

## Continuous versus interrupted technique for repair of episiotomy

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### ABSTRACT

**Background and Objectives:** Some degree of perineal trauma following vaginal delivery is common and this may cause several maternal morbidity. This study is to evaluate the repair techniques of continuous versus interrupted methods for repair of episiotomy regarding consumption of suture material and cost, estimation of the pain at short term (2 and 6 weeks), necessity to take out the stitches, infection, dehiscence and dyspareunia.

**Methods:** A total of 100 labouring women were divided into two groups; the first group (group A) includes 50 women their episiotomies were repaired with continuous, non locking suturing technique. The other group (group B) includes the other 50 women, their episiotomies were repaired with continuous, locking sutures of the vagina, interrupted sutures of the perineal muscles, and interrupted transcutaneous sutures of the perineal skin. The suture material used was the same in both groups (polyglactin 910). The women were observed for the first 12 hours in the hospital, and seen after two weeks and six weeks.

**Results:** Significantly fewer women reported pain at two weeks postpartum with the continuous technique (96% mild pain and 4% moderate pain) while with interrupted technique 80% had mild pain, 14% moderate pain and 6% severe pain with a P-value of 0.039. Similar results were observed at 6 weeks postpartum, in favor of continuous technique in which no case was reported to have pain compared with 7 cases (14%) reported pain in interrupted group, with a P-value of 0.006.

The rate of stitch removal was significantly lower for continuous group in comparison to interrupted group. Breast feeding also showed significant difference, being earlier in onset with the continuous group. Moreover, when the continuous technique was used for repair of all layers, there was a significant reduction in consumption of suture materials and cost.

**Conclusions|:** This study have showed that perineal repair using continuous suturing technique is superior to interrupted technique by causing less maternal morbidity , early onset of breast feeding, less cost, also with better cosmetic acceptance.

**Key words:** episiotomy, suturing, perineal trauma, episiotomy morbidity.

### INTRODUCTION:

The majority of women sustain some degree of perineal trauma following vaginal delivery <sup>1</sup>. For many, this is a transient problem but for others, the subsequent consequences such as perineal pain, dyspareunia and anal sphincter dysfunction represent a serious form of postnatal morbidity which can result in long-lasting disability <sup>2</sup>. The use of episiotomy varies extensively among labour works

internationally but is still the commonest intervention during childbirth <sup>3</sup>. The usual technique which has been applied for repair of episiotomy is continuous locking suturing of the mucosa, while the perineal muscles and the skin is sutured using interrupted stitches <sup>4</sup>. Episiotomy, by definition, is an incision through the vaginal wall and the perineum which is made to enlarge the vaginal opening and facilitate child birth <sup>5</sup>, i.e. it Prevents perineal lacerations <sup>6</sup>, prolonged and overstretch of

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which predisposes to prolapse and stress incontinence<sup>7</sup> and minimize compression and decompression of the head which causes intracranial haemorrhage<sup>8</sup>. The following basic principles should be observed when performing perineal repairs<sup>[9]</sup>: Suture as soon as possible following delivery to reduce bleeding and risk of infection, check equipment and count swabs prior and following completion of the repair, good lighting is essential to visualize and identify the structures involved, difficult trauma should be repaired by an experienced operator in theatre under regional or general anaesthesia, ensure good anatomical alignment of the wound and give consideration to cosmetic results finally rectal examination after completing the repair will ensure that suture material has not been accidentally inserted through the rectal mucosa. Following completion of the repair, inform the woman regarding the extent of trauma and discuss pain relief, diet, hygiene and the importance of pelvic-floor exercises<sup>9</sup>. When considering sutures for episiotomies, two characteristics were focused on: strength and inflammation-inducing properties. It was believed that the perfect suture material for perineal repair should maintain tensile strength from 7-14 days and dissolve quickly thereafter. In addition it should cause as little inflammation as possible. Rapid-absorption polyglactin 910 is the most appropriate suture material for perineal repair<sup>10</sup>. Techniques of Perineal Repair : Interrupted technique<sup>11</sup>: Start the suture by the apex of the wound of vaginal mucous membrane, taper point of four or five centimeters. Fasten the stitch with three knots. Proceed to the suturing of the mucous membrane with continuous locking stitches up to the hymeneal ring. Fasten the last stitch and cut the thread. In the muscle level, approximate the edges with interrupted stitches, fastening each stitch with three knots. Approximate the skin edges with interrupted stitches. Fasten each stitch and cut the thread. Continuous technique<sup>[11]</sup>: Start the suture by the apex of the wound

