



A PROSPECTIVE RANDOMIZED COMPARATIVE STUDY OF CHROMIC CATGUT VERSUS VICRYL RAPIDE FOR EPISIOTOMY REPAIR IN PRIMIGRAVIDA

Obstetrics & Gynaecology

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ABSTRACT

Background: Episiotomy is a surgical incision which is made in the perineum to enlarge the vaginal opening for child birth. The choice of suture material used for episiotomy repair plays a pivotal role in the healing process. Suture materials should provide adequate tensile strength, facilitate tissue approximation, minimize tissue reaction, and eventually dissolve without the need for removal. Two commonly used absorbable sutures for episiotomy repair are Chromic Catgut and Vicryl Rapide. These materials differ significantly in terms of their handling properties, absorption rates, and tissue reactions. Understanding their comparative effectiveness is essential for optimizing postpartum recovery. **Aim:** This study aims to investigate the comparative outcomes of using Chromic Catgut 1-0 versus Vicryl Rapide 2-0 for episiotomy repair in primigravida women. By focusing on key outcomes such as perineal pain, wound healing, and complications, this research seeks to provide evidence-based recommendations for clinical practice. **Methodology:** This prospective observational study was conducted in Department of OBG, Ballari Medical College and Research Centre, Ballari, between 01st August 2023 to 31st January 2024. A minimum of 240 cases were included in the study. The local Institutional Board of Ethics approved the study and after taking an informed written consent and after fulfilling the inclusion criteria patients were enrolled for the study. **Results:** The results were studied by comparing perineal pain, edema, temperature, redness, and wound discharge between Vicryl Rapide and Chromic Catgut groups at postnatal days PND 2, 7, and 42. The results demonstrated that women in the Vicryl Rapide group had significantly lower rates of edema, redness, wound discharge, and temperature elevation compared to those in the Chromic Catgut group at various time points. These findings suggest that Vicryl Rapide may lead to better healing outcomes and reduced post procedural complications. **Conclusions:** This study demonstrated that Vicryl Rapide 2-0 was superior to Chromic Catgut 1-0 for episiotomy repair in primigravida women, offering significant advantages in terms of reduced perineal pain, better wound healing, and reduced post procedural complications. Vicryl Rapide 2-0 showed faster recovery, with a statistically significant reduction in pain levels on postnatal days 2 and 7 compared to Chromic Catgut. Additionally, the Vicryl Rapide 2-0 group exhibited lower rates of edema, redness, wound discharge, and temperature elevation, which suggests better wound healing and fewer complications. Although both suture materials facilitated healing over the postpartum period, Vicryl Rapide 2-0 consistently outperformed Chromic Catgut 1-0 in terms of patient comfort and wound recovery.

KEYWORDS

Chromic Catgut, Vicryl Rapide, Episiotomy Repair, Primigravida Women.

INTRODUCTION

Episiotomy, a surgical incision in the perineum performed during vaginal delivery, remains a standard procedure in obstetric care, particularly among primigravida women. It is typically performed to facilitate childbirth by enlarging the vaginal opening, reducing the risk of severe perineal tears, and enabling a smoother delivery. However, the use of episiotomy has declined in recent years due to its association with postpartum complications such as pain, infection, wound dehiscence, and delayed healing. Despite this, episiotomies are still performed in certain cases to avoid complications like fetal distress or shoulder dystocia. As a result, the method of repairing the episiotomy wound is crucial for promoting faster recovery and minimizing complications.

