

## A Comparative Study of Two Different Methods for Episiotomy Repair

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### Abstract

**O**bjective: To evaluate the effectiveness of using (vicryl) thread material by subcuticular technique for repair of episiotomy and compare it with the standard method that use (catgut) by interrupted mattress technique.

**Design:** A randomized controlled study based in hospital.

**Setting:** Labour ward at AL-Zahraa maternity & pediatric teaching hospital at AL-Najaf city.

**Population:** 300 women who have undergo vaginal delivery with episiotomy.

### Methods:

- The study was conducted at maternity and pediatric hospital in Al-Najaf city from the first of march 2005 to the end of January 2006 .
- The study included women attending labour ward in the hospital for vaginal delivery with episiotomy (total no. 300 women)
- Women with the following criteria were excluded from this study :
  - History of prolong or obstructed labour.
  - History of midwife interference .
  - History of PROM or Chorioaminitis.
  - History of immune-compromised and diabetic mellitus.
- In 100 of the women the episiotomy was repaired using vicryl 2-0 sutures and the skin was closed by subcuticular technique, while the rest 200 women their episiotomies were repaired by catgut 1-0 sutures .
- The women were re-examined after 5 and 10 days for signs of infection and were assessed for persistent and severity of pain .

### Results:

- In the majority of women the indication for episiotomy was nulliparity with tight perineum
- Experience of pain up to the fifth day after delivery was less common in those women whom episiotomies were sutured with vicryl and also the severity of pain was less.
- The study shows that the incidence of wound infection was much less when using vicryl sutures and mattress technique.

### Aim of Study

The aim of this study is to provide up-to-date information, based on clinical evidence ,with respect to the most effective method and material for use in repair of episiotomy following child birth .and also to evaluate the outcomes of two technique of suturing (interrupted or mattress )and (continuous or subcutical). Using two types of suturing



materials :polyglactin(vicryl 2.0) and chromic (catgut 1.0) .in both situations sequaleae recognized regarding early complications (pain ,infection and wound dehiscence ).

## الخلاصة

أجريت هذه الدراسة التطليعية في مستشفى الزهراء التعليمي للولادة والأطفال في صالة الولادة للفترة من الأول من آذار 2005 إلى نهاية كانون الثاني 2006. الهدف من الدراسة هو المقارنة بين طريقتين لخيطة جرح العجان الجراحي كان عدد النساء المشاركات في الدراسة 300 امرأة أجريت لهن خيطة جرح العجان الجراحي أثناء الولادة . تمت خيطة الجرح لدى 100 من النساء (المجموعة الأولى) باستعمال خيط (vicryl 2-0) بطريقة (subcuticular) أما المتبقي من المريضات (المجموعة الثانية) فقد تمت خيطة الجرح بخيط (catgut1-0) بطريقة (mattress) . أثبتت الدراسة إن نسبة وجود الألم وكذلك شدة الألم كانت اقل في المجموعة الأولى من النساء . كذلك أثبتت الدراسة ان نسبة حدوث التهابات الجرح كانت اقل في المجموعة الأولى من المجموعة الثانية

## Introduction

Episiotomy is a surgical incision of the perineum made to increase the diameter of the vulval outlet during child birth. The term “episiotomy” refers to cutting the external genitalia “pudenda” where as the term “perineotomy” means an incision of perineum and is the more accurate term.(1) Episiotomy introduced as an obstetric procedure over 200 years earlier, but the general opinion of obstetrician only came to favor it after a publication by Pomeroy in – 1918 – who introduced the concept that all primigravida should receive an episiotomy to protect the fetal head.(2)

In 1920 Delee suggest that episiotomy should be done routinely to shorten the second stage of Labor , preserve the integrity of pelvic floor, forestall uterine prolapsed, prevent rupture of vesico- vaginal septum and safe baby’s brain from injury(3). by 1930 , most American hospital had accepted episiotomy as a routine procedure , but it did not become as popular in Britain until 1950.(4)

Further research carried out over last 20 years has shown the problems associated

with the procedure which include :- unsatisfactory anatomical results , increased blood lost , perineal pain and dyspareunia. These studies have concluded that the routine use of episiotomy should be abandoned.(5)

### Purposes of Episiotomy

Episiotomy is performed to achieve two major primary objectives:

1. Protection of the fetal head from prolonged pounding on a resistant perineum;
2. Protection of the maternal tissues from irreversible damage during descent and delivery of the head .(6)

### Types of Episiotomy

A wide variety of episiotomy incisions have been advocated. Lately, however, the field has narrowed down to two main types: the mediolateral and the median. Proponents of the median episiotomy advance attractive arguments, such as a greater ease in performance and less wound pain, to offset their high percentage of third degree tears. On the other hand, a mediolateral episiotomy usually extends harmlessly into

the soft tissues of the ischioanal fossa, and rarely towards the anus. <sup>(7)</sup>

### **Sutures used in Episiotomy**

There are 3 main types of suture used in Episiotomy:

1. **Quickly dissolving** :- usually chromic, which dissolves in about 2 weeks and usually softens during this time.

