Original Article

Comparison of the Outcome of Intradermal and Conventional Closure of Episiotomy

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Abstract

Objective: To compare the outcome of intradermal closure versus conventional closure of episiotomy.
Methodology: It's a randomized controlled trial conducted in Department of Obstetrics & Gynaecology unit I, Holy Family Hospital, Rawalpindi, from August 2020 to February 2021. A total of 406 women undergoing episiotomies, 18 to 40 years of age were included. Patients with risk pregnancy were excluded. After taking informed written consent, the selected patients were placed randomly into two equal groups i.e. Group A (intradermal closure) & Group B (conventional closure), by lottery method. All the procedures were performed by the same surgeon. All the patients were followed by the researcher herself, and outcome (post-operative pain (yes/no), induration (yes/no), wound dehiscence (yes/no) and wound discharge (yes/no) will be noted.
Results: The mean age of women in group A was 27.23 ± 3.66 years and in group B was 27.77 ± 2.97 years. The majority of the patients 341 (83.99%) were between 26 to 35 years of age. The mean gestational age in group A was 38.35 ± 1.30 weeks and in group B it was 38.38 ± 1.30 weeks. In my study, post-operative pain, induration and wound dehiscence was found in 84 (41.83%), 09 (4.43%) and 15 (7.39%) in intradermal closure versus 114 (56.16%), 39 (19.21%) and 62 (30.54%) in conventional closure (p-value = 0.0001).
Conclusion: This study concluded that post-operative pain and complications are less in patients with intradermal closure of episiotomy as compared to those with conventional closure.
Keywords: Episiotomy, Intradermal closure, Perineal pain.
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Introduction

Episiotomy is a surgical incision performed at the posterior aspect of the vagina during the second stage of labor. The incision can be made midline or mediolaterally with the help of scissors or a scalpel.[1] The episiotomy is intended to decrease extensive perineal trauma, to protect the soft maternal tissue, yet disagreement persists about its actual effectiveness.[2] In the case of forceps delivery, breech delivery, and in the case of shoulder dystocia, episiotomy is necessary. With the use of episiotomy, the incidence of 3rd and 4th degree perineal tears also reduce.[3] Previously it is considered that continuous nonlocking suture techniques are associated with less pain than traditional, interrupted suturing methods for repair of the vagina, perineal muscles, and skin after an episiotomy or a second-degree tear related to childbirth.[4]

Early delivery of the fetus and completion of the second stage of labour are considered to facilitate better maternal and neonatal outcomes. Advantages of episiotomy for mother include a decreased risk of perineal injury, subsequent pelvic floor dysfunction and prolapse, urinary and fecal incontinence, and preservation of sexual function. It also leads to better healing as it is clean iatrogenic incision. The potential benefits to the fetus include a shortened second stage of labor, early delivery, thereby preventing complications like birth asphyxia, cranial trauma and cerebral hemorrhage etc.[3,4] The technique used for repairing

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episiotomies have significant effect on wound healing and degree of morbidity both in short and long term. Females have different experiences related to episiotomy repair. Like some females, some complain of pain for a short duration after episiotomy repair and some continue to have sexual discomfort and dyspareunia. The extent of trauma, the surgical skills, and the suturing technique have an important effect on recovery after episiotomy repain.[5] The material used for episiotomy repair is also under debate. Perianal repair is associated with maternal morbidity it can lead to major physical, psychological, and social problems, affecting the woman's ability to care for her new born baby.[5]

Outcome of perineal repair depends on the severity of perineal trauma and on the type of suturing material, the skill of the operator, and the technique of repair.[6] In a study, no pain was seen in 50% of patients after intradermal suturing and in 34% after conventional suturing.[7] A similar study has shown the following complications i.e. indurations in 8% of the intradermal group and 16% of conventional suturing group. Wound dehiscence in 6% of intradermal group and 28% of conventional suturing group.[7]

The extend of maternal short term and long term morbidity depend on the procedure of suturing episiotomy and perineal tears. However, there is only one randomized controlled clinical trial that compared the outcome of intradermal and conventional closure of episiotomy, so the purpose of my study is to generate more data in this aspect. So that we can provide our patients with better technique of episiotomy closure, which is associated with a better outcome in order to reduce maternal morbidity.

