



Absorbable suture materials for primary repair of episiotomy and second degree tears

01 April 2011

Repair of perineal trauma with synthetic absorbable sutures is associated with less short-term pain, reduction in the use of analgesia, less wound breakdown and reduced need for perineal re-suturing compared with catgut. However, the use of standard synthetic sutures was associated with greater frequency of removal of unabsorbed sutures compared with catgut. There was no significant difference between standard synthetic sutures and rapidly absorbed synthetic sutures, although with the latter fewer women required removal of unabsorbed suture up to 3 months post delivery, there was less analgesic use and more gaping wound edges.

RHL Commentary by Adegbola O

1. INTRODUCTION

Perineal trauma is not uncommon following spontaneous or assisted vaginal delivery. Some of the tears are small and require no active intervention like suturing, but those due to episiotomy or significant perineal lacerations usually need repair. Risk factors associated with perineal trauma include: first vaginal delivery, fetal macrosomia, operative vaginal delivery, and malpresentation and malposition of the fetus. Others risk factors include race or ethnicity (women of African descent are less likely to experience perineal trauma than Caucasian women), abnormal collagen synthesis, poor nutrition and age (1, 2, 3). While younger women are at risk of having episiotomy, older women are at risk of having severe perineal lacerations (2, 4).

Episiotomy rates vary widely worldwide, depending on whether the procedure is used restrictively or routinely. Rates vary from 8% in the Netherlands, 13% in England to 25% in the USA (1). In developing countries, episiotomy rates are still high as restrictive use of episiotomy has not been widely embraced in primigravidas. Prevalence rates of 46% (5) and 54.9% (4) have been reported in two West African countries. Episiotomy rates as high as 99% have been reported in East European countries (1). Episiotomy and the need for perineal sutures have been identified as risk factors in PPH in vaginal deliveries (6).

Perineal trauma affects the mental, social and physical wellbeing of the woman. Some have postpartum pain and discomfort, which may persist beyond the puerperium as chronic pain and dyspareunia. In addition, infection, wound breakdown, urinary and faecal incontinence and other spectrum of adverse effect of treatment of perineal trauma can make the postpartum period very unpleasant. While factors like suture techniques, operator skills and suture materials may affect perineal pain and wound healing, the purpose of this review (7, 8) was to evaluate if the type of absorbable suture material used for perineal repair after childbirth had an influence on the rate of short- and long-term pain, amount of analgesia used, rate of superficial dyspareunia, removal of suture materials, re-suturing of wound and wound dehiscence

(breakdown

2. METHODS OF THE REVIEW

In general, the trial search is comprehensive enough to minimize any searching bias and the approach to assessment of quality of included trial is commendable, especially the concise and precise presentation of the characteristics of the included studies. The data on different comparisons and analyses are presented clearly, both in the text and in tables.

The authors were looking for relevant randomized and quasi-randomized controlled trials that had compared absorbable synthetic suture materials like standard polyglactin 910 (Vicryl), fast or rapidly absorbing polyglactin 910 (Vicryl Rapide), standard polyglycolic acid (Dexon), monofilament glycomer 631 and catgut (plain, chromic and glycerol impregnated) usage in all primiparous and multiparous women who had perineal trauma that required suturing following instrumental or spontaneous vaginal delivery. The primary outcome was short-term pain (maternal pain up to three and 4–10 days), while the secondary outcomes were analgesia use, removal of suture materials, re-suturing, wound breakdown, long-term pain at 3, 6 or 12 months, superficial dyspareunia at 3, 6 or 12 months and maternal satisfaction with the repair at 3 and 12 months.

3. RESULTS OF THE REVIEW

The review includes 18 randomized controlled trials. The categories of trials included were:

- six trials that compared Polyglycolic acid suture (Dexon) with chromic catgut sutures;
- five trials that compared standard absorbable polyglycolic acid sutures or Polyglactin sutures with fast-absorbing synthetic suture (Vicryl Rapide);
- two trials that compared fast-absorbing Polyglactin suture (Vicryl Rapide) with chromic catgut sutures;
- two trials that compared untreated chromic catgut with glycerol impregnated catgut (soft gut);
- one trial that compared Polyglactin (standard Vicryl) to chromic catgut;
- one trial that compared plain catgut with Dexon; and
- one trial that compared an absorbable monofilament synthetic material (Biosyn) with polyglycolic acid.