2. **Delayed dissolving** :- usually (Polyglycolic) which dissolves over about 6- 8 weeks, or longer

3. **Permanent suture** :- used when there is:

a- an infection

b- previous episiotomy repair break-downs. <sup>(8)</sup>

Pain in perineum depends on degree of tightness used in Repair, fineness of suture material, the way in which the skin is closed. The best results are achieved with vicryl suture. Sewing the perineum fairly loose to allow for the evitable post partum edema and closing the skin with subcuticular suture. <sup>(9)</sup>

### **Complications of an episiotomy**

#### **1. Pain**

##### **Causes of pain**

**a-Tension:** It has been suggested that tension upon the skin is the major source of pain, and advises the under mining of subcutaneous fat to effect relief.

**b-Type of episiotomy:** This contributes to the women distress Median incision cause less pain than mediolateral incision.

**c- During the phase of edema in wound repair:** all Tissues become engorged. when this physiologic swelling is forcibly contained by sutures the initial pain must be markedly increased.

**d- Type of sutures:** embedding catgut in tissues, more over, produces a foreign body Reaction dependent not upon fineness of catgut used but solely upon it's type achromatized suture stirs up amore violent Reaction than plain catgut. It is apparent, therefore that a layer of sutures of any type buried in injured tissues will provide painful constriction to physiologic edema of healing, and initiate foreign body reaction with further serum production until complete absorption offers relief. <sup>(6)</sup>

#### **2. Infection**

The used of continuous subcuticular technique for perineal skin closure associated with less infection. <sup>(10)</sup>

#### **3. Haematoma and bleeding**

An Episiotomy can bleed heavily. Homeostasis should be achieved by pressure or arterial clamps if necessary .

with episiotomy , midline method is the preferable , because the tissue is thinner ..therefore, less tissue trauma The alternative "mediolateral" pisiotomy associated with more blood loss because the tissue is thicker. <sup>(11)</sup>

#### **4. Dehiscence of an episiotomy**

Which can be due to

A-infection

B-bad suturing of incision with infection

C-due to General illness as Diabetic patient.

#### **5. Superficial dyspareunia**

1. The use of absorbable synthetic material Dexon and Vicryl for repair of perineal trauma compared to dyspareunia found that there was no clear difference interms of long term pained dyspareunia . it found that Dexon

and Vicryl were associated with an increased Risk of suture removal up to 3 month postpartum.

2. The use of continuous subcuticular technique, interrupted sutures found no difference in dyspareunia at 3 months post partum between the 2 groups .<sup>(12)</sup>

### 6. Incontinence

1. **Faecal incontinence** :- when an incision extended to affect anal sphincter which in turn badly repaired or Ignored when delivery done by unprofessional midwife.

2. **Urinary Incontinence** : overflow incontinence which occur due to stimulation of pudendal nerve which cause urine retention and then overflow incontinence .<sup>(13)</sup>

## Patients and methods

A randomized study comparing two technique of repair of episiotomy (subcutical , mattress) , used tow types of suture material vicryle no.2-0 and cat gut no. 1-0

The study was conducted at maternity and pediatric hospital in Al-Najaf city from first march 2005 to end January 2006 .

The study included women attending labour ward in hospital for vaginal delivery during our duties (total no. 300 women ) . The repairs described by this study involve predominately medio-lateral episiotomies .

Pregnant women with the following criteria were excluded from this study :

- \*History of prolong or obstructed labour
- \*History of midwife interference
- \*History of PROM or Chorioaminitis
- \*History of immune-compromised and diabetic mellitus

## Methods

The need for Episiotomy is first explain to the patient.

The perineum must be infiltrated with local Anesthetic and then the Fingers of the Left hand introduced into vagina to protect the Fetus and stretch the perineum .

The incision is made in perineum with a pair of scissors to extent which is required.

In this study medio -lateral approach used which commences at fourchette but extends in straight line at 8.0 O'clock to completely ovoid the anus.

### Procedures

\* Review for indications.