membrane, taper point of four or five centimeters. Fasten the stitch with three knots. Proceed with the suturing of the mucous membrane, with continuous non-locking stitches up to the hymeneal ring. Proceed to the muscle plain with non-locking continuous suture; at the end of the muscle layer, perform intra dermic suture, also continuous, initiating by the inferior part towards the fourchette where the suture is fastened with three knots. Cut the thread, leaving the ends with one centimeter of length. Morbidity associated with childbirth may affect women's physical, psychological and social wellbeing both in the immediate and long-term postnatal period<sup>12</sup>. Perineal pain: Most of the women will experience perineal pain in the period immediately after delivery, if repairs are done inadequately; women could have continued perineal pain, which has been described as being far worse than the pain of childbirth. This pain can be distressing, and interfere with new mother's daily activities<sup>[12]</sup>. The rationale behind the continuous technique is that stitch tension due to reactionary oedema is transferred throughout the whole length of the single knotless suture in comparison to interrupted stitches, which are placed transversely across the wound, a loose continuous non-locking technique to oppose each layer is recommended as it is associated with less short-term pain than the more traditional interrupted method (RCOG's guidelines). Dyspareunia<sup>13</sup>: Is common in the postnatal period, with up to 60% of women experiencing coital difficulty at 3 months and 30% at 6 months. Superficial dyspareunia can be secondary to scar tissue formation, poor anatomical reconstruction following perineal trauma or vaginal dryness and atrophy. Urinary difficulties<sup>13</sup>: In the postpartum period are a common occurrence and they warrant attention regarding their management. Faecal incontinence: Large prospective studies have shown that up to 25% of primiparous women experience altered faecal continence postnatally and up to one

after their first vaginal delivery<sup>14</sup>. Wound dehiscence: Extensive wound dehiscence may occur, which needs resuturing. Complications depend upon the severity of perineal trauma and on the effectiveness of treatment. The type of suturing material, the technique of repair and the skill of the operator are the three main factors that influence the outcome of perineal repair.<sup>15-17</sup>

**AIM OF THE STUDY:** The aim of this study is to compare the continuous suturing technique for repair of episiotomy with the interrupted one regarding: Pain, hematoma, urine-retention, breastfeeding, infection, constipation, wound dehiscence, cosmetic acceptance, stitch removal, consumption of suture materials and cost.

## PATIENTS AND METHODS

A prospective comparative study which was performed in Sulaimani Maternity Teaching Hospital for the period between February till July 2009 with the cooperation of the director and the medical staffs of the hospital. Hundred labouring women, for whom episiotomy was performed, included in this study; all cases were collected during day time (morning), and were divided into two groups: Group A : includes 50 women whose episiotomies were repaired using continuous non locked sutures for all layers and subcuticular suturing for the skin. Group B: includes 50 women whose episiotomies were repaired using continuous locked sutures for the vaginal mucosa, interrupted sutures for the perineal muscles and transcutaneous sutures of the skin. Full history was taken from each woman including history of any previous operation for the perineal region. During the second stage of labour; episiotomy was performed for each patient under local anaesthesia. When the head is crowning, right mediolateral cut is then made, using a sharp scissors, and pressure on the fetal head is maintained so that the delivery is slow and the head remains flexed,

delivery of the baby, draping of the patient is done, then episiotomy is checked for any extension or any vaginal tear and the area sterilized by antiseptics (hebitane), then suturing of the episiotomy is started for both groups using the same absorbable suture material (polyglactin 910), at the end rectal examination was done to exclude a stitch piercing rectal mucosa. All patients were advised about keeping strict perineal hygiene, good food intake and early establishing of breast feeding. Antibiotics had been prescribed for all patients using (Cephalexin and Metronidazole) for 3 days (according to hospital protocol). Women participating in the study were remained in the hospital for the first 12 hours after delivery, and examined for any haematoma, and asked about the pain, urination and baby feeding. They have been seen 2 weeks and 6 weeks later asking them about pain, any discomfort at the site of the sutures that might require stitch removal, bowel motion, and vaginal examination was done to elicit any tenderness in the area and to look for other signs of infection and wound dehiscence.

**Statistical analysis :** The collected data from the two groups were compared and analyzed using chi-square test, and the calculated P-value of less than 0.05 was

## RESULT:

taken as significant.

**Demographic distribution.** (Table 1 & 2) There were no statistically significant difference between the two groups regarding age, residence, body mass index and gravidity as shown in (Table 1).