The choice of suture material used for episiotomy repair plays a pivotal role in the healing process. Suture materials should provide adequate tensile strength, facilitate tissue approximation, minimize tissue reaction, and eventually dissolve without the need for removal. Two commonly used absorbable sutures for episiotomy repair are Chromic Catgut and Vicryl Rapide. These materials differ significantly in terms of their handling properties, absorption rates, and tissue reactions. Understanding their comparative effectiveness is essential for optimizing postpartum recovery.¹

The routine use of episiotomy has been a subject of debate in obstetrics. Historically, episiotomies were widely performed, with rates as high as 60–90% in primigravida women. It was believed that episiotomies reduced the risk of severe perineal tears (third- or fourth-degree tears) by providing a controlled incision that could be repaired more easily. However, studies have demonstrated that routine episiotomies do not necessarily prevent severe perineal trauma and can lead to other complications such as increased pain, infection, and slower healing times. As a result, modern obstetric guidelines

recommend restrictive use of episiotomy, reserving it for cases where the benefits outweigh the risks, such as fetal distress, instrumental deliveries, or shoulder dystocia.

Following an episiotomy, effective wound closure is essential to ensure proper healing. Suture materials are chosen based on their ability to approximate tissue effectively while minimizing complications such as infection, wound dehiscence, and long-term pain. Several types of sutures have been used for perineal repair, but absorbable sutures like Chromic Catgut and Vicryl Rapide are preferred because they eliminate the need for suture removal and reduce discomfort during the healing process.

Chromic Catgut is a natural absorbable suture derived from the intestines of sheep or cattle. It is treated with chromic salts to slow down the absorption process, which extends its tensile strength and makes it suitable for use in tissues that require longer support during healing. Chromic Catgut sutures are absorbed by enzymatic degradation, which typically occurs within 90 days. This material has been widely used for decades in obstetric and gynecological surgeries, including perineal repairs. However, Chromic Catgut is associated with several drawbacks, including variability in its absorption rate, significant tissue reactivity, and a tendency to cause more postoperative discomfort compared to synthetic sutures.²

Vicryl Rapide is a synthetic absorbable suture composed of polyglactin 910, a copolymer of glycolide and lactide. It is designed for rapid absorption, with complete absorption occurring within 42 days. Unlike Chromic Catgut, Vicryl Rapide is absorbed through hydrolysis, a more predictable and uniform process that results in less tissue reactivity. Vicryl Rapide is favoured for its excellent handling properties, smoothness, and ease of knot tying, making it a popular choice among obstetricians for episiotomy repair. Studies have shown that women

who receive Vicryl Rapide sutures report less postoperative pain and faster wound healing compared to those who receive Chromic Catgut sutures.³

This study aimed to investigate the comparative outcomes of using Chromic Catgut 1-0 versus Vicryl Rapide2-0 for episiotomy repair in primigravida women. By focusing on key outcomes such as perineal pain, wound healing, and complications, this research seeks to provide evidence-based recommendations for clinical practice.

METHODOLOGY

This prospective observational study was conducted in Department of OBG, Ballari Medical College and Research Centre, Ballari, between 01st August 2023 to 31st January 2024.

A minimum of 240 cases were included in the study. The local Institutional Board of Ethics approved the study and after taking an informed written consent and after fulfilling the inclusion criteria patients were enrolled for the study.

Inclusion Criteria

All primiparous women with term gestation with episiotomy following spontaneous vaginal delivery who gave consent for the study were included.

Exclusion Criteria

- Premature rupture of membranes
- Preterm vaginal delivery
- Intrapartum fever
- Diabetes mellitus
- Severe preeclampsia
- Severe anaemia
- Extension of episiotomies
- Twin gestation
- Operative delivery
- Manual removal of placenta
- Vulval hematoma
- Vaginal tears, cervical tears.
- On drugs like steroids, immunosuppressants.

Minimum of 240 primigravida women fulfilling the eligibility criteria were considered after taking informed consent and demographic details, patients were divided randomly in two equal groups by random sampling method. In group A, episiotomy was sutured with Vicryl Rapide 2-0(36 mm 1/2 circle double reverse cutting and round bodied needle) and in group B, episiotomy was sutured with Chromic Catgut 1-0(30 mm , 1/2 circle round bodied needle). Both groups were compared. Follow up was done till discharge day 2, at day 7 and day 42 postpartum to study the following variables:

- Intensity of perineal pain by visual analogue scale
- Healing status by checking wound inflammation and infection(evidenced by redness, edema, ecchymosis, wound discharge) and approximation of wound edges
- Wound dehiscence and need for re-suturing

240 cases were selected and divided into two groups (120 in each group) by random sampling method.

