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Impact of chromic catgut versus polyglactin 910 versus fast-absorbing polyglactin 910 sutures for perineal repair: A randomized, controlled trial

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KEY WORDS
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Objective: The goal of our study was to compare the impact of 3 suture materials on perineal pain and on resumption of sexual intercourse.

Study design: This randomized, controlled trial compared 3 types of suture materials (chromic catgut, polyglactin 910, fast-absorbing polyglactin 910) for second-degree perineal laceration or uncomplicated episiotomy. Patients were enrolled in early labor and assigned randomly to 1 of the 3 suture materials. Pain was evaluated at 48 hours, 6 weeks, and 3 months. The study subjects were questioned about residual perineal pain, resumption of sexual activity, and pain-free sexual intercourse. Logistic regression analyses were undertaken.

Results: Of the 192 patients who were assigned randomly to groups, 66 patients had their perineal laceration repaired with chromic catgut; 60 patients had repair with polyglactin 910, and 66 patients had repair with fast-absorbing polyglactin 910. At 48 hours, there was no significant difference according to the pain measurement scores, but the median consumption of analgesics was significantly lower with fast-absorbing polyglactin 910 than with standard polyglactin 910. There was no difference in the resumption of sexual intercourse at 6 weeks after the delivery between chromic catgut (42%) compared with standard polyglactin 910 group (56%; $P = .23$). However, it was more frequent for women in the fast-absorbing polyglactin 910 group (66%; $P = .02$). After adjustment for confounding variables, perineal repair with fast-absorbing polyglactin 910 was associated with a higher rate of sexual intercourse (odds ratio, 2.55; 95% CI, 1.07-6.10) and a higher rate of pain-free sexual intercourse (odds ratio, 2.51; 95% CI, 1.03-6.10) at 6 weeks after delivery.

Conclusion: Fast-absorbing polyglactin 910 for perineal repair is associated with earlier resumption of sexual intercourse when compared with chromic catgut.

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Eighty-five percent of women who give birth by spontaneous delivery will have some form of perineal trauma, and up to two-thirds of these women will have perineal tear repaired.[1,2] A significant number of these mothers will experience perineal pain, not only in the immediate postpartum period, but also months later.[2] As many as 20% will continue to have long-term problems, such as superficial dyspareunia.[1] There is evidence that perineal repair with absorbable synthetic materials, such as standard polyglactin 910 or polyglycolic acid sutures, reduces short-term pain and dyspareunia when compared with chromic catgut.[3-5] However, these synthetic sutures have been associated with an increased risk for the need to remove residual material up to 3 months after delivery.[4-6]

Fast-absorbing polyglactin 910 sutures (Vicryl rapide; Ethicon, Peterborough Ontario, Canada) are now available for perineal repair. This material has all the properties of other synthetic sutures, but because of changes in the manufacturing process, its tensile strength is lost by days 10 to 14, and it is totally absorbed by day 42. These newer and more rapidly absorbed sutures potentially could offer the short-term benefits of synthetic materials without the problems related to delayed suture reabsorption. To date, no randomized trial has compared the 3 most frequently used suture materials. Because we believe that an important outcome is maternal comfort, the goal of our study was to compare the impact of the 3 suture materials on perineal pain in the first 48 hours and at 6 weeks after delivery and on the time to resumption of pain-free sexual intercourse.

Methods

This is a randomized, controlled trial in a tertiary care hospital that compared 3 types of sutures (chromic catgut [chromic surgical gut suture; Ethicon], standard polyglactin 910 [Vicryl; Ethicon], and fast-absorbing polyglactin 910 [Vicryl rapide; Ethicon]) for second-degree perineal laceration or an uncomplicated episiotomy. Inclusion criteria were hemodynamically stable patients with a second-degree perineal laceration or an uncomplicated episiotomy (median or mediolateral) and maternal age of $\geq$18 years. Exclusion criteria were third- or fourth-degree perineal laceration, allergy to nonsteroidal anti-inflammatory agents or aspirin, thrombocytopenia, pregnancy-induced hypertension, a history of coagulation disorder, unexplained hemorrhage, or gastroduodenal ulcer.

Patients were enrolled in early labor or when comfortable under regional anesthesia. They were assigned randomly to 1 of the 3 suture materials at the end of the third stage, if the including criteria were met. Randomization was achieved by the use of opaque, consecutively numbered envelopes that each contained a letter with the name of 1 of the 3 suture materials. The next available envelope was opened by the attending obstetrician-gynecologist, and perineal repair was undertaken with the suture that was identified by the attending obstetrician-gynecologist or resident under direct supervision, according to the continuous technique described in the *Williams Obstetrics* textbook.[7] A 2-0 suture was used for continuous suturing to close the vaginal mucosa and submucosa; a 2-0 suture was used for 2 to 4 interrupted sutures placed in the fascia and muscle of the lacerated perineum, and a 3-0 suture was used for continuous downward suturing to close the superficial fascia and subsequently upward as a subcuticular stitch. All women received an indomethacin suppository (50 mg) per rectum on completion of the repair. Patients were not informed of the suture material that was used. A preapproved, standard prescription was given for postpartum care. The prescription included (1) 1 naproxen tablet (500 mg) every 12 hours for 2 doses and every 12 hours subsequently on request by the patient; (2) 1 to 2 codeine (30 mg) + acetaminophen (325 mg) tablets every 4 to 6 hours on request by the patient; and if sufficient analgesia was not achieved, (3) 1 to 2 tablets of hydromorphone (1 mg) every 4 to 6 hours on request by the patient.

Pain was first evaluated at 36 to 48 hours after the delivery by a research nurse who was blinded to the suture type. The short form of the McGill Pain Questionnaire validated by Melzack for perineal pain was used for 3 pain score measurements.[8,9] The first score consisted of 15 pain descriptors, which were rated on an intensity scale from 0 to 3. The second score was the Present Pain Intensity index that rated the intensity of pain from 0 (no pain) to 5 (excruciating pain). The third score was determined on a visual analog scale with which the patient was asked to put a dot on a 10-cm line between the 2 extremities (no pain and worst possible pain). The distance between the "no pain" extremity and the patient's dot was measured, and the score was obtained. Total consumption of the analgesic doses (naproxen 500 mg = 1 dose, codeine 30 mg = 1 dose, hydromorphone 1 mg = 1 dose) and narcotic doses (codeine 30 mg = 1 dose, hydromorphone 1 mg = 1 dose) taken in the first 36 hours was calculated.

At the 6-week standard postpartum visit, a preapproved, objective questionnaire was completed, and a physical examination was performed by the obstetrician in charge of the patient. The following questions were asked of the patient: (1) Do you have residual perineal pain? (2) Have you resumed sexual intercourse since delivery? (3) Do you have pain-free sexual intercourse? (4) Do you still breastfeed?

The physician was requested to determine whether any residual sutures, infection, or wound breakdown were noted at the time of the physical examination.