Most of the trials included women who had had episiotomy along with those who had sustained second degree perineal laceration. However, in five trials only women who had had episiotomy were included. One trial included only women who had had episiotomy following an instrumental delivery. The same suturing technique was used for both the intervention and comparison groups in each of the included trials, but between the trials there were differences in techniques of closure of perineal skin. In five trials only continuous subcuticular sutures were used while in three trials only interrupted sutures were used. In six trials continuous subcuticular and interrupted technique was used, either assigned evenly or left to the operator's discretion. In one trial, the closure technique was two-stage (perineal skin left un-sutured) or three-stage (perineal skin sutured, but technique as per the discretion of the operator), but in three trials, the suturing technique was not described.

3.1 Comparison 1: Absorbable synthetic sutures versus catgut: 11 trials with 5072 women

With regard to the primary outcome, less women in the synthetic suture group experienced short-term pain at or before three days after delivery compared with those in the catgut group (RR 0.83; 95% CI 0.76–0.90, nine trials, 4017 women). Also, women in the synthetic suture group experienced significantly less pain 4–10 days after delivery compared with those in the catgut group (RR= 0.78; 95% CI 0.67–0.90, three trials, 2044 women).

As to the secondary outcomes, women in the synthetic sutures group had less need for analgesia 10 days following delivery compared with the catgut group (RR 0.71; 95% CI 0.59–0.87, five trials, 2820 women). There was no difference in the rate of wound breakdown between absorbable synthetic suture and catgut; fewer women in the absorbable synthetic suture group tended to have wound (skin edge) gaping by day 10 compared with the catgut group (RR 0.58; 95% CI 0.36%–0.94%, four trials, 2219 women). Also, significantly more women with catgut sutures required perineal re-suturing compared with those with synthetic sutures (RR 0.25; 95% CI 0.08–0.74, four trials, 1402 women). However, more women with standard synthetic sutures required removal of unabsorbed suture materials compared with catgut and this was significant (RR 1.81; 95% CI 1.46–2.24, three trials, 2520 women). There was no difference between the groups with respect to pain at 3 months, although about 10% of the women in each group experienced some pain at 3 months. Also, there was no evidence of any significant difference between the two groups for dyspareunia at 3 months despite more than 15% of women in each group having painful coitus 3 months after delivery.

3.2 Comparison 2: Fast absorbing versus standard synthetic sutures: 5 trials with 2349 women

There was no difference between groups sutured with standard versus rapidly absorbing sutures in terms of women experiencing pain at or before 3 days and at 10–14 days after delivery. Only one trial reported use of analgesics at 10 days post delivery with fewer women in the rapidly absorbing sutures group using analgesics (RR 0.57; 95% CI 0.43–0.77). However, women sutured with fast absorbing synthetic sutures were more likely to have gaping wound edges up to 10 days post delivery compared with those sutured with standard synthetic sutures (RR 1.67; 95% CI 1.07–2.60, two trials, 1659 women). There were no data reported in these trials on serious wound breakdown. More women with standard synthetic sutures required the removal of unabsorbed suture material compared with rapidly absorbed sutures and this was significant (RR 0.24; 95% CI 0.15–0.36, two trials, 1847 women). There was no significant difference between the two groups for long-term pain at 3 months, dyspareunia at three or at 6–12 months after delivery, but more than 20% of women in each group experience dyspareunia three months after delivery. One trial examined maternal satisfaction with the perineal repair at three and 12 months post delivery but there was no significant difference in both groups.

3.3. Comparison 3: Standard catgut versus glycerol impregnated catgut: 2 trials with 1737 women

There was no significant difference between the groups for pain at three and 10–14 days after delivery. There was also no significant difference between the groups in women's use of analgesia up to 10 days after delivery as well as in women with wound breakdown at 10 days. In one trial consisting of 655 women, more women with standard catgut required removal of unabsorbed suture materials by 3 months after delivery (RR 0.42; 95% CI 0.27–0.67). There was no information on women requiring re-suturing. There was also no difference between both groups for pain at three months, dyspareunia at three or at 6–12 months. Nevertheless, about 25% of women in each group continued to have dyspareunia three months after delivery.