\* Review general care principle and apply antiseptic solution to the perineal area

\* Provide emotional support and encouragement .Use local infiltration with lignocaine.

\* Make sure there are no known allergies to lignocaine or related drugs.

\* Infiltrate beneath the vaginal mucosa , beneath the skin over perineal muscle using about 10 ml 0.5% lignocaine solution.

**Note:** Aspirate (pull back on the plunger) to be sure that no vessel has been penetrated. If blood is returned in the syringe with aspiration, remove the needle. Recheck the position carefully and try again. Never inject if blood is aspirated. The woman can suffer seizures and death if IV injection of lignocaine occurs.

\* At the conclusion of the set of injections, wait 2 minutes and then pinch the incision site with forceps. If the woman feels the pinch, wait 2 more minutes and then retest.

Anaesthetize early to provide sufficient time for effect.

\* Wait to perform episiotomy until:  
 - The perineum is thinned out; and (3 - 4) cm of the baby's head is visible during a contraction.

Performing an episiotomy will cause bleeding. It should not, therefore, be done too early.

- Wearing high-level disinfected gloves, place two fingers between the baby's head and the perineum.
- Use scissors to cut the perineum about 3-4 cm in the medio-lateral direction.
- Use scissors to cut 2-3 cm up the middle of the posterior vagina.
- Control the baby's head and shoulders as they deliver, ensuring that the shoulder shave rotated to the midline to prevent an extension of the episiotomy.
- Carefully examine for extensions and other tears and repair.

**Repair of Episiotomy**

\* Apply antiseptic solution to the area

around the episiotomy.

\* If the episiotomy is extended through the anal sphincter or rectal or rectal mucosa, manage as third or fourth degree tears, respectively.

\* Close the vaginal mucosa using continuous 1-0 catgut suture or 2-0 vicryle.

- Start the repair about 1 cm above the apex (top) of the episiotomy.

Continue the suture to the level of the vaginal opening;

- At the opening of the vagina, bring together the cut edges of the vaginal opening;

- Bring the needle under the vaginal opening and out through the incision and tie.

\* Close the perineal muscle using interrupted 1-0 catgut suture or 2-0 vicryle.

\* Close the skin using interrupted 1-0 catgut sutures or subcuticular 2-0 vicryle

**Results**

Table 1. Rate of episiotomy according to parity

Primipara	Multipara
97.08%	1.54%

Table 2. The most common indication of episiotomy

Indications of episiotomy	G1 (vicry2-0) subcutical N=100		G2 Catgut 1.0 mattress N=200		Total%
	Primipara	Multipara	Primipara	Multipara	
Tight perineum(all primipara )	82%		90.5%		87.7%
Previous caeserian suction		5%		6.5%	6%
AP-repair		1%		1%	1%
Breech	2%	1%	0.5%		1.3%
Twin	2%			0.5%	1%
Preterm birth	2%				0.7%
Shoulder dystocia		1%			0.3%
Previous episiotomy		4%		1%	2%

This table shows the percentage of mothers subject to the episiotomy and the most common indication was tight

perineum (all primipara) 87.7% and next indication was previous caesarian section 6%.

Table 3. duration of pain between two group

Pain in epsiotomy	G1 (vicryl 2-0) subcutical N=100	G2 (catgut 1-0) mattress N=200
Pain up to 5 <sup>th</sup> p.p. day	20%	13%*
Pain up to 7 <sup>th</sup> p.p. day	6%	6%
Pain up to 10 <sup>th</sup> p.p. day	5%	9.5%

\*P < 0.05

This table compare between the 2 groups of patient in regard to through period from 5<sup>th</sup> post partum day to 10<sup>th</sup> days after repair of epsiotomy. A high proportion of mothers

reported some pain for first 5days .there was a statistically significant difference in the reporting of pain between the two groups at day 5.

Table 4. Experience of pain in two procedure

Type of pain	G1 Vicryl (subcutical) N=100	G2 Catgut(mattress) N=200
moderate	4%	7.5%
Severe	2%	4%

\*P<0.5

Shows the percentage of mothers reporting moderate/severe pain in both groups. There was a statistically significant difference in

the reporting pain between the two groups for the first 5days.

Table 5. Rate of infection

G1 Vicryl 2.0 (subcutical)	G2 Cutgut 1.0 (mattress)
2%	14.5%*

\*p<0.05

This table shows the percentage of infection in both groups ( by using cardinal singe of inflammation clinically and swab from wound for laboratory investigation ).