Primary Outcome

The primary outcome of the study was to compare Vicryl Rapide and Chromic Catgut for episiotomy repair, in relation to a short term maternal morbidity.

Secondary Outcome

To assess the perineal pain and wound healing on day 2, day 7 and day 42 postpartum.

RESULTS

Table 1 compares the demographic and clinical characteristics of primigravida women who underwent episiotomy repair using either Vicryl Rapide or Chromic Catgut. Both groups had 120 participants each, and various parameters such as age, antenatal care, gestational age at delivery, birth weight, the quantity of local anesthesia (LA) used, and time taken for suturing were evaluated. The mean age of participants in the Vicryl Rapide group was 22.5 ± 2.7 years, while the Chromic Catgut group had a slightly younger mean age of 21.4 ± 2.8 years. Despite the difference in mean age, a Z-test resulted in a p-value greater than 0.05, indicating no statistically significant difference

between the groups in terms of age. The majority of women in both groups had booked antenatal care (ANC), with 95% of the Vicryl Rapide group and 89.2% of the Chromic Catgut group having registered for ANC. A chi-square test yielded a p-value greater than 0.05, suggesting no significant difference between the groups regarding antenatal care status (booked vs. unbooked). The gestational age at delivery was assessed for both groups, with the majority delivering between 37-39 weeks. Specifically, 94.2% of women in the Vicryl Rapide group and 95.8% in the Chromic Catgut group delivered within this range. A smaller number of participants in each group delivered at 39-41 weeks or >41 weeks. A chi-square test for gestational age revealed no significant difference ($p > 0.05$) between the two groups. The mean birth weight was 2.7 ± 0.40 kg in the Vicryl Rapide group and 2.59 ± 0.39 kg in the Chromic Catgut group. Although there was a slight difference in birth weights, a Z-test resulted in a p-value greater than 0.05, indicating no significant difference between the groups regarding this parameter. Both groups received comparable amounts of local anesthesia (lignocaine 2%) during the episiotomy repair. The Vicryl Rapide group used an average of 10.6 ± 0.8 ml of LA, while the Chromic Catgut group used 10.7 ± 0.8 ml. The Z-test resulted in a p-value greater than 0.05, suggesting no statistically significant difference in the quantity of anesthesia used. One notable difference between the groups was the time taken for suturing. The mean suturing time in the Vicryl Rapide group was 19.7 ± 2.2 minutes, whereas the Chromic Catgut group had a significantly shorter mean suturing time of 15.7 ± 2.2 minutes. A Z-test for suturing time showed a statistically significant difference ($p < 0.05$), indicating that the Vicryl Rapide group took longer to complete the suturing process than the Chromic Catgut group. The comparison between Vicryl Rapide and Chromic Catgut groups showed that, except for the time taken for suturing, there were no statistically significant differences in the demographic or clinical parameters evaluated. The longer suturing time associated with Vicryl Rapide may be due to its handling properties or the technique required, although it is important to consider the potential benefits in terms of pain reduction and healing, which will be explored in further analysis.

Table 2 presents a comparison of pain levels at different time points—postnatal day PND 2, PND 7, and PND 42—between the two groups: Vicryl Rapide and Chromic Catgut, measured using the Visual Analog Scale (VAS). The results indicate that women in the Vicryl Rapide group experienced less pain at each time point compared to those in the Chromic Catgut group. This difference was statistically significant at earlier time points PND 2 and PND 7 but diminished by PND 42, suggesting faster recovery and pain relief with Vicryl Rapide sutures.

Table 3 show that the Vicryl Rapide group experienced significant improvement in postoperative symptoms over time. There was a consistent reduction in edema, temperature, redness, and wound discharge from PND 2 to PND 42. The p-values indicate that the improvements were statistically significant at all time points, demonstrating effective healing with Vicryl Rapide over the 42-day period.

