

A Comparative Study of Episiotomy Suturing with Vicryl Rapide and Chromic Catgut and its Outcome

Dr. Ashlesha Madhusudan Khobragade¹, Dr. Vikas Devkare²

Government Medical College and Hospital, Miraj

Abstract: *Background:* Episiotomy is a common obstetric procedure performed to prevent severe perineal tears during childbirth. The choice of suture material for episiotomy repair plays a crucial role in postoperative outcomes, including pain, wound healing, and patient satisfaction. This study aims to compare the effectiveness and outcomes of two commonly used suture materials, Vicryl Rapide and Chromic Catgut, in episiotomy repair. *Method:* All the pregnant women in labour admitted in labour room of our tertiary care centre, 2000 patients satisfying the inclusion and exclusion criteria were taken and were equally assigned in one of the groups for episiotomy and suturing was done using either of the materials-Vicryl Rapide or chromic catgut. Outcomes were assessed over a six-week postpartum period, focusing on parameters such as pain levels, wound healing, infection rates, and the need for additional analgesia. Pain was measured using a visual analog scale (VAS) at 24 hours, 7 days, and 6 weeks postpartum. *Results:* The Vicryl Rapide group reported significantly lower pain scores at all time points compared to the Chromic Catgut group ($p < 0.05$). Additionally, the Vicryl Rapide group exhibited faster wound healing, with fewer instances of wound dehiscence and infection ($p < 0.01$). Patient satisfaction was notably higher in the Vicryl Rapide group, with a significant reduction in the need for additional analgesia. *Conclusion:* Vicryl Rapide demonstrates superior outcomes in episiotomy repair compared to Chromic Catgut, particularly in reducing pain and promoting better wound healing. These findings suggest that Vicryl Rapide should be considered the preferred suture material for episiotomy repair to enhance patient recovery and satisfaction.

Keywords: Episiotomy; Vicryl Rapide; Chromic Catgut; Analgesia; Visual analog scale; Postpartum

1. Introduction

Episiotomy is a frequently performed surgical procedure in obstetrics, characterized by the surgical widening of the vaginal opening through an incision in the perineum.¹ Although the technique was introduced nearly 200 years ago, it gained widespread acceptance among obstetricians following Pomeroy's influential study in 1918.² The two primary types of episiotomies used today are the midline (median) and mediolateral approaches. The primary objective of episiotomy is to facilitate childbirth and prevent perineal tears, thereby improving outcomes for both the mother and the newborn.³ A significant number of women experience perineal trauma during vaginal delivery, necessitating repair through suturing. The type of suture material used in this process plays a crucial role in factors such as perineal pain, dyspareunia, and healing outcomes.^{3,4} Perineal trauma can significantly impact a mother's physical, mental, and social well-being during the postpartum period. Many women experience short-term perineal pain, and nearly 20% face long-term issues such as dyspareunia, removal of remaining sutures, wound dehiscence, and the need for re-suturing.⁵

Chromic catgut and Rapide Vicryl are two commonly used suture materials for episiotomy repair. Chromic catgut is a natural, absorbable suture derived from collagen, while Rapide Vicryl is a synthetic, absorbable suture made of polyglactin 910. Both materials have been used extensively in obstetrics, but their comparative efficacy in episiotomy repair remains a subject of interest.⁶

India being a developing country, chromic catgut is being used in almost all the government institutions. Using suture materials of natural origin are associated with a more marked tissue reaction as compared to that caused by synthetic materials. Studies have disclosed synthetic suture materials like polyglactin to have less post-natal morbidity compared to

catgut but with the risk of increased need for suture removal.^{7,8} This was dealt by irradiated polyglactin which gets absorbed rapidly than the standard polyglactin. Thus, the knowledge of suture material and technique used for closure of episiotomy helps to know the proper technique and time required for episiotomy wound closure and also about the wound healing, perineal care.⁶ This study aims to compare the effectiveness and outcomes of two commonly used suture materials, Vicryl Rapide and Chromic Catgut, in episiotomy repair.

2. Materials and Methods

This prospective, randomized controlled trial was conducted at a tertiary care hospital over a period of 18 months. The trial was approved by the hospital's ethics committee, and informed consent was obtained from all participants. A total of 2,000 women undergoing vaginal delivery with an episiotomy were enrolled in the study.

The inclusion criteria were:

- Women aged 18-40 years.
- Singleton pregnancy.
- Term delivery (≥ 37 weeks gestation).
- Undergoing a mediolateral episiotomy during vaginal delivery.

Exclusion criteria included:

- Pre-existing perineal or vaginal infections.
- Known allergies to suture materials.
- History of previous perineal surgery.
- Women with conditions requiring additional surgical intervention during delivery.

