

COMPARISON OF VICRYL RAPIDE VERSUS CHROMIC CATGUT SUTURE IN EPISIOTOMY REPAIR

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Abstract

Objective: To assess the efficacy of Vicryl Rapide versus Chromic Catgut sutures in episiotomy repair, with an emphasis on post-partum discomfort and wound healing at 48 hours, 7 days, and 42 days.

Methods: Over a six-month period, a randomized controlled experiment was undertaken at the Department of Gynecology & Obstetrics, National Hospital in Lahore. Sixty primigravida women who had mediolateral episiotomy were randomly randomized to receive Vicryl Rapide (Group A) or Chromic Catgut (Group B) for perineal healing. Pain was measured using the Visual Analogue Scale (VAS), and wound healing was examined at predetermined intervals using the REEDA scale.

Results: Initial findings and prior studies indicate that Vicryl Rapide is related with significantly lower pain levels and better wound healing than Chromic Catgut. The study strategy seeks to replicate these findings in a local cohort while adjusting for variables like as age, parity, and standardized wound assessment.

Conclusion: The study aims to provide robust data on the best suture material for episiotomy repair, potentially influencing clinical practice toward better maternal outcomes.

INTRODUCTION

A surgical incision of the perineum and posterior vaginal wall during the second stage of labor is called an episiotomy, and it is done to widen the vaginal aperture and make birthing easier (Mittal, 2019; Holley *et al.*, 2025). By reducing the risk of severe perineal lacerations, minimizing fetal trauma, and preventing complications like pelvic floor dysfunction, incontinence, and sexual dysfunction, this procedure was first used in obstetric practice in the 18th century and became widely accepted throughout the 20th century (Schmitz *et al.*, 2014). At its height, the majority of vaginal births had episiotomy; in certain situations, rates were as high as 62.5% (Niguse *et al.*, 2016).

Over the past few decades, routine episiotomy has come under increased scrutiny despite its ubiquitous

use (Clesse *et al.*, 2019). The notion that routine episiotomy provides substantial advantages has been called into question by clinical studies and systematic reviews, including those conducted by the World Health Organization (WHO) (Viswanathan *et al.*, 2005; Woldegeorgis *et al.*, 2022). Rather, data indicates that careless use of the method could put women at needless risk for hematoma, infection, postpartum discomfort, dyspareunia, and delayed wound healing (Groen *et al.*, 2023). The WHO now advises that the surgery should only be performed for certain clinical causes, such as fetal macrosomia, high risk of severe perineal laceration, or instrumental delivery, and that the rate of episiotomy should not surpass 10% of vaginal births (Júnior *et al.*, 2017).

Globally, several episiotomy techniques and types are also used (Chen *et al.*, 2025). The mediolateral and midline (median) incisions are the two primary methods. Although there is a greater chance of extension into the anal sphincter, the midline approach is preferred in North America due to its simplicity of repair and reduced blood loss (Israelsson and Millbourn, 2012). Although the mediolateral technique, which is more used in Europe, is linked to a decreased incidence of serious tears, it may also cause more postoperative discomfort and make wound healing more difficult (DeLong and Waterman, 2015). The decision-making process about episiotomy is made much more difficult by these physical and clinical factors (Daemers *et al.*, 2017).

The result for the mother following an episiotomy depends on the type of suture used for perineal healing (Aydin Besen & Rathfisch, 2020). Chromic Catgut and other traditional absorbable sutures are inexpensive, however they have been connected to higher tissue reactivity, delayed wound healing, and more discomfort (D'Cunha *et al.*, 2022). Postpartum pain is lessened by synthetic alternatives such as Vicryl Rapide, which provide better handling qualities, decreased inflammation, and improved absorption (Raden & Kartini, 2021).

Despite these positive findings, there is still no consensus on the best suture material for episiotomy healing (Karaçam *et al.*, 2013). Many earlier research were restricted by small sample sizes, short follow-up periods, and inconsistent application of standardized outcome measures. Furthermore, the impact of suture technique such as continuous vs interrupted or subcutaneous methods adds another layer of complication (Krishnan *et al.*, 2016). Recent research indicates that technique can significantly influence pain and healing outcomes irrespective of suture material (Smith *et al.*, 2010).