Most of the born babies their weights fell in the range between (3 to 3.4 kg); and this represent 41 cases (82%) in group A and 32 cases (64%) in group B, as shown in (Table 2). Comparison of the two groups shows no significant difference regarding born babies

mild in 43 cases (86%) in comparison to group B, in which it was mild in 38 cases (76%). Moderate pain was found in 7 patients of group A (14%) and in 12 cases (24%) of group B, but no severe pain was recorded in both groups, although the pain is less experienced in group A but it doesn't reach statistical significant difference as the P-value is  $>0.05$ . Regarding baby feeding, in group A, 37 patients (74%) started breast feeding, while in group B, 29 patients (58%) started breast feeding, however this difference does not reach statistical significance as shown in (Table 3).

3. Follow up after 2 weeks. (Table 4) Regarding pain, forty eight patients (96%) had mild pain in group A and 40 in group B (80%), while two patients (4%) had moderate pain in group A, with 7 patients (14%) in group B, only three patients (6%) had severe pain, all were in group B, so the results of comparing pain between the two groups revealed significant statistical difference since the calculated P-value was less than 0.05. Regarding breast feeding, 38 cases (76%) and 26 cases (52%) in group A and B respectively with a P-value less than 0.05. Only one patient (2%) in group A, and three (6%) in group B developed wound dehiscence, although the

statistically. Cosmetically accepted results were obtained in 49 cases (98%) of group A and 45 cases (90%) of group B, although the difference is not reaching statistical significance but the results show that group A have more accepted outcome. No patient required stitch removal in group A while for 4 patients (8%) in group B stitches were needed to be removed and this difference is significant. The details are shown in (Table 4).

4. Follow up after 6 weeks (Table 5)

No patient complained of pain in group A while 7 patients (14%) still had mild pain and this difference is of statistical significance (P-value  $<0.05$ ). Regarding infection, one patient (2%) in group A and 3 (6%) in group B suffered from it and this difference is not significant. Only three patients (6%) in group A suffered from dyspareunia while in group B, those who suffered from it were 8 cases (16%), but statistically this difference is not significant (P-value  $>0.05$ ), as demonstrated in (Table 5).

5. Consumption of suture materials and cost. (Table 6): In the aspect of suture materials consumption and cost as compared between the two groups it showed a significant statistical difference which was in group B double of that of

**Table 1:** Demographic distribution of the cases

Demographic distribution	Criteria	Group A		Group B		P- value*
		No.	%	No.	%	
Age	<20 y	6	12%	11	22%	0.1000
	21-30 y	39	78%	29	58%	
	>31 y	5	10%	10	20%	
	Total	50	100%	50	100%	
Residence	Urban	33	66%	36	72%	0.5160
	Rural	17	34%	14	28%	
	Total	50	100%	50	100%	
BMI**	Normal	38	76%	31	62%	0.3010
	Obese	11	22%	18	36%	
	Overweight	1	2%	1	2%	
	Total	50	100%	50	100%	
Gravidity	Primigravida	39	78%	43	86%	0.2980
	Multigravida	11	22%	7	14%	

\*\* : BMI body mass index normal 20-24.9, Overweight 25-29.9, Obese  $>30$ .

**Table 2:** Distribution of the born babies according to their weight.

Baby weight	Group A		Group B		P-value
	No.	%	No.	%	
2.5-2.9 kg	3	6%	5	10%	0.1660
3-3.4 kg	41	82%	32	64%	
3.5-3.9 kg	6	12%	11	22%	
4-4.5 kg	0	0%	2	4%	
Total	50	100%	50	100%	

**Table 3:** Follow up of the cases during the first 12 hour.

Variables	Pain*			haematoma		Urine		Baby feeding	
	Mild	Moderate	Severe	Yes	No	Yes	No	Breast	Bottle
Group A	43	7	0	0	50	0	50	37	13
Group B	38	12	0	0	50	1	49	29	21
Total	81	19	0	0	100	1	99	66	34
P-value	0.2030			-		0.3150		0.0910	

\* : depends on patient’s reply about the severity of here experienced pain.

