

Original Research Article

Comparative study of vicryl polyglactin (910) versus chromic catgut for episiotomy repair

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ABSTRACT

Background: The aim of the study was to compare two different absorbable suture materials, namely vicryl rapide (no. 2-0) and chromic catgut (no.1-0) for episiotomy repair and evaluate their outcomes related to short term maternal post-partum morbidity.

Methods: The prospective randomized comparative study was conducted in the department of obstetrics and gynecology, Bebe Nanki Mother and Child Care Centre, Amritsar, for a period of 1 year, with 200 pregnant females admitted in the labour room who needed episiotomies for vaginal delivery and were randomly allocated for episiotomy repair with either vicryl polyglactin (910) (no. 2-0) or chromic catgut (no.1-0) with 100 patients in each group and various parameters like pain, swelling, tenderness, dyspareunia, wound discharge and dehiscence were assessed in each group at 24-48 hours, 10-14 days and 6 weeks postpartum.

Results: The sociodemographic characteristics were comparable in both groups. Compared to chromic catgut, the vicryl rapide group was associated with lesser pain (7% versus 21%), feeling of stitches (20% versus 38%) and swelling and tenderness (4% versus 12%). There was significantly less wound disruption (3% versus 12%), feeling of stitches (11% versus 21%) and wound discharge (1% versus 7%) in vicryl rapide group at 10-15 days. Residual pain and dyspareunia were also less in vicryl group at 6 weeks.

Conclusions: It can be concluded that vicryl rapide is a superior suture material than chromic catgut for repair of episiotomy as it results in lesser complications and improved wound healing.

Keywords: Episiotomy repair, Polyglactin 910 fast, Rapide vicryl, Chromic catgut, Post-partum morbidity

INTRODUCTION

Episiotomy is a surgical incision which is made on the posterior vaginal wall and the perineum to enlarge the vaginal opening for birth of baby during the 2nd stage of labour.¹ Perineotomy refers to making an incision on the perineum, the area in between the vulva and the anus. When the perineum tears naturally as the baby comes out, then it is called perineal tear (or laceration). Without substantial scientific proof of its advantages, episiotomy was firstly performed in the 18th century. Maternal benefits include decreased risk of perineal injury, dysfunction of pelvic floor, prolapse, incontinence and sexual

dysfunction. The potential benefits to the foetus were thought to include short duration of second stage of labour in case of fetal distress.²

Routine episiotomy should be avoided in women who are not subjected to instrumental deliveries.³ An episiotomy is only recommended if there is high chance of third- or fourth-degree perineal tear, soft tissue dystocia, need to fasten delivery of a compromised fetus, operative vaginal delivery, history of female genital mutilation. Though episiotomy is known to have significant maternal and fetal benefits, a substantial portion of subjects can have postpartum morbidities like perineal pain, induration, infection, hematoma and wound dehiscence. The long-

term complications include the formation of scar tissue, wound infections and dyspareunia. Over the years certain surgical principles have emerged to ensure adequate anatomical, functional and pain free closure of episiotomy wound to minimise the complications.

Various types of suturing materials are used for perineal wound repair. Absorbable suture materials used are chromic catgut, polyglycolic acid, and polyglactin (vicryl) while non-absorbable sutures are silk, and nylon. Compared to chromic catgut, vicryl gave better results and showed a significant decrease in perception of pain and analgesia required and also seemed to reduce the need for resuturing.⁴ Vicryl rapide, theoretically is the most ideal suture material available at the moment for episiotomy repair.⁵ The study aims to analyze the vicryl polyglactin (910) versus chromic catgut for episiotomy repair.

METHODS

A prospective randomized comparative study was conducted with 200 patients who were pregnant and admitted to the labour room at the Department of Obstetrics and Gynaecology, Government Medical College, Bebe Nanki Mother and Child Care Centre, Amritsar from the time period of September 2022 to August 2023.

The study aimed at finding the outcomes of two different suture materials—vicryl polyglactin (910) (number 2-0) and chromic catgut (number 1-0)—for episiotomy repair and to observe short-term maternal postpartum complications associated with these repairs. The study was approved by the Institutional Ethics Committee of Government Medical College, Amritsar.

Patient selection

200 patients were randomly allocated to both the groups for perineal wound repair using either vicryl polyglactin (910) (number 2-0) or chromic catgut (number 1-0) sutures, with 100 patients in each group. Randomization was performed by offering each patient two coins—red indicating vicryl polyglactin (910) and blue indicating chromic catgut—and having them select one.

Group allocation

Group A included 100 patients who received episiotomy repair with vicryl polyglactin (910) (number 2-0), and group B included 100 patients who received episiotomy repair with chromic catgut (number 1-0).

Inclusion criteria

Patients with primigravidas and multigravidas with full-term pregnancy (37 to 42 weeks), expected fetal birth weight by ultrasonography less than 4.0 kg, maternal age between 18-35 years, and vertex presentation were included.