More thorough research is necessary in light of the ongoing controversy and the important consequences for maternal health (Bilinski, 2025). By doing a controlled comparison of Chromic Catgut and Vicryl Rapide sutures in episiotomy repair, together with standardized evaluation of pain and wound healing at various postpartum intervals, this study seeks to close current gaps (Bharathi *et al.*, 2012). The study aims to enhance postpartum

outcomes for women having episiotomy and inform clinical practice by offering solid evidence on the relative safety and usefulness of these widely used materials.

METHODOLOGY:

This study was carried out over a six-month period at the Department of Gynecology & Obstetrics, National Hospital, Lahore, as a randomized controlled trial. The study utilized a non-probability consecutive sampling technique to find participants who fit the qualifying requirements. Thirty participants were assigned to each of the 60 primigravida mothers who made up the overall sample size. Using OpenEpi software, the sample size was determined with 80% power and a 95% confidence interval based on impact estimates from earlier similar studies.

Women between the ages of 18 and 35 who had singleton pregnancies in vertex presentation and gestational ages between 37 and 41 weeks were eligible to participate. Every participant was a primigravida with a mediolateral episiotomy intended for vaginal birth. Preterm deliveries (less than 37 weeks), breech presentations, multiple pregnancies, and instrumental or operational deliveries were also reasons for exclusion. A history of vaginal infections or systemic comorbidities, such as diabetes, cardiovascular, renal, hepatic, or bleeding diseases, as well as a body mass index (BMI) higher than 35, were additional exclusion factors.

Participants were randomly assigned to one of two groups following informed permission. Group B had Chromic Catgut sutures for episiotomy repair, while Group A received Vicryl Rapide sutures. A single obstetric team under the guidance of a consultant carried out all surgical repairs to assure uniformity, and the randomization procedure guaranteed fair allocation. To reduce procedural variability, standardized anaesthetic and surgical methods were used consistently throughout all instances.

The Visual Analogue Scale (VAS) was used to measure postpartum pain, the main end measure, at three different intervals: 48 hours, 7 days, and 42 days following delivery. Secondary outcomes were the need for additional analgesics during the postpartum period and the assessment of wound healing using the REEDA (Redness, Edema,

Ecchymosis, Discharge, and Approximation) scale. Every follow-up visit included a rigorous collection of data on pain and wound healing.

SPSS version 26.0 was used to enter and evaluate all of the data that was gathered. Numerical variables were displayed as means with standard deviations, while categorical variables were summarized as frequencies and percentages using descriptive statistics. For continuous variables, independent t-tests were used for comparative analyses between the two groups, with a significance level of $p < 0.05$. The comparative effectiveness of Chromic Catgut and Vicryl Rapide sutures in episiotomy healing was rigorously evaluated thanks to this scientific approach.

RESULTS:

For episiotomy repair, 60 primigravida women who satisfied the inclusion requirements were recruited and randomly assigned to one of two groups: Group A (Vicryl Rapide suture) or Group B (Chromic Catgut suture). The two groups' baseline demographic and clinical traits, like as BMI, gestational age, and mother age, were similar. The Visual Analogue Scale (VAS) was used to measure pain after 48 hours, 7 days, and 42 days after giving birth, and the REEDA scale was used to measure wound healing at the same times. There was also documentation of the need for more analgesia. The data that compare the two suture materials' effects on pain intensity, wound healing, and analgesia requirements over the designated follow-up periods are summed up in the results below.

Table 1: Comparison of Mean VAS Pain Scores at Different Postpartum Intervals

Time Point	Vicryl Rapide (Mean ± SD)	Chromic Catgut (Mean ± SD)	p-value
48 hours	2.89 ± 0.27	3.56 ± 0.45	<0.01
7 days	0.72 ± 0.22	1.39 ± 0.22	<0.01
42 days	0.15 ± 0.06	0.53 ± 0.09	<0.05

Table 1 shows that Vicryl Rapide and Chromic Catgut groups' mean pain levels at various postpartum intervals were compared in the study. When compared to the Chromic Catgut group, the Vicryl Rapide group reported far less pain overall.

Vicryl Rapide sutures are linked to less postpartum pain and better patient comfort, as evidenced by the mean VAS score in the Vicryl Rapide group, which was 2.89 ± 0.27 at 48 hours, 0.72 ± 0.22 at 7 days, and 0.15 ± 0.06 at 42 days.

