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A Comparative Study Of Single Knot And Three Layered Technique Of Episiotomy Repair After Vaginal Delivery.

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ABSTRACT

This study aimed to compare the single knot suture technique and the three layered suture technique for episiotomy repair in primiparous women. A total of 120 women who met the inclusion criteria were included in the study, with 60 patients in each group. The incidence of hematoma formation, postpartum fever, wound dehiscence, and the need for resuturing were monitored and compared between the two groups. The results showed that there was no significant difference in the incidence of hematoma formation, postpartum fever, wound dehiscence, or the need for resuturing between the two groups. The single knot suture technique may be considered as an alternative to the three-layered suture technique for episiotomy repair in primiparous women, as it is associated with similar outcomes and may be quicker and easier to perform. However, further studies with larger sample sizes and longer follow-up periods are needed to confirm these findings.

Keywords: Single knot, episiotomy.

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INTRODUCTION

Episiotomy is a surgical incision made to the perineum during childbirth to enlarge the vaginal opening and facilitate the delivery of the baby. This procedure is still commonly used in many parts of the world, despite controversy over its benefits and risks. One of the important aspects of episiotomy is its repair after delivery, which is crucial for the healing of the perineal tissue and the prevention of complications such as infection, pain, and incontinence [1, 2].

There are several techniques of episiotomy repair, including the single knot and three-layered techniques. The single knot technique involves the placement of a single suture in the midline of the perineal skin, which is tied in a knot to approximate the edges of the incision. The three-layered technique, on the other hand, involves the placement of three separate sutures in the perineal muscles, subcutaneous tissue, and skin, respectively, to achieve a more secure and precise closure of the wound [3, 4].

Despite the widespread use of both techniques, there is limited research comparing their effectiveness and safety in terms of wound healing, pain relief, and other outcomes. Therefore, a comparative study of single knot and three layered techniques of episiotomy repair after vaginal delivery is needed to provide evidence-based guidance for clinical practice and improve the quality of care for women undergoing episiotomy [5]. This study aims to address this gap in knowledge by comparing the two techniques in terms of their feasibility, efficacy, and patient satisfaction.

MATERIAL AND METHODS

This study was conducted using a descriptive research design to compare the single knot and three-layered techniques of episiotomy repair after vaginal delivery. The study was carried out in a tertiary care hospital and included all primiparous women who had sustained an episiotomy and required stitching following a spontaneous vaginal delivery.

The study population was identified through the hospital's delivery records, and all eligible patients were approached for participation. The inclusion criteria for the study were primiparous patients who had delivered a viable newborn without serious congenital malformations through vaginal birth without instrumentation, and who were at least 37 weeks of gestation. Patients suffering from chronic medical disorders like diabetes mellitus, liver diseases, heart diseases, renal diseases, those with hemoglobin levels below 8g/dL, and those with a third degree or more perineal tear were excluded from the study.

At the time of admission to the labor suite, patients were informed about the study and consent was taken according to the patient's willingness to be enrolled in either group A (single knot technique) or group B (three layered technique) for episiotomy repair. A written informed consent was obtained from each patient for the procedure.

The three-layered interrupted technique was used for episiotomy repair in group B. The procedure involved inserting a continuous locking stitch to close the vaginal trauma, starting at the apex of the wound and finishing at the level of the fourchette with a loop knot. The perineal muscles were then re-approximated with three or four interrupted sutures, and finally, the perineal skin was closed by inserting interrupted transcutaneous stitches. All sutures were taken with absorbable catgut 1-0.

Data collection was done using a structured questionnaire, which included patient demographics, mode of delivery, length of the episiotomy, type of suture technique used, pain score, wound healing time, and patient satisfaction. Data was analyzed using descriptive statistics, and the results were presented in tables and graphs.

Ethical approval was obtained from the hospital's ethics committee before the commencement of the study. Confidentiality and anonymity of the study participants were ensured throughout the study.

RESULTS

This study was conducted on 120 women who met the inclusion criteria over a period of 18 month. Two groups were made group A consisted of 60 patients who sustained an episiotomy would be

stitched by single knot technique and another group of 60 patients who sustained an episiotomy would be stitched by three layered technique

Table 1: Association between hematoma formation and suture techniques.

Hematoma Formation	Three Layered Sutures	Single Knot Sutures	Total	P Value
No	58 (96.7%)	59 (98.3%)	117 (97.5%)	0.559 (Non-significant)
Yes	2 (3.3%)	1 (1.7%)	3 (2.5%)	
Total	60 (50%)	60 (50%)	120 (100%)	

A surgical technique with less complications is graded higher in rank as one of the main surgical aims is minimising maternal morbidity.

Hematoma formation after suturing an episiotomy is a dreaded complication as it can cause hemodynamic instability.

In the table below, in three layered suture technique two patients had haematoma formation whereas in single knot suture technique one had haematoma formation out of 60 patients. Hence, p value 0.559 is statistically not significant thereby meaning in both the groups the risk of haematoma formation is similar

Table 2: Association between postpartum fever and suture techniques.

Postpartum Fever	Three Layered Sutures	Single Knot Sutures	Total	P Value
No	33 (55%)	24 (48%)	57 (51.8%)	0.46 (Non-significant)
Yes	27 (45%)	26 (52%)	53 (48.2%)	
Total	60 (50%)	60 (50%)	120 (100%)	

Postpartum fever up to 48 hours was monitored in 120 patients who sustained episiotomy. It was observed that 53 patients had fever out of which 27 were seen in three layered and 26 in single knot stating that postpartum fever is as common in both techniques.

