

Continuous Versus Interrupted Sutures for Repair of Episiotomy or Second-Degree Perineal Tears

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Author's Contribution

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ABSTRACT

Objective: To compare the efficacy in absorbed continuous vs interrupted suture material for repair the episiotomy and 2nd degree perineal tears in terms of time required for repair, number of suture material used and pain relief following childbirth.

Methodology: A comparative randomized controlled trial was performed in Gynae & Obstetrics department of Akbar Niazi Teaching Hospital, Islamabad between May and October 2022. Total 300 patients of term delivered by spontaneous vaginal birth with episiotomy or 2nd degree perineal tear through non probability consecutive sampling were included. In Group A perineal tear was repaired with continuous non locking sutures and in Group B continuous locking sutures was done. Duration of procedures and number of suture material used was noted. Patients were followed for 24 hours for pain.

Results: The patients mean age was 24.85 ± 3.98 years. The gestational mean age at time of delivery of all the cases was 38.79 ± 0.84 weeks. Type of perineal trauma among all the cases was observed as 84 (28.0%) cases had 2nd degree perineal tear while 216 (72.0%) had episiotomy. Mean time required for suture repair in Group A was 9.0 ± 0.86 sec, while in Group B, the mean time required for suture repair was 15.02 ± 2.06 sec (p -value = 0.001). Mean suture material required for suture repair in Group A was 108.38 ± 9.70 cm, while in Group B, the mean suture material required for suture repair was 114.01 ± 7.17 cm (p -value = 0.001). The mean pain score in Group A was calculated as 3.64 ± 0.94 on VAS, while in Group mean pain was 5.46 ± 0.75 on VAS (p -value = 0.001).

Conclusion: Through this study, it was proved that episiotomy and repair of perineal tears with continuous suture is faster, and uses less suture material without increasing complexity compared to interrupted suture. The continuous suture method of perineal repair is associated with less pain than the interrupted method.

Keywords: Episiotomy, Perineal neuralgia, Suture techniques, Tear, Vaginal birth.

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Introduction

Genital tract trauma is common following vaginal child birth.¹ 85% of women with spontaneous vaginal delivery experience perineal trauma, many of which require repair.^{2,3} In 32-33% of vaginal births, a perineal incision is performed during the 2nd stage of labour involving an episiotomy.⁴ It is helpful in reducing rate of extended (3rd, 4th) degree perineal tears, sexual dysfunction due to superficial dyspareunia, urinary and fecal incontinence.⁵

After childbirth perineal pain is associated with perineal trauma and is measured to be more severe in postpartum phase, interference the daily activities and affecting the maternal experience, but often underestimated.^{6,7}

Minimizing perineal trauma and treating any perineal injuries that occur appropriately are important to prevent and relieve pain.⁸ Factors that affect the pain severity include the skill of the surgeon, suture material type, and perineal suture method used.⁹

Different studies shows that continuous suture method was less time consuming to performed, required less suture material than the interrupted method and cause less pain than interrupted method.¹⁰ The best technique offers the repair is that which require least time in realization, least consumption of suture material for repair, low pain at short and long period, less necessity to take out the stitches, less frequency of restitching, infection and permitting the sexual intercourse quicker and with less pain.¹¹

This study is designed to compare the efficacy of different techniques i.e., continuous stitching for repair of perineum versus interrupted stitching. The purpose is to decrease patient's short term and long-term (pain) morbidity and a quick recovery to normal social and sexual life.

Methodology

This comparative randomized controlled trial was performed in Gynae & Obstetrics department of Akbar Niazi Teaching Hospital, Islamabad between May and October 2022. Sequel of acquiring study IRB from hospital ethics committee and a written consent from patients to participate voluntarily in this study. Total 300 patients (according to WHO sample size calculator; test value of population and anticipated means was 4.64 & 6.54, respectively with pooled SD was 1.07, level of significance was 5%, and power of test was 80%),¹⁰ of primi and multigravida at term delivered by spontaneous vaginal birth with episiotomy or 2nd degree perineal tear through non probability consecutive sampling were included. Patients ≤ 18 years, had HB% 7.0 g/dl, vaginal breech delivery, 3rd and 4th degree perineal lacerations, delayed wound healing factors i.e., severe anemia, diabetes mellitus, cortical steroids and immune suppressants used patients, and epidural analgesics which affect postpartum pain were excluded.

All patients were allocated randomly in two groups (n=150 each), Group A; continuous suture repair and Group-B; interrupted suture repair via computer generated table of random numbers. In Group A perineal tears were treated with continuous non locking sutures involved the vagina, perineum, and transcutaneous tissue. Group B had a continuous locking suture of the vagina, for perineal muscles and transcutaneous interrupted sutures were used. The suture material used was the same in both groups, i.e., polyglactin 910 rapidly absorbable suture (VICRYL RAPIDE) gauge 0, 90 cm length 1/2c, needle 400 mm. To avoid bias in construction skills, all repairs are done by two experienced operators, mostly first-year residents. The duration of the operation was measured by an independent

assessor. A resident assistant observes the beginning and end times of repair. The time was recorded from the beginning of the first stitch to the end of the last stitch. The amount of suture material per centimeter after episiotomy repair is calculated by subtracting the debris from the full length of the suture tape. The patients in both groups were provided visual analogue scale 24 hrs post-delivery and the perineal pain in response to movement was questioned and recorded by a resident other than the resident who had attended the birth.