Participants were randomly assigned into two groups using a computer-generated randomization sequence:

- Group A (n=1000): Episiotomy sutured with Vicryl Rapide (polyglactin 910).
- Group B (n=1000): Episiotomy sutured with Chromic Catgut.

The suturing technique used was standardized across both groups, with all sutures placed using a continuous non-locking method for skin closure and interrupted sutures for deeper layers. Data on patient demographics, clinical presentation, and outcomes were collected through structured interviews, physical examinations, and review of medical records. Key outcomes measured included:

- Pain Assessment: Pain levels were assessed using a Visual Analog Scale (VAS) at 24 hours, 7 days, and 6 weeks postpartum.
- Wound Healing: Wound healing was evaluated at the same intervals, focusing on signs of dehiscence, infection, and overall healing progress.
- Infection Rates: The presence of infection was determined based on clinical signs such as redness, swelling, purulent discharge, and fever.
- Patient Satisfaction: Patient satisfaction was measured using a standardized questionnaire assessing overall satisfaction, comfort, and willingness to use the same suture material again in the future.

Statistical Analysis

Data were analysed using SPSS software version 22.0. Continuous variables were expressed as mean ± standard deviation (SD) and compared using the independent t-test. Categorical variables were expressed as frequencies and percentages and compared using the chi-square test. A p-value of less than 0.05 was considered statistically significant.

3. Observations and Results

A total of 2,000 women undergoing vaginal delivery with an episiotomy were enrolled in the study and randomly divided into two equal groups. Table 1 presents the baseline characteristics of the study population, including age, parity status, BMI, and gestational age at delivery. Both the Vicryl Rapide and Chromic Catgut groups were comparable in terms of mean age, parity (primiparous and multiparous), BMI, and gestational age, with no statistically significant differences between the groups.

Table 1: Patient Demographics

Characteristic	Vicryl Rapide (n=1000)	Chromic Catgut (n=1000)	p-value
Mean Age (years)	27.4 ± 5.6	27.8 ± 5.4	0.104
Primiparous (%)	60%	62%	
Multiparous (%)	40%	38%	0.771
BMI (kg/m ²)	24.6 ± 3.2	24.8 ± 3.3	0.169
Gestational Age (weeks)	39.1 ± 1.3	39.0 ± 1.2	0.074

Figure 1 compares the pain levels experienced by patients in both groups at three different time points: 24 hours, 7 days, and 6 weeks postpartum. Pain was assessed using a Visual Analog Scale (VAS), with lower scores indicating less pain. The Vicryl Rapide group consistently reported significantly lower pain scores at all time points compared to the Chromic Catgut group, with p-values less than 0.001. These results

suggest that Vicryl Rapide is more effective in reducing postpartum pain following episiotomy repair.

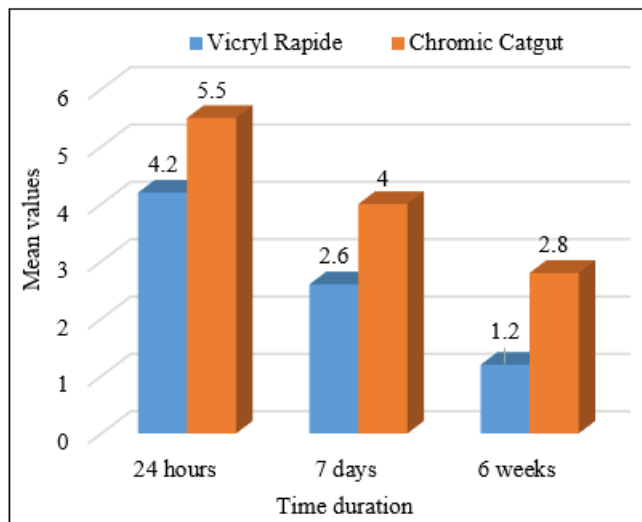


Figure 1: Pain Scores (VAS) Postpartum

The Vicryl Rapide group had significantly lower rates of wound dehiscence (5% vs. 12%) and infection (3% vs. 10%) compared to the Chromic Catgut group, with p-values less than 0.01. Additionally, fewer patients in the Vicryl Rapide group required additional analgesia (18% vs. 35%), indicating better overall wound healing and recovery outcomes with this suture material, (Table 2).

Table 2: Wound Healing and Complications

Outcome	Vicryl Rapide (n=1000)	Chromic Catgut (n=1000)	p-value
Wound Dehiscence	50 (5%)	120 (12%)	<0.01
Infection Rate	30 (3%)	100 (10%)	<0.01
Additional Analgesia Required	180 (18%)	350 (35%)	<0.001

Satisfaction was higher in the Vicryl Rapide group, with 90% of patients reporting overall satisfaction compared to 75% in the Chromic Catgut group. Moreover, a greater proportion of patients in the Vicryl Rapide group indicated that they would choose the same suture material again (88% vs. 68%), with both parameters showing statistically significant differences (p < 0.001). This indicates that Vicryl Rapide not only improves clinical outcomes but also enhances patient satisfaction, (Table 3).