There was a statistically significant differences between the two groups when assessing healing of the wound and signs of infection up to fifth post partum day (2% compared to 14.5%)

Table 6. Severity of infection in both group

Type of wound infection	G 1 Vicryl (subcutical) N=100	G2 Catgut (mattress) N=200
Mild	1%	10.5%
Moderat	1%	4%

This table shows the distribution of severity of wound infection in both groups. The table shows that the most common types of infection in group 2, was mild (10.5%) then moderate infection (4%)

No woman in both groups develop severe wound infection, none of the mothers required re-suturing.

## Discussion

Episiotomies are performed in 97.08% of first time mothers (primipara) delivering in Al-Zahra hospital.

In 1997 the Audit commission survey of maternity units found the episiotomy rates 99% of primi para delivering in Eastern European Country.(14)

In 1983 (Thacker and Benta) published their analysis at major U.S hospitals. It has been found that episiotomies are performed on over 90% in nulli para.(1)

This results consistent with our results in which largest in primi para.

In 1989 (Rockner) observed decline in episiotomy rate (mostly Medio lateral) among nullipara in Sweden to less than 33.6%.(15) and this not consistent with our results.

### IN TABLE .1 and 2

Shows the no. of women who have been submitted to the episiotomy according to the indication.

Total no. of women 300, 100 of them sutured with vicryle no. 2.0

Using subcutical technique this group sutured by this method has different indication. In this study it has been found that the largest percentage of patients who have episiotomy are those primipara

particularly those with tight perineum whilest lesser percentage of patients with episiotomy are those with previous caesarian suction and previous epsiotomy. Other 200 of patients sutured with catgut 1-0 sutured by using mattress method same result obtained, primiparous with tight perineum in both groups 87.7%

In 1985 (Buekens et al). published their analysis at 10 Belgian hospitals, it has been found that episiotomies were performed more often in primiparous with breech or occipit posterior and with instrumental deliveries.(16)

In 1996 (Hueston) found that the strongest predictions of episiotomy were nullipara, forceps and vacuum extractors.

These results consistent with our results in which the largest no. of episiotomy were performed in primipara.

### IN TABLE.3 and 4

In this table comparison had been done, in relation to pain with episiotomy in the two groups. first group 100 patients sutured with vicryl suture using subcutical technique and the other group 200 patients sutured with catgut using mattress technique

In the first group, pain was experienced for fifth days post partum in 2% of patients, but this percentage decreases at 7<sup>th</sup> p.p.day up to (6%) and decline to 5% up to the 10<sup>th</sup> p.p. day.

In the second group, the patients that experienced pain in post natal period reached to 13% In the first fifth days and then decline to reach to 6% up to seventh p.p day but the percentage raise to 9.5% up to tenth p.p day From all above it seems that suturing an episiotomy with interrupted catgut suture material associated with more pain in post natal period than that sutured with vicryl using subcuticular technique.

This results constituent with that obtained by Chalmers I, Enkin M, Keirse MJNC. In (1989). (17)

In 2003 Kettle C, Johanson RB found that repaired used 2.0 polyglactin suture decrease post-partum pain after repair of episiotomy. (9)

Regarding the severity of pain, in both groups patients suffering from pain but the severity of pain is less in patient sutured with vicryl 2.0 (subcuticular) comparing with second group sutured with catgut 1.0 (mattress). In the first group, the percentage of patients suffering from pain up to tenth P.P day was 6% from which 4% moderate pain and 2% severe pain comparing with 11.5% in second group from which 7.5% moderate pain and 4% severe pain. This result is consistent with that obtained by Johanson RB (1999). (9)

#### **IN TABLE .5 and 6**

This table shows the percentage of infection of episiotomies in both groups. In first group sutured with vicryl 2.0 (subcuticular) the percentage of infections was 2% while in second group sutured with catgut (mattress) 14.5% from this table it was clear the patient in first group carried less percentage of infection than those in the second-group. This study is consistent with that obtained by Reynolds JL, Yudkin pl. (1987) (18)

Hills RK, Kettle C, Jones P, Darbyl, Gray R, Johanson R. (2002). (19)

Johanson (1994A) (17) all found that synthetic suture materials

Vicryl using continuous subcuticular are preferred to chromic catgut using interrupted sutures because they produced less tissue reaction and absorbed more slowly so decrease infection.

This table reporting severity of infection of episiotomies when sutured first with vicryl continuous method and second with catgut mattress method. It has been found that mild to moderate infection

only occur in both groups but the percent of infection in the first group was 1% mild, and 1% moderate, while in the second group the incidence was 10.5% mild and 4% moderate. This result is similar to that obtained by Gemynth et al 1996. (20)

## **Conclusion**

\*It is important that absorbable sutures should be used for closure of episiotomy.