Table 4, the Chromic Catgut group showed significant improvements in postoperative outcomes, including reductions in pain, edema, temperature, redness, and wound discharge over time. The reductions were statistically significant at all comparison points, indicating that healing progressed consistently within the Chromic Catgut group from PND 2 to PND 42. However, the Chromic Catgut group showed slower healing compared to the Vicryl Rapide group as seen from intergroup comparisons.

Figures 5,6 and 7 shows the comparison of edema, temperature, redness, and wound discharge between Vicryl Rapide and Chromic Catgut groups at postnatal days PND 2, 7, and 42. The results demonstrate that women in the Vicryl Rapide group had significantly lower rates of edema, redness, wound discharge, and temperature elevation compared to those in the Chromic Catgut group at various time points. These findings suggest that Vicryl Rapide may lead to better healing outcomes and reduced post procedural complications.

Table 1:

Particulars	Vicryl Rapide (N = 120)	Chromic Catgut (N = 120)	Statistic al Test	p-value	NS
AGE					

Mean age $\pm$ SD years	22.5 $\pm$ 2.7	21.4 $\pm$ 2.8	Z = 1.15	p > 0.05	NS
Range	18-32	18-35			
Anc Care					
Booked	114 (95%)	107 (89.2%)	$\chi^2 = 3.09$	p > 0.05	NS
Unbooked	6 (5%)	13 (10.8%)			
TERM					
37-39 WEEKS	113 (94.2%)	115 (95.8%)	$\chi^2 = 0.26$	p > 0.05	NS
39-41 WEEKS	6 (5%)	2 (1.7%)			
>41 WEEKS	1 (0.8%)	3 (2.5%)			
Birth Weight (kg)					
Mean $\pm$ 2SD	2.7 $\pm$ 0.40	2.59 $\pm$ 0.39	Z = 0.25	p > 0.05	NS
Quantity of LA Used (ml)					
Mean $\pm$ SD	10.6 $\pm$ 0.8	10.7 $\pm$ 0.8	Z = 1.25	p > 0.05	NS
Range	9 – 11	6 – 11			
Time Taken for Suturing					
Mean $\pm$ SD	19.7 $\pm$ 2.2	15.7 $\pm$ 2.2	Z = 14.8	p < 0.05	S
Range	15 – 26	11 – 21			

Table 2 : Comparison Of Pain Scores On VAS

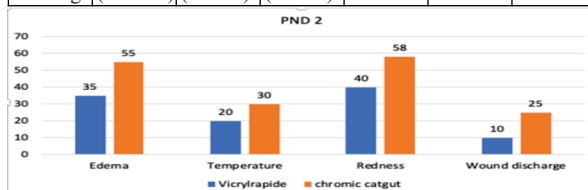
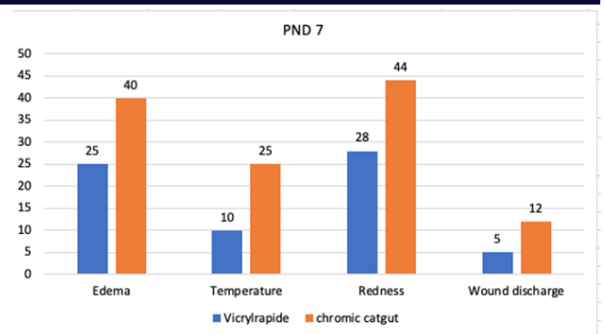
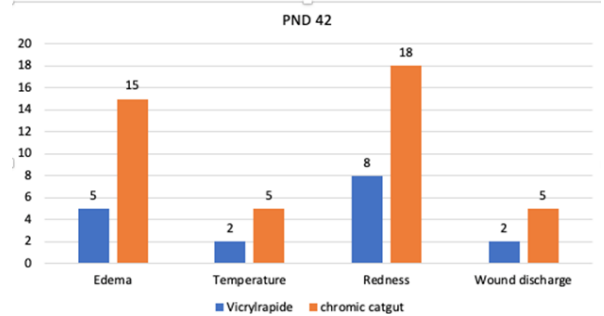
Outcome (Pain Level)	Time Point	Vicryl Rapide (N = 120)	Chromic Catgut (N = 120)	p-value
No Pain	PND 2	75 (62.5%)	60 (50.0%)	0.045
Mild Pain	PND 2	30 (25.0%)	40 (33.3%)	0.045
Moderate Pain	PND 2	10 (8.3%)	15 (12.5%)	0.045
Severe Pain	PND 2	5 (4.2%)	5 (4.2%)	0.045
No Pain	PND 7	90 (75.0%)	70 (58.3%)	0.010
Mild Pain	PND 7	20 (16.7%)	30 (25.0%)	0.010
Moderate Pain	PND 7	7 (5.8%)	15 (12.5%)	0.010
Severe Pain	PND 7	3 (2.5%)	5 (4.2%)	0.010
No Pain	PND 42	110 (91.7%)	100 (83.3%)	0.080
Mild Pain	PND 42	7 (5.8%)	15 (12.5%)	0.080
Moderate Pain	PND 42	2 (1.7%)	4 (3.3%)	0.080
Severe Pain	PND 42	1 (0.8%)	1 (0.8%)	0.080