Table 3: Patient Satisfaction

Parameter	Vicryl Rapide (n=1000)	Chromic Catgut (n=1000)	p-value
Overall Satisfaction (%)	900 (90%)	750 (75%)	<0.01
Would Choose Same Material Again (%)	880 (88%)	680 (68%)	<0.01

4. Discussion

The present study provides a comprehensive comparison of episiotomy suturing outcomes using Vicryl Rapide and Chromic Catgut, with both groups matched for key demographic variables such as age, parity, BMI, and gestational age. This parity in baseline characteristics strengthens the validity of the findings, allowing the observed

differences in outcomes to be more confidently attributed to the suture materials used rather than confounding factors. The findings of this study are consistent with previous research that has highlighted the advantages of Vicryl Rapide over Chromic Catgut in episiotomy repair.^{3,6}

The findings of present study demonstrate a clear advantage of Vicryl Rapide over Chromic Catgut in reducing postpartum pain following episiotomy repair, as evidenced by the consistently lower pain scores reported by the Vicryl Rapide group across all time periods. This is in line with several previous studies that have also highlighted the pain-reducing benefits of Vicryl Rapide. Similarly, a study by Bharathi et al found that women who were sutured with Vicryl Rapide reported significantly lower pain scores compared to those sutured with Chromic Catgut, particularly in the immediate postpartum period.³ The reduced pain observed in the Vicryl Rapide group can be attributed to the material's properties, including its rapid absorption and minimal tissue reaction, which likely contribute to decreased inflammation and irritation at the suture site. Furthermore, Meena et al observed that patients in the Vicryl Rapide group had lower pain levels and required less analgesia compared to those in the Chromic Catgut group. This reduction in pain not only improves patient comfort but also enhances overall satisfaction with the episiotomy repair process.⁹

In the present study, a significantly lower rates of wound dehiscence and infection found in the Vicryl Rapide group (5% vs. 12% and 3% vs. 10%, respectively) which is align with previous study done by Meena et al, where they observed reduced rates of wound complications in patients sutured with Vicryl Rapide, attributing this to the material's rapid absorption and minimal tissue reactivity, which likely contribute to faster and more effective wound closure.⁹ Bharathi et al noted better wound healing outcomes with Vicryl Rapide compared to Chromic Catgut, with fewer incidences of infection and dehiscence.³ The findings from our study further reinforce these results, suggesting that the predictable absorption profile of Vicryl Rapide may reduce the risk of foreign body reaction and subsequent wound complications. Moreover, in current study, the need for additional analgesia was significantly lower in the Vicryl Rapide group (18% vs. 35%), indicating less postoperative pain and discomfort, which are critical factors in the overall recovery process. This observation is consistent with the study by Gupta et al, which also reported a reduced need for analgesia in patients sutured with Vicryl Rapide, highlighting the material's role in enhancing patient comfort during the postpartum period.¹⁰

In the current study, a significantly higher proportion of patients in the Vicryl Rapide group reporting overall satisfaction (90% vs. 75%) and expressing a preference to use the same suture material in the future (88% vs. 68%). These findings are consistent with the results of Ruge and Lathasri, who also found that patients were more satisfied with the outcomes of episiotomy repair using Vicryl Rapide compared to Chromic Catgut.⁶ This higher satisfaction rate can be attributed to the combination of better wound healing, lower pain levels, and fewer complications, all of which contribute to a more positive postpartum experience. The statistically significant differences in patient satisfaction, with p-values

less than 0.001, emphasize the clinical and patient-centered benefits of using Vicryl Rapide for episiotomy suturing.

5. Conclusion

The present study demonstrates that Vicryl Rapide is a superior suture material compared to Chromic Catgut for episiotomy repair in terms of both clinical outcomes and patient satisfaction. The use of Vicryl Rapide resulted in significantly lower rates of wound dehiscence and infection, as well as a reduced need for additional analgesia, indicating better overall wound healing and recovery. These findings, consistent with previous research, strongly suggest that Vicryl Rapide should be considered the preferred suture material for episiotomy repair. Its ability to minimize complications, reduce pain, and enhance patient satisfaction makes it a valuable choice in obstetric practice, ultimately improving the quality of care for women during the postpartum period. Further research could explore the long-term outcomes and cost-effectiveness of Vicryl Rapide to reinforce its benefits and ensure optimal clinical practice.

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