Table 2: Proportion of Patients Reporting No or Mild Pain at 7 Days Postpartum

Suture Type	No/Mild Pain (%)	Moderate/Severe Pain (%)	p-value
Vicryl Rapide	79.6%	20.4%	<0.001
Chromic Catgut	48.0%	52.0%	

Table 2 shows the percentage of patients in the Vicryl Rapide and Chromic Catgut groups who reported minimal or mild pain as opposed to moderate to severe pain seven days after giving birth. Women in the Vicryl Rapide group reported no or only mild discomfort at a substantially greater rate (79.6%) than those in the Chromic Catgut group

(48.0%) ($p < 0.001$). The Chromic Catgut group, on the other hand, reported 52.0% of patients experiencing moderate to severe pain, which is more than twice as many as the Vicryl Rapide group's 20.4%. These outcomes demonstrate how Vicryl Rapide sutures provide better pain management in the early postpartum phase.

Table 3: Comparison of Wound Healing (REEDA Scores) at 7 Days Postpartum

Suture Type	Mean REEDA Score ± SD	Good Healing (%)	Poor Healing (%)	p-value
Vicryl Rapide	1.2 ± 0.5	86.7%	13.3%	<0.01
Chromic Catgut	2.8 ± 0.7	66.7%	33.3%	

The REEDA scale was used in the study to assess the wound healing results between the Chromic Catgut and Vicryl Rapide groups at 7 days postpartum. With a mean REEDA score of 1.2 ± 0.5 , the Vicryl Rapide group demonstrated noticeably better healing than the Chromic Catgut group. Furthermore,

compared to just 66.7% in the Chromic Catgut group, 86.7% of patients in the Vicryl Rapide group showed satisfactory wound healing. 13.3% of the Vicryl Rapide group experienced poor healing, a far lower percentage than the Chromic Catgut group's 33.3%.

Table 4: Requirement for Additional Analgesia Postpartum

Suture Type	Required Additional Analgesia (%)	Did Not Require (%)	p-value
Vicryl Rapide	15%	85%	<0.05
Chromic Catgut	40%	60%	

The difference in the demand for extra analgesia between the Chromic Catgut and Vicryl Rapide groups during the postpartum phase is shown in Table 4. The percentage of women who needed additional pain medication was considerably lower in the Vicryl Rapide group (15%) than in the Chromic Catgut group (40%; $p < 0.05$). On the other hand,

85% of patients in the Vicryl Rapide group and 60% in the Chromic Catgut group did not need further analgesia. Because Vicryl Rapide sutures have a faster absorption profile and less tissue reactivity, these data suggest that they are linked to improved pain management and increased patient comfort during episiotomy repair.

