across different age categories. However, significant differences emerged in several clinical outcomes. The routine episiotomy group exhibited a higher incidence of anterior vaginal trauma and vaginal tears, particularly first and second-degree tears, compared to the selective episiotomy group. Moreover, a greater proportion of patients in the routine episiotomy group reported the consumption of analgesics. Despite these differences, no significant disparities were observed between the groups regarding urinary and anorectal incontinence, dyspareunia, NICU admission, or APGAR scores at 1 and 5 minutes.

Ethical approval

Ethics approval has been taken from IEC, Mata Gujri Memorial Medical College & L.S.K. Hospital, Kishanganj, Bihar.

References

1. Woolley RJ. Benefits and risks of episiotomy: a review of the English-language literature since 1980. Part I. *Obstet Gynecol Surv.* 1995; 50(11):806-20.
2. Carroli G, Mignini L. Episiotomy for vaginal birth. *Cochrane Database Syst Rev.* 2009 Jan 21; (1):CD000081. doi: 10.1002/14651858.CD000081.pub2. Update in: *Cochrane Database Syst Rev.* 2017 Feb 08; 2:CD000081.
3. Barjon K, Mahdy H. Episiotomy. [Updated 2023 Jul 24]. In: *StatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK546675/>
4. Choudhari RG, Tayade SA, Venurkar SV, Deshpande VP. A Review of Episiotomy and Modalities for Relief of Episiotomy Pain. *Cureus.* 2022 Nov 17; 14(11):e31620.
5. Carroli G, Mignini L. Episiotomy for vaginal birth (Review). https://portaldeboaspraticas.iff.fiocruz.br/wp-content/uploads/2021/03/Carroli_et_al-2009-Cochrane_Database_of_Systematic_Reviews.pdf
6. Shmueli A, Gabbay Benziv R, Hiersch L, Ashwal E, Aviram R, Yogev Y, Aviram A. Episiotomy - risk factors and outcomes. *J Matern Fetal Neonatal Med.* 2017 Feb; 30(3):251-256.
7. Ali SS, Malik M, Iqbal J, Faruqi NJ. Routine episiotomy versus selective episiotomy in primigravidae. *Annals of King Edward Medical University* 2004; 10(4).
8. Apurva A, Patil S, Patil Y, Bhosle R. Comparative study of routine versus restricted use of episiotomy in primigravidas. *JEMDS.* 2016; 48(5):3086-9.
9. Radner G, Jennewein L, Brüggmann D, Louwen F, Al Naimi A. The impact of selective episiotomy on maternal short-term morbidity: a retrospective study. *J Obstet Gynaecol.* 2024 Dec; 44(1):2369664.