**Table 4:** follow up of the cases after 2 weeks

Variables	Pain			Infection		Constipation		Breast feeding		Wound dehiscence		Cosmetic acceptance		Stitch removal	
	Mild	Moderate	Severe	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Group A	48 96%	2 4%	0 0%	2 4%	48 96%	2 4%	48 96%	38 76%	12 24%	1 2%	49 98%	49 98%	1 2%	0 0%	50 100%
Group B	40 80%	7 14%	3 6%	4 8%	46 92%	4 8%	46 92%	26 52%	24 48%	3 6%	47 94%	45 90%	5 10%	4 8%	46 92%
Total	88	9	3	6	94	6	94	64	36	4	96	94	6	4	96
P-Value*	0.0390			0.4000		0.4000		0.0120		0.3070		0.0920		0.0410	

**Table 5:** Follow up of the cases after six weeks.

Groups	Pain		Infection		Wound dehiscence		Dyspareunia	
	Yes	No	Yes	No	Yes	No	Yes	No
Group A	0 (0%)	50 (100%)	1 (2%)	49 (98%)	0 (0%)	50 (100%)	3 (6%)	47 (94%)
Group B	7 (14%)	43 (86%)	3 (6%)	47 (94%)	1 (2%)	49 (98%)	8 (16%)	42 (84%)
Total	7	93	4	96	1	99	11	89
P-value*	0.0060		0.3070		0.3150		0.1100	

**Table 6:** Comparison of the two groups regarding the cost.

Variables Groups	Number of cases	Total number of vicryl used**	Total coast* (1500 ID for each)	P-value
Group A	50	50	75000 ID	0.0080
Group B	50	100	150000 ID	
Total	100	150	225000 ID	

\* : The cost for each vicryl used is about 1500 ID.

\*\* : For each case in group A, just one vicryl is used, while in group B, 2 used for each.

## DISCUSSION :

The use of an episiotomy for vaginal delivery is a controversial topic in modern obstetrics. If one is done, correct technique of episiotomy repair is important. The technique of suturing episiotomy following child birth may have a significant effect on the extent and degree of morbidity experienced by women both in the short- and long-term [18]. The present study evaluates the continuous suturing technique for repair of episiotomy compared with the traditional interrupted technique. In the first 12 hours, there was no statistically significant difference in parameters between the two groups, but we couldn't find studies to compare the two groups in the first 12 hours. This study showed that less pain was experienced by lower number of cases in group A at two weeks postpartum and this

et al 2002<sup>19</sup>, Almeida et al 2008<sup>20</sup>, Morano Sandra et al 2006<sup>21</sup> and Isager-Sally 1986<sup>22</sup> which all showed lower rates of pain with continuous suturing technique used for perineal repair. Whereas another study by Valenzuela et al 2007<sup>23</sup> showed no significant difference in pain in both groups. Their results obtained from comparisons of pain at 2<sup>nd</sup>, 10<sup>th</sup> day and three months postpartum were not showing significant difference between continuous and interrupted technique. In this study, women started breast feeding earlier in continuous group and this reaches statistical significant difference after two weeks postpartum, but was not found to be mentioned in the other studies. Regarding the need for stitch removal it was more with interrupted group, the same result also was demonstrated by kettle et al<sup>19</sup>, while Morano Sandra et al 2006<sup>[21]</sup> reported no events of suture removal in either group.

About wound dehiscence (although the difference between the two groups was not significant statistically) it was more with interrupted technique, the same results were found also in a study performed by Almeida et al 2008<sup>20</sup>. After six weeks postpartum pain was less in continuous groups and this was also demonstrated in the Kettle et al 2002 trial<sup>19</sup> who reported a decrease in short-term pain in the continuous group while no differences was found in long term pain after 3 months. About dyspareunia, after six weeks, although it was lower in continuous group, but was not significant statistically as most patients were not starting intercourse by 6 weeks due to religious believe, trials provided data for inclusion in this analysis were Detlefsen 1980<sup>24</sup>, Isager-Sally 1986<sup>22</sup>, Kettle et al 2002<sup>19</sup>, and Morano 2006<sup>21</sup>. Detlefsen 1980 and Isager-Sally 1986 trials reported lower rates of dyspareunia in the continuous suturing technique. Whereas Kettle et al 2002<sup>19</sup> and Morano 2006<sup>21</sup> did not demonstrate any statistically significant reduction in dyspareunia experienced by participants in the continuous technique groups compared with interrupted group. Regarding consumption of suture materials, this study showed a significant reduction in consumption of suture materials used for repair by continuous techniques (half of that needed for interrupted one) which can decrease the cost by half; this was demonstrated also by Valenzuela P. et al 2007<sup>23</sup>.

#### CONCLUSION:

This study have showed that perineal repair using continuous suturing technique is superior to interrupted technique by causing less maternal morbidity including less pain experienced on short term (2 weeks and 6 weeks postpartum), early onset of breast feeding, less need for stitch removal and less suture materials consumption and so, less cost, also this technique associated with better cosmetic acceptance by the patient.

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