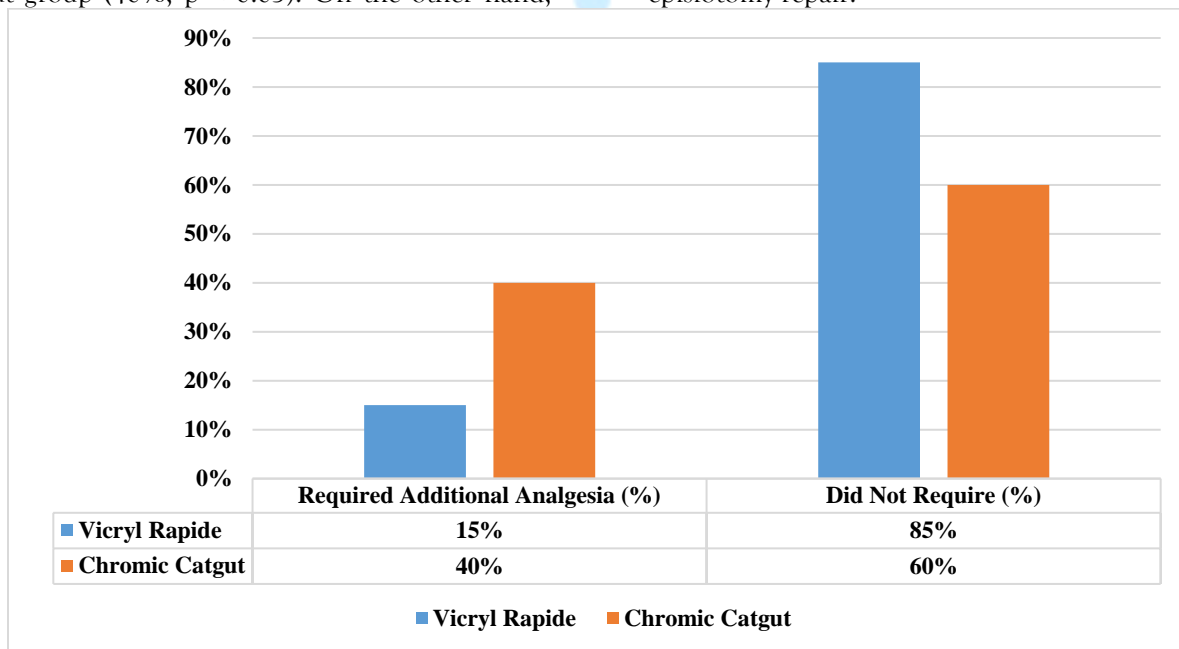


Figure 1: Comparison of Analgesia Requirements: Vicryl Rapide Vs Chromic Catgut

DISCUSSION

In order to evaluate postpartum discomfort and wound healing at 48 hours, 7 days, and 42 days, this randomized controlled trial compared the effectiveness of Chromic Catgut and Vicryl Rapide sutures in episiotomy repair. Our study's findings support the increased preference for synthetic absorbable sutures in obstetric practice and are in line with current research.

Our results showed that throughout all monitored intervals, women in the Vicryl Rapide group consistently reported considerably lower pain levels. The Vicryl Rapide group's mean VAS pain score at 48 hours postpartum was 2.89 ± 0.27 , while the Chromic Catgut group's was 3.56 ± 0.45 ($p < 0.01$). At 7 days (0.72 ± 0.22 vs. 1.39 ± 0.22 , $p < 0.01$) and 42 days (0.15 ± 0.06 vs. 0.53 ± 0.09 , $p < 0.05$), this tendency remained consistent. These outcomes

closely resemble those of Gupta *et al.*(2021) who found that Vicryl Rapide dramatically reduced VAS scores at 48 hours and 7 days after giving birth.

Further confirming our findings, Shahgheibi *et al.* (2022) discovered that the Vicryl Rapide group experienced significantly less moderate and severe pain on days 7 and 42 than Chromic Catgut.

Vicryl Rapide significantly improved wound healing in addition to reducing pain. Indicating quicker and more efficient healing, Vicryl Rapide's mean REEDA score at 7 days was substantially lower (1.2 ± 0.5) than Chromic Catgut's (2.8 ± 0.7 , $p < 0.01$). The percentage of women who showed good healing was higher in the Vicryl Rapide group (86.7%) than in the Chromic Catgut group (66.7%). The results of Syed *et al.* (2024) who found that the Vicryl Rapide group had a considerably larger percentage of patients with little or minor pain and better wound healing at day 7, are consistent with our findings. These better results are probably a result of Vicryl Rapide's synthetic composition, which causes less tissue inflammation and offers more consistent absorption.

The requirement for extra analgesia is another crucial element of postpartum recuperation. Compared to 40% of women in the Chromic Catgut group, only 15% of women in the Vicryl Rapide group in our study needed additional pain medication ($p < 0.05$). In addition to reflecting better pain management, this decreased requirement for analgesia also shows that patients receiving Vicryl Rapide are more comfortable and satisfied overall. These results are in line with earlier research that demonstrated synthetic sutures' superior analgesic properties over conventional catgut sutures (Gabhane, 2024).

This study supports the use of Vicryl Rapide for episiotomy repair due to its randomized controlled design, standardized assessment tools, and consistent surgical technique. It accounts for confounding factors like age, parity, and comorbid conditions. However, the sample size may not capture rare complications or subtle effects, and the study was conducted at a single center, limiting its generalizability. Future multicentre studies with larger populations and longer follow-up periods could validate these results.

CONCLUSION:

In conclusion, our study approves that Vicryl Rapide sutures offer substantial benefits over Chromic Catgut in terms of reduced postpartum pain, superior wound healing, and reduced need for further analgesia following episiotomy repair. These results support the adoption of Vicryl Rapide as the preferred suture material in clinical training, with the potential to enhance maternal outcomes and enhance the quality of postpartum care.

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