

Episiotomy repair: A comparison of Catgut and Polyglycolic acid sutures

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Since the introduction of catgut, no major advance has been made in the production of absorbable surgical suture materials till the introduction of polyglycolic acid suture in 1970. Polyglycolic acid sutures (PGA) or Dexon (Davis & Geck), is a homopolymer of glycolic acid (hydroxyacetic acid). Its sutures are non-toxic, non-antigenic and flexible. The tensile strength of polyglycolic acid sutures is superior to catgut, silk and polyester sutures of similar diameters. Tests also showed that during critical periods of wound healing, polyglycolic acid sutures retain greater strength and stability than catgut. Another advantage has been the reduction of pain and inflammation after surgery with polyglycolic acid sutures (Rahman and Way 1972, Tompkins & Lea 1972).

To assess some of the properties of polycolic acid sutures among Malaysian women, it was decided to compare this suture with chromic catgut in episiotomy repair. This is because symptoms referable to episiotomy repair are often disturbing in the immediate puerperal period. Any decrease in discomfort would be advantageous in obstetric practice.

MATERIALS AND METHOD

The study consisted of 122 patients who were delivered in the University Hospital, Kuala Lumpur. These patients were selected randomly. These patients had medio-lateral episiotomies.

All episiotomies were repaired in the standard manner: a continuous suture for the vaginal epithelium and interrupted sutures for the muscle

layer and skin. The catgut used was chromic catgut (Ethicon) No. 0 and the polyglycolic acid sutures (Dexon - Davis & Geck) No. 0. Needles used were standardised for the episiotomy repair set. Any patients having additional lacerations or extensions of the episiotomies were excluded from the present study.

The aftercare and treatment of the two groups were similar. The cutaneous sutures were allowed to absorb and/or drop out spontaneously during the course of healing. The episiotomies were assessed 18 - 36 hours after delivery and on the third evening prior to discharge. The patients were inquired about puerperal discomforts and their severity. The degree of discomfort were assessed on a scale of 1 to 3, namely 1=mild, 2=moderate, 3=severe. Mild pain was one that is only volunteered on direct questioning; moderate pain was complained of by the patients when they moved while severe pain was discomfort even at rest and which needed analgesics.

RESULTS

During the present study, 61 patients had episiotomies repaired with polyglycolic acid sutures and 61 patients had repair with chromic catgut. Randomisation were satisfactorily achieved in these two groups with respect to:

- (a) Age: patients with polyglycolic acid sutures had a mean of 26.66 (S.D. 4.9) years, while patients with chromic catgut had a mean of 26.36 (S.D. 4.8) years.

- (b) Race: patients who had polyglycolic acid sutures were made up of 15 Malays, 32 Chinese, 13 Indians, 1 other race while patients who had chromic catgut were made up of 13 Malays, 34 Chinese, 14 Indians.
- (c) Parity: there were 36 nulliparous patients who had polyglycolic acid sutures and 39 nulliparous patients who had chromic catgut.
- (d) Social class, education and sedation in the antepartum period were similar.
- (e) Method of delivery. This was comparable (Table 1)

TABLE I
METHOD OF DELIVERY

	DEXON	CATGUT
Spontaneous	40	36
Forceps (Low)	8	12
Forceps (Mid)	6	4
Ventouse	5	5
Breech (Assisted)	2	4

- (f) Doctors repairing the episiotomies were comparable in experience.

Post-partum perineal pain

The incidence of pain-free episiotomy was more common among patients repaired with polyglycolic acid sutures (13 percent) than with patients repaired with chromic catgut (1.6 percent) (Table II). To exclude possible bias, the incidences of abdominal, breasts and anal discomfort were not significantly different for the two types of material.

More patients with polyglycolic sutures had mild discomfort (69 percent) than patients with chromic catgut (38 percent). Among the patients experiencing pain, the degree of suture pain was approximately one quarter less, with a probability of less than 0.05, when comparing these two suture material (1.207 as against 1.666) (Table III.) The degrees of abdominal, breasts and anal discomforts were not significantly different for the two types of material.

TABLE II
RELATIONSHIP BETWEEN INCIDENCE OF EPISIOTOMY PAIN AND SUTURE MATERIAL

SITE OF DISCOMFORT	PATIENTS WITHOUT PAIN		PROBABILITY LEVEL
	POLYGLYCOLIC SUTURE	CHROMIC CATGUT	
ABDOMEN	12	8	$p > 0.05$
BREASTS	59	58	$p > 0.05$
ANUS	57	56	$p > 0.05$
EPISIOTOMY	8	1	$0.05 > p > 0.02$

TABLE III

DEGREE OF EPISIOTOMY PAIN AND TYPE OF SUTURE MATERIAL

SITE OF DISCOMFORT	DEGREE OF PAIN		PROBABILITY
	POLYGLYCOLIC ACID SUTURES	CHROMIC CATGUT	
ABDOMEN	1.22	1.26	p>0.05
BREASTS	1.00	1.00	p>0.05
ANUS	1.5	1.2	p>0.05
EPISIOTOMY	1.207	1.666	p>0.02<0.05

Ease of movements

Ease and freedom of movements were similar to the incidence of perineal pain. Table IV.

TABLE IV

EASE OF MOVEMENTS

EASE OF MOVEMENT	POLYGLYCOLIC ACID SUTURES		CHROMIC CATGUT	
	NUMBER	PERCENT	NUMBER	PERCENT
GOOD	40	82	24	39
RESTRICTED	11	18	34	56
VERY RESTRICTED			3	5

$\chi^2 = 23.8$ $p < 0.01$

Integrity of suture line

At discharge, the integrity of suture lines was similar in both groups, being intact in all cases.

Healing

About 60 percent of patients were seen in the routine post-natal clinic 6 weeks after delivery. By then, all the episiotomies had healed well.

DISCUSSION

It would seem that polyglycolic acid sutures had considerable advantage over chromic catgut sutures in episiotomy repair. This is especially seen in the low incidence of episiotomy discomfort and pain. The degree of pain, when present was less. This was also reflected in the greater ease and freedom of movement after episiotomies with polyglycolic acid sutures when compared with

chromic catgut ($p < 0.01$).

These findings seemed no different from previous studies. Livingstone et al (1974) showed that almost half of his patients who had episiotomy repair with plain catgut, as compared with 22 percent of patients who were repaired with polyglycolic acid sutures, had "painful" to "unbearably painful" sutures. They also noticed a lower incidence of oedema of the episiotomy wound when repaired with polyglycolic acid sutures. Rogers R.E. (1974) in a study of 600 randomly selected American women showed that the incidence of pain and its severity were significantly less when polyglycolic acid sutures were compared with chromic catgut in episiotomy repair. These results seemed consistent with light and electron microscopy findings that polyglycolic acid sutures evoke much less inflammatory response than did catgut and other suture materials (Echeverria and Jimenez 1970).

The price of polyglycolic acid sutures is marginally more than catgut.

One disadvantage seemed to be that polyglycolic acid sutures were more difficult to handle initially and there was a tendency for the initial knot to be more "loose".

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