Exclusion criteria

Patients with malpositions/malpresentations; intrapartum pyrexia, perineal, cervical or vaginal tears, episiotomies extension; severe preeclampsia, severe anemia, previous perineal surgery, HIV or hepatitis B infection, intrauterine fetal demise (IUFD), cases managed outside the hospital; and premature rupture of membranes (PROM) or preterm PROM (PPROM) for more than 24 hours were excluded.

The women fulfilling the above criteria were enrolled in the study after obtaining informed consent. Patients in second stage were laid in lithotomy or dorsal position and after cleaning and draping of perineum with antiseptic solution. Just prior to crowning, local anesthesia (1% xylocaine) was injected and episiotomy was given with episiotomy scissors. After delivery, repairing of episiotomy was done using conventional three layered approach. Vaginal mucosa was stitched with continuous unlocked sutures, muscular layer with interrupted sutures and superficial skin was closed using mattress stitches achieving proper hemostasis.

In postnatal period, oral antibiotics and analgesics were given and perineal care was advised. At the time of discharge, patients were asked to come in hospital for examination of episiotomy at 10 to 15 days, sixth week postpartum or any time earlier if there is pain, discharge, gaping or any other complaint. At follow up visits, episiotomy was examined for perineal pain, tenderness, discomfort, swelling, infection, gaping, dyspareunia, dehiscence, healing and residual suture material of the episiotomy wound.

Data analysis

All outcomes were represented in percentages and were computed using descriptive statistics. If relevant, categorical data was compared using the Chi square test or Fischer's exact test. The data was analyzed using statistical package for the social sciences (SPSS) version 18 (SPSS, Chicago, IL, USA).

RESULTS

In our study, 200 patients were recruited and randomly assigned into two groups: 100 patients in group A (vicryl rapide (910)), and 100 patients in group B. Table 1 shows socio-demographic distribution in both the groups. In both the groups comparison was done in terms of age, parity, area-wise distribution and ANC care status.

At 24 hours, various parameters were assessed. Perineal pain was noted using visual analogue scale (VAS) by using a ruler; the score was determined by measuring the distance (mm) as none, mild, moderate or severe, with the following cut off points on VAS: score 0-no pain (0-4 mm), score 1-mild pain (5-44 mm), score 2-moderate pain (45-74 mm), and score 3-severe pain (75-100 mm) (Table 2).

Table 1: Details of distribution of various parameters in both the groups.

Particulars	Group A vicryl rapide	Group B chromic catgut	P value
Age (years)			
Mean age±SD	26.05±4.57	25.78±4.91	0.284
Range	18-35	18-35	
Parity			
Primi	48	47	0.887
Multi	52	53	
ANC care			
Booked	53	62	0.197
Unbooked	47	38	
Area wise			
Urban	38	42	0.563
Rural	62	58	

Doses of analgesia required in vicryl group were significantly lower than in catgut group at 24 hours. Patients were assessed again at 10-15 days for various parameters as shown in Table 3.

Table 2: Assessment at 24 hours.

Assessment at 24 hours	Group A vicryl rapide No. of cases	Group B chromic catgut	P value
Pain (VAS score)			
Score 0 (no pain)	3 (3.00)	0 (0.00)	0.001
Score 1 (mild pain)	44 (44.00)	21 (21.00)	
Score 2 (moderate pain)	46 (46.00)	58 (58.00)	
Score 3 (severe pain)	7 (7.00)	21 (21.00)	
Feeling of stitches	20 (20.00)	38 (38.00)	0.005
Swelling and tenderness	4 (4.00)	12 (12.00)	0.03

At the 6-week assessment, group A and group B showed notable differences in post-surgical outcomes. Overall, group A experienced fewer complications compared to group B, with several outcomes showing statistically significant differences (Table 4).

Table 3: Assessment at 10-15 days.

Assessment at 10-15 days	Group A (vicryl rapide)		Group B (chromic catgut)		P value
	No. of cases	%	No. of cases	%	
Pain (VAS score)					
Score 0	62	62	33	33	0.01
Score 1	34	34	29	29	
Score 2	4	4	39	39	
Score 3	0	0	8	8	
Wound disruption	3	3	12	12	0.01
Feeling of stitches	11	11	21	21	0.05
Wound discharge	1	1	7	7	0.03

Table 4: Assessment at 6 weeks.

Assessment at 6 weeks	Group A (vicryl rapide)		Group B (chromic catgut)		P value
	No. of cases	%	No. of cases	%	
Wound disruption	3	3	12	12	0.01
Feeling of stitches	11	11	21	21	0.05
Wound discharge	1	1	7	7	0.03
Residual pain	3	3	10	10	0.042
Dyspareunia	4	4	12	12	0.03
Dehiscence/disruption	1	1	9	9	0.009
Removal of unabsorbed stitches	2	2	8	8	0.051

DISCUSSION

The purpose of this study was to offer quantitative data for guiding the choice of suture material for the healing of episiotomy wounds following vaginal delivery. The findings of this study were compared with data and observations from other national and international studies.