Data was collected in form variables and was analyzed on SPSS v 23. Mean was calculated for continuous data including as maternal age (yrs), gestational age (wks) and time to repair (sec), suture material used for repair and pain. Percentages were calculated for categorical data including as parity, second degree perineal tear, episiotomy. An independent sample t-test was applied to mean time required for repair, number of suture material used and pain relief following child birth in both groups. A p-value ≤ 0.05 is measured as significance.

Results

In this study, there were total 300 females included. The patients mean age was 24.85 ± 3.98 years. Descriptive statistics of age according to study groups, and gestational age were recorded (Table 1). The parity status of females was also observed. There were 163 (54.3%) nulliparous, 93 (31.0%) para 1, 27 (9.0%) para 2, 16 (5.3%) para 3, 1 (0.3%) female had para 5. None of the female had parity equal to 4.

Table I: Descriptive statistics of demographic characteristics of both groups.(n=300)

| | Continuous (Group-A) | Interrupted (Group-B) |
|----------------------------|-------------------------|--------------------------|
| | Mean \pm SD | Mean \pm SD |
| Age (years) | 24.75 \pm 4.28 | 24.95 \pm 3.67 |
| Gestational age (weeks) | 38.64 \pm 0.85 | 38.93 \pm 0.79 |

Type of perineal trauma among all the cases was observed as 84 (28.0%) cases had 2nd degree perineal tear, while 216 (72.0%) had Episiotomy. Type of perineal tears with respect to the study groups was observed (Table II).

Total time required for suture repair, suture material required for repair, and pain score after 24 hours of birth with respect to study groups was recorded and measured (Table III).

Table II: Type of perineal tear in both groups.(n=300)

| | | Continuous (Group-A) | Interrupted (Group-B) | Total |
|-----------------|------------|-------------------------|--------------------------|----------------|
| | | N(%) | N(%) | |
| Perineal trauma | 2nd degree | 37 (12.3%) | 47 (15.7%) | 84 (28.0%) |
| | Episiotomy | 113 (37.7%) | 103 (34.3%) | 216 (72.0%) |
| Total | | 150 | 150 | 300 |

Table III: Total time required, suture material required, and pain score in both groups. (n=300)

| | Continuous (Group-A) | Interrupted (Group-B) | t* | p-value |
|------------------|-------------------------|--------------------------|--------|---------|
| | Mean±SD | Mean±SD | | |
| Time (sec) | 12.98±1.86 | 15.02±2.06 | 8.994 | .001 |
| Suture (cm) | 108.38±9.70 | 114.01±7.17 | 5.713 | .001 |
| Pain score (VAS) | 3.64±0.94 | 5.46±0.75 | 18.607 | .001 |

*Independent sample t-test

Discussion

In this study, there were total 300 females included. The patients mean age was 24.85±3.98 years. The gestational mean age at time of delivery of all the cases was 38.79±0.84 weeks. In a study conducted in UK, the mean gestational age in both study groups were same (40 weeks).¹²

In our study, we observed the type of perineal trauma among all the cases. Episiotomy was observed in 72% cases, while 2nd degree perineal trauma was seen in 28% cases. In one study, conducted in Spain, episiotomy occurred in 83.4% cases and perineal tears occurred in 16.6% cases.¹³ The results were almost equal but these results were incompatible with one study. In UK trial, episiotomy was observed in 41.6% cases, 2nd degree perineal tear in 58.4% cases.¹²

According to our study results, mean time required for suture repair in continuous repair group (12.98 sec) was significantly less than interrupted suture repair group (15.02 sec). In Spain study, the time of repair in continuous technique was (9.6 min) significantly less than interrupted technique (10.6 min).¹³ In UK study, the mean time required for suture repair (29.6 min) was significantly lesser than interrupted group (27.5 min).¹²

In our trial, mean suture material required for suture repair in continuous repair group was 108.38 cm long and in interrupted suture repair group, the mean suture material required for suture repair was 114.01 cm long. The

difference was highly significant (p-value = 0.001). In Spain study, fewer sutures were needed in continuous method to repair the perineum as compared to interrupted method.¹³ In UK study, minimal suture material used significantly by continuous technique ($p \leq 0.0001$).¹²

In this trial, total pain score after 24 hours of birth was also observed. The mean pain score in continuous suture repair group was calculated as 3.64 on VAS. The mean pain score in interrupted suture repair group was calculated as 5.46 on VAS. There was a significant difference between mean pain score of both groups. In UK study trial, the continuous method benefits were taken in 2 days of surgery, with significant women reporting pain in 2 days.¹² A meta-analysis study analyzed that continuous method (all perineal layers) is associated with low pain up to 10 days.¹⁴

For almost 70 years, researchers have argued that continuous repair techniques are superior to interrupted suture techniques in terms of postpartum pain.¹⁵⁻¹⁷ Pain differences between suture techniques are thought to be due to suture tension caused by edema. With continuous improvement, tension is brought along the entire length of a seam. Another important factor that can contribute to the reduction of pain is the insertion of skin sutures into the subcutaneous tissue, thus preventing the nerve endings on the surface of the skin. The benefits were given at day 2, this description seems more probable.¹⁸⁻²⁰

The evidence of this study is that a continuous method will be used for perineal repair. The continuous suture method will reduce the costs, because minimal suture material is used than with interrupted method. These results are important for women and professionals in the delivery environment. An appropriate perineal repair exercise program should be provided to midwives and physicians.

Conclusion

Through this study, it was proved that episiotomy and repair of perineal tears with continuous suture is faster, and uses less suture material without increasing complexity compared to interrupted suture. The continuous suture method of perineal closure is associated with less pain than the interrupted method.

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