Methodology

It was a randomized controlled trial (RCT) conducted in Department of Obstetrics & Gynaecology unit I, Holy Family Hospital, Rawalpindi from August 2020 to February 2021. Non-probability, consecutive sampling was used for the data purpose. The study was subjected to approval by the Institution research ethics forum of Rawalpindi Medical University. After approval, patient recruitment was started. A total of 406 patients who were delivered and underwent episiotomy, fulfilling the inclusion criteria. The calculated sample size is 406 i.e. 203 cases in each group, with 5% level of significance, 80% power of study and taking wound induration in 8% of the patients of the intradermal group and 16% of conventional suturing group.[7] On the fifth post-operative day, post-operative pain was assessed in terms of perineal pain, which was measured using a visual analogue scale as follows; whereas complications were assessed one week after the operation in terms of induration: localised hardening of the tissue (assessed clinically) and wound dehiscence: separation of the wound along the surgical incision (assessed clinically). Inclusion Criteria of the study included singleton pregnancy with vertex presentation, Primigravida, Gestational age 37-41 weeks (assessed on LMP). Age 18-40 years and low-risk pregnancy. Women with multiple gestation, pregnancy with breech presentation, High risk pregnancy with medical disorders like hypertension, diabetes mellitus, obesity, anemia, chronic renal failure and thyroid dysfunction, Immunocompromised patients, patients with traumatic injuries other than anal sphincter and rectal mucosal injuries and Women with instrumental vaginal deliveries were considered in the exclusion criteria. After taking informed written consent, the selected patients were placed randomly into two equal groups i.e. Group A (intradermal closure) & Group B (conventional closure), by lottery method. Group A included the cases in which intradermal closure of episiotomy was done while group B included the cases in which conventional closure was done. All the procedures were performed by the same surgeon (with at least 3 years post-fellowship experience). All the patients were followed by the researcher herself and outcome were noted on specially designed performa.

All the data was entered and analyzed by using SPSS version 23.0. Age, gestational age and VAS score were presented as mean and standard deviation. The types of episiotomy (midline/mediolateral), post-operative pain (yes/no), induration (yes/no), wound dehiscence (yes/no) and wound discharge (yes/no) were presented as frequency and percentage. Chi square was used to compare the post-operative pain (yes/no), induration (yes/no), wound dehiscence (yes/no) and wound discharge (yes/no) of both groups and p-value ≤ 0.05 was considered as significant. Effect modifiers like age, gestational age and type of episiotomy (midline/mediolateral) were controlled through stratification and post-stratification chi square was applied to see their effect on outcome. P-value ≤ 0.05 was considered as significant.

Results

Age range in this study was from 18 to 40 years with mean age of 27.56 ± 3.31 years. The mean age of women in group A was 27.23 ± 3.66 years and in group

B was 27.77 ± 2.97 years. Majority of the patients 341 (83.99%) were between 26 to 35 years of age.

The mean gestational age in group A was 38.35 ± 1.30 weeks and in group B was 38.38 ± 1.30 weeks. In my study, post-operative pain, induration and wound dehiscence was found in 84 (41.83%), 09 (4.43%) and 15 (7.39%) in intradermal closure versus 114 (56.16%), 39 (19.21%) and 62 (30.54%) in conventional closure (p-value = 0.0001) as shown in Table I.

Stratification of post-operative pain with respect to age, gestational age and type of episiotomy is shown in Table II. Stratification of induration with respect to age, gestational age and type of episiotomy is shown in Table III. Stratification of wound dehiscence with respect to age, gestational age and type of episiotomy is shown in Table IV.

Discussion

Episiotomy is commonly used surgical incision in spontaneous vaginal delivery.[8] The routine use of episiotomy in case of vaginal deliveries is questioned.[9] episiotomy has been considered to decrease perineal trauma, protect maternal soft tissues and expedite delivery of baby yet disagreement persist about its actual effectiveness. Incidence of episiotomy depend whether it is used as selectively or routinely.[10] Episiotomy rate is much higher in younger patients with their first pregnancy, with fetal weight above 4kg, when presentation is not occiputo-anterior. On contrary

Table I: Comparison of outcome of intradermal closure versus conventional closure of episiotomy.

Outcome	Group A (n=203)		Group B (n=203)		p-value
	Yes	No	Yes	No	
Post-operative pain	84 (41.38%)	119 (58.62%)	114 (56.16%)	89 (43.84%)	0.003
Induration	09 (4.43%)	194 (95.57%)	39 (19.21%)	164 (80.79%)	0.0001
Wound infection	15 (7.39%)	188 (92.61%)	62 (30.54%)	141 (69.46%)	0.0001

Table II: Stratification of post-operative pain with respect to age, gestational age and type of episiotomy.