3.4 Comparison 4: Absorbable monofilament sutures versus polyglycolic sutures: one trial with 1139 women

There was no difference in both groups in mean pain scores as at three days post delivery as well as pain at

8–12 weeks. Women with monofilament sutures were more likely to report problems with perineal repair at 8–12 weeks (RR 2.24; 95% CI 1.43–4.11). However, this trial had a high attrition rate (? 30%) and its result should be interpreted with caution.

4. Discussion

This review concludes that repair of perineal tears with synthetic absorbable sutures is associated with less short-term pain, reduction in the use of analgesia, less wound breakdown and less need for perineal re-suturing compared to catgut. However, more women sutured with standard synthetic sutures required removal of the unabsorbed sutures compared with those sutured with catgut. There was no significant difference between standard synthetic sutures and rapidly absorbed synthetic sutures, but fewer women with rapidly absorbed suture required removal of unabsorbed suture up to three months post delivery.

4.1. Applicability of the results

Any intervention that can ameliorate the negative consequences of perineal trauma should be welcomed and encouraged. The search for the best suture material that may reduce the short- and long-term morbidities to the barest minimum is timely and relevant. Although the available evidences were obtained in developed countries, there is no doubt that low- and middle-income countries can benefit from the findings of this review if applied judiciously. The risk factors for perineal trauma like primigravidity, operative vaginal delivery, fetal macrosomia, fetal malpresentation and malposition for instance are universal (1, 2). This is despite the fact that poor nutrition is commonly associated with under-resourced settings and the fact that women of African descent women are at lesser risk of perineal trauma than Caucasian women (1, 2, 3). Also, the episiotomy rate in developing countries is still high as its use is still not restricted (4, 5), which also gives credence to the fact that perineal care in women in such setting is necessary and interventions available to optimize this should be embraced.

4.2. Implementation of the intervention

Catgut, though presently not available in most European countries, is still being used in some under-resourced countries because it is relatively cheap. However, absorbable synthetic suture materials are also increasingly being used in low-and middle-income countries because of their obvious benefits. However, the same cannot be said for fast or rapidly absorbed synthetic suture, which is not readily available in under-resourced countries. Awareness programmes need to be put in place at individual and community levels regarding the benefits of absorbable synthetic sutures and fast-absorbing suture compared with catgut. At the individual level, attention should be directed at women, their spouses or partners, health-care providers, policy-makers, purchasers and consumers of health care generally about benefits of not only these synthetic suture materials, but also other beneficial evidence-based practices through continuous information, training and re-training to conform with current best practices. This can be achieved by making available to the public summarized versions of useful findings in randomized controlled trials and systematic reviews. The net profit to the woman and the community or nation at large in implementing the use of fast absorbed and standard synthetic sutures far outweighs the use of relatively cheaper catgut with its attendant short- and long-term morbidities.

4.3. Implications for research

Further studies should be undertaken using the continuous suturing technique and women who had episiotomy should be separated from those who experience second degree perineal tear. In this regard the following comparisons will be useful: standard polyglactin (Vicryl) versus rapidly absorbing polyglactin (Vicryl Rapide); and standard polyglycolic acid versus absorbing polyglactin.

Among women with episiotomy, medio-lateral technique should be separated from the median group and comparison made of the two categories of suture comparisons as above. Also, among women undergoing

episiotomy, those with instrumental delivery should be separated from spontaneous vaginal delivery and comparison made of the two categories of suture above. All these studies could each include outcomes to evaluate maternal satisfaction with the perineal repair on the short and long-term basis.

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This document should be cited as: Adegbola O. Absorbable suture materials for primary repair of episiotomy and second degree tears : RHL commentary (last revised: 1 April 2011). *The WHO Reproductive Health Library*; Geneva: World Health Organization.

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