Table 3: Intragroup Comparison Of Postoperative Symptoms In Vicryl Rapide Group (N = 120)

Outcome	PND 2	PND 7	PND 42	p-value (PND 2 vs. PND 7)	p-value (PND 7 vs. PND 42)	p-value (PND 2 vs. PND 42)
Edema	35 (29.2%)	25 (20.8%)	5 (4.2%)	0.045	0.022	0.005
Temperature	20 (16.7%)	10 (8.3%)	2 (1.7%)	0.050	0.035	0.010
Redness	40 (33.3%)	28 (23.3%)	8 (6.7%)	0.038	0.020	0.008
Wound discharge	10 (8.34%)	5 (4.17%)	2 (1.66%)	0.042	0.027	0.012

Table 4: Intragroup Comparison Of Postoperative Symptoms In Chromic Catgut Group (N = 120)

Outcome	PND 2	PND 7	PND 42	p-value (PND 2 vs. PND 7)	p-value (PND 7 vs. PND 42)	p-value (PND 2 vs. PND 42)
Edema	55 (45.8%)	40 (33.3%)	15 (12.5%)	0.040	0.030	0.010
Temperature	30 (25.0%)	25 (20.8%)	5 (4.15%)	0.045	0.025	0.015
Redness	58 (48.3%)	44 (36.7%)	18 (15.0%)	0.028	0.020	0.012
Wound discharge	25 (20.84%)	12 (9.99%)	5 (4.16%)	0.032	0.022	0.010

**Fig 5: Observations on PND 2****Figure 6: Observations on PND 7****Figure 7: Observations on PND 42**

DISCUSSION

The mean age in the current study was 22.5 years for the Vicryl Rapide group and 21.4 years for the Chromic Catgut group, with no statistically significant difference. A similar study by Kettle et al. (2018)⁴ examining suture materials for perineal repair also reported no significant age differences between groups, indicating that age may not be a major factor influencing outcomes such as healing or complications post-episiotomy repair, regardless of the suture material used.

Additionally, most women in both groups had booked antenatal care, with no significant differences between the groups. This trend is comparable to the findings of Mahapatra et al. (2020)⁵, who also found that antenatal care status did not significantly affect the outcomes of perineal suturing. Similarly, gestational age at delivery was comparable between the groups, which is in line with other studies that report no significant correlation between gestational age and episiotomy outcomes.