Table 3: Association between wound dehiscence and suture techniques.

Wound Dehiscence	Three Layered Sutures	Single Knot Sutures	Total	P Value
No	58 (96.7%)	54 (90%)	112 (93.3%)	0.143 (Non-significant)
Yes	2 (3.3%)	6 (10%)	8 (6.7%)	
Total	60 (50%)	60 (50%)	120 (100%)	

Wound dehiscence up to 6 weeks was monitored in 120 patients of this study. It was observed that 8 patients had wound dehiscence out of which 2 were seen in three layered and 6 in single knot stating that wound dehiscence is not statistically significant on suture technique.

Table 4: Association between need for resuturing and suture techniques.

Need For Re Suturing	Three Layered Sutures	Single Knot Sutures	Total	P Value
No	59 (98.3%)	55 (91.7%)	114 (95%)	0.43 (Non-significant)
Yes	1 (1.7%)	5 (8.3%)	6 (5%)	
Total	60 (50%)	60 (50%)	120 (100%)	

Resuturing is an operative procedure undertaken in operation theatre when there is a gap in the continuity of mucosa, muscle or opening of the skin. It is a complication of episiotomy. In the present study, Resuturing was done within 6 weeks' time there is a p value of 0.43 which is statistically non-significant which applies that there is no difference between the two suture techniques when it comes to resuturing.

DISCUSSION

The present study was conducted to compare the single knot suture technique and the three layered suture technique for episiotomy repair in primiparous women. The study was conducted on 120 women who met the inclusion criteria over a period of 18 months. The results of this study showed that there was no significant difference between the two suture techniques when it came to complications such as hematoma formation, postpartum fever, wound dehiscence, and the need for resuturing.

Hematoma formation after episiotomy is a dreaded complication as it can cause hemodynamic instability. The study showed that there was no significant difference in the incidence of hematoma formation between the two suture techniques. Similarly, postpartum fever up to 48 hours after delivery was observed in both the groups, and there was no significant difference in the incidence of fever between the two suture techniques [6].

Wound dehiscence is a complication of episiotomy repair, and it was monitored in the present study up to 6 weeks after delivery. The study showed that there was no significant difference in the incidence of wound dehiscence between the two suture techniques [1].

The need for resuturing is another complication of episiotomy repair. The study showed that there was no significant difference in the need for resuturing between the two suture techniques.

The results of this study are consistent with previous studies that have compared the two suture techniques for episiotomy repair. The findings of this study suggest that both the single knot and three layered suture techniques are safe and effective for episiotomy repair in primiparous women.

Previous studies have also compared the single knot suture technique and the three-layered suture technique for episiotomy repair in primiparous women. Moosavizadeh SM et al found that the three-layered technique resulted in less pain and better wound healing compared to the single knot technique [7]. Another study Ahmed MR et al reported that the three-layered technique resulted in a lower incidence of wound dehiscence compared to the single knot technique [8]. However, another study Goharkhay N et al found no significant difference between the two techniques in terms of pain, wound healing, or other complications [3]. These varying results suggest that more research is needed to determine which technique is superior for episiotomy repair in primiparous women.

CONCLUSION

In conclusion, both the single knot and three-layered suture techniques are equally effective and safe for episiotomy repair in primiparous women. The choice of suture technique may depend on the surgeon's preference and expertise. Further studies are needed to compare the long-term outcomes of the two suture techniques.

REFERENCES

- [1] Carroli G, Mignini L. Episiotomy for vaginal birth. *Cochrane Database Syst Rev* 2009; 21(1):CD000081.
- [2] Kokanali D, Ugur M, Kuntay Kokanali M, Karayalcın R, Tonguc E; Continuous versus interrupted episiotomy repair with monofilament or multifilament absorbed suture materials: a randomised controlled trial. *Arch Gynecol Obstet* 2011; 284(2): 275-280
- [3] Blondel B, Alexander S, Bjarnadóttir RI, Gissler M, Langhoff-Roos J, Novak-Antolič Ž, et al. Variations in rates of severe perineal tears and episiotomies in 20 European countries: a study based on routine national data in euro-Peristat project. *Acta Obstet et Gynecol Scand* 2016;95(7):746-54
- [4] Hasanpoor S, Bani S, Shahgole R, Gojazadeh M. The effects of continuous and interrupted episiotomy repair on pain severity and rate of Perineal repair: a controlled randomized clinical trial. *J Caring Sci* 2012;1(3):165-71.
- [5] Morano S, Mistrangelo E, Pastorino D, Lijoi D, Costantini S, Ragni N. A randomized comparison of suturing techniques for episiotomy and laceration repair after spontaneous vaginal birth. *J Minim Invasive Gynecol* 2006;13(5):457-62.



- [6] Kettle C, Dowswell T, Ismail KM; Absorbable suture materials for primary repair of episiotomy and second degree tears. *Cochrane Database Syst Rev* 2010; 16(6): CD000006
- [7] Moosavizadeh SM, Abedzadeh-Kalahroudi M, Moosavizadeh SM. Comparison of two methods of episiotomy repair: layered versus simple suture technique. *Obstet Gynecol Int* 2014;947390.
- [8] Ahmed MR, Sayed Ahmed WA, El-Sayed Ahmed NR. Comparison between three-layer and two-layer techniques for repair of mediolateral episiotomies. *J Obstet Gynaecol Res* 2018;44(4):699-705.
- [9] Goharkhay N, Churchill J, Eglinton GS. Comparison of two techniques for repair of mediolateral episiotomy. *Obstet Gynecol* 2005;105(4):948-951.