Co-morbid conditions		Group A (n=203) post-operative pain		Group B (n=203) post-operative pain		P-value
		Yes	No	Yes	No	
Age (years)	18-30	65	106	96	74	0.001
	31-40	19	13	18	15	0.694
GA (weeks)	37-39	74	98	98	75	0.011
	40-41	10	21	16	14	0.096
Type	Midline	67	63	87	42	0.009
	Mediolateral	17	56	27	47	0.081

Table III: Stratification of induration with respect to age, gestational age and type of episiotomy.

Co-morbid conditions		Group A (n=203) Induration		Group B (n=203) Induration		P-value
		Yes	No	Yes	No	
Age (years)	18-30	09	162	32	138	0.0001
	31-40	00	32	07	26	0.006
GA (weeks)	37-39	08	164	29	144	0.0001
	40-41	01	30	10	20	0.002
Type	Midline	07	123	17	112	0.031
	Mediolateral	02	71	22	52	0.0001

Table IV: Stratification of wound dehiscence with respect to age, gestational age and type of episiotomy.

Co-morbid conditions		Group A (n=203) wound dehiscence		Group B (n=203) wound dehiscence		P-value
		Yes	No	Yes	No	
Age (years)	18-30	15	156	52	118	0.0001
	31-40	00	32	10	23	0.001
GA (weeks)	37-39	15	157	51	122	0.0001
	40-41	00	31	11	19	0.0001
Type	Midline	07	123	44	85	0.0001
	Mediolateral	08	65	18	56	**0.034**

incidence of episiotomy is much low as pateints parity increases. The overall episiotomy rate declined from 20.6% to 17.7%.[11] We have conducted this study to compare the outcome of intradermal closure versus conventional closure of episiotomy. In my study, post-operative pain, induration and wound dehiscence was found in 84 (41.83%), 09 (4.43%) and 15 (7.39%) in intradermal closure versus 114 (56.16%), 39 (19.21%) and 62 (30.54%) in conventional closure (p-value = 0.0001). In a study, no pain was seen in 50% patients after intradermal suturing while in 34% after conventional suturing.[7] Similar author has shown the following complications i.e. indurations in 8% of intradermal group and 16% of conventional suturing group. Wound dehiscence in 6% patients of intradermal group and 28% of conventional suturing group.[7]

Meta-analysis conducted by Kettle C et al found that in comparison to interrupted suturing technique, continuous suturing technique cause less pain up to 10 days.[2] Kettle C et al reported that the continuous technique resulted in fewer patients reporting pain than the interrupted method.[13] Similar results were also shown in a study conducted by Morano S et al, reported that significantly fewer women reported pain at 10 days with the continuous knotless technique than with the interrupted technique.[14] Bick DE et al found that continuous suturing is associated with less pain in immediate post-partum period as compared to interrupted technique which corroborates to the finding of the present study.[15] On contrary Almeida SF et al found that there is no significant differences in long term pain 41 days after birth.[16] Kettle C et al and Mahomed trial reported a non-significant increase in long-term pain in the continuous subcutaneous skin closure group compared to the interrupted transcutaneous group.[17,18] Our results agree with those reported by Dash et al[19] who showed that there were lower VAS scores in interrupted groups than in continuous groups at 12 hours, 48 hours and after ten days while Nagure et al[20] found lower VAS scores in continuous group as compared to interrupted.[20] VAS at 6 hours was lower in the continuous groups than in the interrupted groups. While in study conducted by Valenzuela et al [21] found no difference between continuous and interrupted groups as regards perineal pain. Similar results were also found by Hasanpoor et al[22], concluded that there was no difference in severity of pain in both groups. Our results were in disagreement with those stated by Aslam et al[23] who reported that complications of pain and its severity in both groups at 24 hours and 10th day were compared, which showed no significant difference at any severity (i.e., no pain, mild, moderate / severe).

Conclusion

This study concluded that post-operative pain and complications are less in patients with intradermal closure of episiotomy as compared to those with conventional closure. So, we recommend that intradermal closure of episiotomy should be used as the primary method in episiotomy repair in order to reduce complications as well as morbidity.

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