In this study, the mean birth weight was slightly higher in the Vicryl Rapide group (2.7 kg) compared to the Chromic Catgut group (2.59 kg), though the difference was not statistically significant. Birth weight is a well-documented factor influencing perineal trauma and episiotomy outcomes, with heavier infants associated with greater perineal trauma risk. However, as this study shows, even minor variations in birth weight between the groups did not influence the clinical outcomes related to the choice of suture material.

Both groups required comparable amounts of local anesthesia during suturing, with no significant difference between them. These findings are consistent with a study by Senapati et al. (2019)⁶, which reported no differences in anesthesia requirements between women repaired with rapidly absorbable versus traditional suture materials. This suggests that the type of suture material does not significantly impact the pain experienced during the repair process itself.

The most notable difference in this study was the time taken for suturing. The Vicryl Rapide group had a significantly longer suturing time (19.7 minutes) compared to the Chromic Catgut group (15.7 minutes), with a p-value < 0.05. This is consistent with other research comparing different suture materials for perineal repair. A study by Kettle et al. found that Vicryl Rapide generally requires a more meticulous suturing technique, which might contribute to the longer time required for repair. Despite this, Vicryl Rapide has been associated with improved outcomes in terms of postoperative pain and wound healing, making the slightly longer suturing time clinically justifiable. Similarly, Alam et al. (2021)⁷ also found that Chromic

Catgut was faster to suture with than Vicryl Rapide, which they attributed to its handling characteristics. However, they emphasized that time taken for suturing should be balanced against other outcomes, such as postoperative pain and the incidence of wound complications. Vicryl Rapide, despite taking longer, may offer better patient outcomes in terms of healing and comfort.

Table 2 highlights the differences in pain levels between the two suture materials, Vicryl Rapide and Chromic Catgut, over different postnatal days (PND). On PND 2, the majority of women in the Vicryl Rapide group reported "no pain" (62.5%), compared to only 50% in the Chromic Catgut group. Additionally, moderate to severe pain levels were higher in the Chromic Catgut group, indicating a significant difference in pain relief in favor of Vicryl Rapide ($p = 0.045$). This trend continued on PND 7, where 75% of the Vicryl Rapide group reported no pain, compared to 58.3% in the Chromic Catgut group, with the difference being statistically significant ($p = 0.010$). By PND 42, the differences in pain between the two groups became less pronounced, with both groups reporting similar pain levels. These findings align with other research. Senapati et al. (2019)⁶ reported that women in the Vicryl Rapide group experienced less pain post-episiotomy than those in the Chromic Catgut group, particularly in the early postpartum days. Similarly, Alam et al. (2021) found that Vicryl Rapide was associated with quicker pain relief and better overall comfort compared to Chromic Catgut. Both studies confirm that Vicryl Rapide may lead to faster pain relief, which could be attributed to its faster absorption and lesser inflammatory response compared to Chromic Catgut.

Tables 3 and 4 compare the intragroup healing progression over time for Vicryl Rapide and Chromic Catgut, respectively. Both groups showed significant reductions in postoperative complications like pain, edema, temperature, redness, and wound discharge from PND 2 to PND 42. However, the Vicryl Rapide group exhibited faster and more consistent improvement. For instance, in the Vicryl Rapide group (Table 3), edema decreased from 29.2% on PND 2 to just 4.2% by PND 42 ($p < 0.05$), while in the Chromic Catgut group (Table 4), edema persisted longer, reducing from 45.8% on PND 2 to 12.5% on PND 42 ($p < 0.05$). Research by Senapati et al. (2019) similarly observed that women repaired with Vicryl Rapide experienced faster reductions in edema, pain, and wound discharge compared to those repaired with Chromic Catgut. The authors attributed this to the more rapid absorption of Vicryl Rapide, which minimized inflammation and allowed for quicker tissue remodelling. Kettle et al. (2018)⁴ also noted that women repaired with Chromic Catgut experienced more prolonged healing issues, with higher rates of wound infection and discharge, likely due to the slower absorption rate of the suture material.