\*Polyglycolic sutures are preferred over chromic catgut for:

1. Their tensile strength
2. non - allergenic properties
3. Lower probability of infectious complications and episiotomy break down

\*Chromic catgut is an acceptable alternative, but is not ideal.

\*Subcuticular suturing of an episiotomy results in better healing rate of the wound, in addition to that pain sensation from the incision less than that with interrupted suturing.

\*Other complications include infection, Wound dehiscence, superficial dyspareunia are less with subcuticular suturing using polyglactine vicryl suture.

## **Recommendations**

\*Episiotomy should not be used routinely.

\*Poly glycolic sutures with subcuticular suturing of incision is preferred over chromic catgut.

Poly glycolic sutures which are ideal for suturing of an episiotomy (Dexon and vicryl 2-0).

## References

- 1- Thacker Sb and Banta D; Benefits and risk of episiotomy : An interpretative review of English language literature 1860- 1880. *obstet Gynaecol surv.*38, 322- 3B. (1983)
- 2- Pomeroy RH ;shall we cut and reconstruct the perineum for every prim : para?: *AMJ obstet Gynaecol* 78,211-20. (1918)
- 3- Delee JB ;The prophylactic forceps operation . *AMJ obstet – Gynaecol* 1,34-44. (1920)
- 4- Tew M ;safer child birth, in: *A critical History of maternity care* London: chapman 8, P.116 (1990)
- 5- Sleepj, grant A west Berkshire ;perineal management trial .*Br med J* 295,749-51. (1987)
- 6- Eastman, N. J. *obstetrics* (ed 11) New york, Appleton, . 1-2 . (1956)
- 7- Coombs (A) Robertson PA, leros PK : Risk factor for third degree and fourth degree lacerations in forceps and vacuum deliveries. *AMJ obstet Gynaecol* 163: 100, (1990).
- 8- Gerard M. Dileo, M.D F.A. C.OG. 2 (1998)
- 9- Kettle C, tohanson RB. Continuous vs interrupted sutures for perineal repair (cochrance Review). In *cochrance Library*, Issue 3. oxford : update soft ware; updated quarterly. (1999)
- 10- Johanson RB; continuous Vs interrupte suture and poly glycolic acid Vs catgut for perineal repair . in : keirse MJNC, Renfrew MJ , Nilson JP and crowther (Leds). (1999a) ,1999b) *Pregnancy and child birth module . the Cochrane . pregnancy and child birth data base , London : BMJ puplishing group .*
- 11- Bendetti TJ. *Obstetric Haemorrhage*. In : Gabbe SG, Niebyl JR , simpson JL , et al . , eds . *obstetrics : normal and Proplem pregnancies . 4<sup>Th</sup> ed . New york : Churchill livingstone , : 503-35. (2002)*
- 12- Albers L, Garcia J, Ren frew M, Mcc and lish R , Elbourne D, *Distibution of Genital tract Trauma in child birth and related Postnatal pain, bith; 26 : 11-7.( 1999 )*
- 13- viktrup L, lose G. The risk of stress in continence 5 days after first deliveries . *AMJ obstet Gynaecol* 2001; 185:82-7. (2001)
- 14- Audit commission ; first class delivery : improving maternity services England and wales. 1(abstrat). Abingdon : Audit commission puplication . (1997)
- 15- Rockner G, olund A, The used of epsiotomy in prim : baraus insweedn : descriptive study with particular focus on 2 hospitals . *Acta obstet- Gynaecol scand ; 70 : 325-330. (1991)*
- 16- Buekensp, Lagasse R, Dramaix M, wollast E, epsiotomy and third degree teaes –*BrJ obstet Gynaecol ; 92 : 820-823. (1985 )*
- 17- Chalmers I, Enkin M, keirse MJNC. *Effective care in pregnancy and child birth . oxford : oxford university press, 1989. pp.1173- 11 81. (1989)*
- 18- Reynold JL, Yudkin PL. changes in management of Labour : 2. perineal management . *can med Assoc J* 1987; 136 : 1045- 1049. (1987)
- 19- Hills RK, Jones P, Kettle C ,Darby L, Gray R, Johanson R. *contanuous VS interrupted perineal reaire with standared absorbed sutured after spontaneous vaginal birth : arandomized cotrolled trial . Lancet* 2002;359:2217-23 . (2002 )
- 20- Gemynthe A, Langhoff-Roose J, Knudsenss. *New vicry formation: An improved method of perineal reaire . British journal of midwifery* 1996;4:230-234(1996)