Perineal pain and analgesia requirement

Postpartum pain is one of the important agonizing factor greatly impacting the life's quality and feeding of the baby. Since vicryl causes less inflammation in comparison to chromic catgut, there is lesser incidence of pain. In our study, difference was noted in pain perception among two

groups with VAS score which was significant. At 24 hours, in vicryl group severe pain (score 3) was experienced by 7% patients versus 21% and moderate pain (score 2) was experienced by 46% patients versus 58% in group B. At follow-up visits (10-15 days), group A showed a reduction in severe pain (0% versus 8%) and moderate pain (4% versus 39%) compared to group B ($p=0.001$). Similarly, at 6 weeks, residual pain was also significantly lower in group A (3% versus 10% in group B) ($p=0.042$). Also, in vicryl group lesser number of patients required three doses (49% versus 64%) and four doses (10% versus 27%) of analgesia per day at 24 hours (p value= 0.001). Susmitha et al observed 99% of patients required three to four doses of analgesia in chromic catgut group versus 72% in the vicryl group.⁶ In a study by Greenberg et al, significantly lesser pain was noted in vicryl group at 24 hours (25% versus 34%) and at 6–8 weeks (1% versus 4%).⁷

Swelling/induration of wound

Our study noticed a reduction in the wound induration with vicryl at 24 hours (4% versus 12% in catgut group). Bharathi et al observed a significantly lower wound induration with vicryl on 3rd to 5th days post-delivery (7% versus 13.5% in chromic group).⁸ Kalita et al observed a significantly lesser swelling and induration in vicryl patients at 24-48 hours (13% versus 27%) and 3-5 days (11% versus 23%).⁹

Feeling of uncomfortable stitches

Our study found a notable reduction in feeling of stitches in group A at 24 hours (20% versus 38%) and at 10-15 days (11% versus 21%) in comparison to group B. Mackrodt et al had similar findings with lesser uncomfortable stitches with vicryl suture in first two days (33% versus 40%) and at day 10 (19% versus 26%) with p value <0.001 .¹⁰ Deshpande et al observed lesser discomfort in vicryl group at 24 hours (48% versus 63% in chromic catgut) and at 6 weeks (4% versus 6%).¹²

Wound dehiscence and disruption

An important reason for postpartum hospital stay is episiotomy dehiscence and re-suturing with substantial effect on the physical and emotional well-being of mother. In our study, significantly less dehiscence was seen in vicryl group at 10-15 days postpartum (3% versus 12%) and later on at 6 weeks (1% versus 9%). Deshpande et al observed more wound gaping in chromic patients at 10-14 days (7% versus 3%) and at 6 weeks (5% versus 0% in vicryl group).¹¹ Shah et al observed that chromic catgut group had more wound gaping than of vicryl group (8% versus 1.1%).¹²

Wound discharge and infection

Wound discharge is an early sign of wound infection and therefore an increased economical and psychological

burden on the patient. Our study noted lesser wound infections in vicryl group at 10-14 days (1% versus 7%). Kalita et al observed lower wound discharge in vicryl group (8% versus 21% in catgut group) at 3-5 days.⁹ Upton et al reported a single woman in both groups with wound infection.¹³

Dyspareunia

A physically and psychologically debilitating impact of episiotomy in women's life is superficial dyspareunia. In our study, at 6 weeks only 4% patients of vicryl group experienced dyspareunia versus 12% in chromic group. Kalita et al noted lesser dyspareunia in vicryl group (10% versus 21% in chromic catgut patients).⁹ In a Cochrane systematic review with eight randomized controlled trials by Kettle et al involving 3642 women, no discernible difference was seen in long-term pain as well as dyspareunia in the absorbable synthetic sutures when compared to catgut suture material.¹⁴

Removal of unabsorbed stitches

At 6 weeks follow up, residual suture material removal was observed in 2% patients in vicryl group versus 8% in catgut group. Joseph et al observed no patient with residual suture in vicryl group versus 6% in chromic group.¹⁵ Susmitha et al residual sutures in 13% patients in catgut group versus none in vicryl group.⁶

Limitations

Since, patients were not followed up for long term, further complications and benefits cannot be evaluated for type of suture.

CONCLUSION

Episiotomy should definitely be stitched with absorbable sutures. On comparison between the two forms of absorbable suture materials, it has been concluded that vicryl rapide leads to comparatively lesser short term pain, inflammation, feeling of uncomfortable stitches, less analgesics requirement, with fewer wound dehiscence as well as discharge. Dyspareunia was also less in vicryl group in comparison to catgut group. According to our study, vicryl rapide is clearly superior to chromic catgut when it comes to repairing episiotomy wound. Hence, it is recommended to use polglactin 910 for routine episiotomy repair in laboring women.

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