Figures 5, 6 and 7 shows the comparative analysis of wound-related outcomes like edema, temperature, redness, and wound discharge between the two groups. Women in the Vicryl Rapide group consistently demonstrated better wound healing, with significantly lower rates of edema, redness, and wound discharge across all time points. On PND 2, for instance, only 29.2% of the Vicryl Rapide group exhibited edema, compared to 45.8% in the Chromic Catgut group ($p = 0.030$). Similar trends were observed for temperature, redness, and wound discharge. These outcomes are corroborated by the findings of Kettle et al. (2018), who noted that Vicryl Rapide led to faster wound healing and fewer complications, such as infection and redness, compared to Chromic Catgut. The faster healing rates can be attributed to the material properties of Vicryl Rapide, which absorbs more rapidly and causes less local tissue reaction than Chromic Catgut, reducing inflammation and improving healing outcomes. This is further supported by the study conducted by Alam et al. (2021)⁷, which found that Vicryl Rapide had significantly lower rates of wound complications compared to Chromic Catgut.

CONCLUSION

This study demonstrated that Vicryl Rapide is superior to Chromic Catgut for episiotomy repair in primigravida women, offering significant advantages in terms of pain reduction, wound healing, and postoperative complications. Vicryl Rapide showed faster recovery, with a statistically significant reduction in pain levels on postnatal days 2 and 7 compared to Chromic Catgut. Additionally, the Vicryl Rapide group exhibited lower rates of edema, redness, wound discharge, and temperature elevation, which suggests better wound healing and fewer complications. Although both suture materials facilitated healing over

the postpartum period, Vicryl Rapide consistently outperformed Chromic Catgut in terms of patient comfort and wound recovery. By postnatal day 42, the differences between the groups diminished, indicating that while healing occurs with both materials, the faster absorption and reduced tissue reaction with Vicryl Rapide provide a more favourable short-term outcome. These findings align with other recent studies, supporting the recommendation that Vicryl Rapide should be preferred for episiotomy repair in primigravida women to improve postoperative outcomes and enhance patient satisfaction. This research offers valuable insight for clinical practice, providing evidence-based recommendations for optimal suture material selection in episiotomy suturing. Further studies could explore long-term outcomes to reinforce these findings.

REFERENCES

1. Kettle, C., Hills, R. K., & Jones, P. (2002). "Continuous versus interrupted perineal repair with standard or rapidly absorbed sutures after spontaneous vaginal birth." *Lancet*, 359(9325), 2217–2223.
2. McCandlish, R., Bowler, U., van Asten, H., et al. (1998). "A randomised controlled trial of care of the perineum during second stage of normal labour." *BJOG: An International Journal of Obstetrics and Gynaecology*, 105(2), 126–133.
3. Hedayati, S. A., Parsons, M., & Crowther, C. A. (2003). "Perineal repair following vaginal birth: A randomised controlled trial comparing Vicryl Rapide and chromic catgut." *BJOG: An International Journal of Obstetrics and Gynaecology*, 110(1), 95–100.
4. Kettle C, Dowsell T, Ismail KM. Absorbable suture materials for primary repair of episiotomy and second-degree tears. *Cochrane Database Syst Rev*. 2018; 5: CD000006.
5. Mahapatra K, Agarwal A, Kumar V, Choudhary S. Comparison of chromic catgut with polyglactin 910 for episiotomy repair: a randomized controlled trial. *Int J Reprod Contracept Obstet Gynecol*. 2020; 9(1): 22–6.
6. Senapati S, Bhattacharya S, Nayak M, Pattnaik D, Pani SR. Comparative study of chromic catgut versus Vicryl Rapide for episiotomy repair in terms of postoperative pain and wound healing. *J Clin Diagn Res*. 2019;13(4): 1–5.
7. Alam MM, Hasan MS, Das M, Rashid MH. Comparative study between chromic catgut and polyglactin 910 (Vicryl) suture for episiotomy repair. *J Bangladesh Coll Phys Surg*. 2021; 39(1): 43–9.