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## **A Comparative study of 2 skin closure materials : plain catgut vs braided polyglycolic acid : medical and economic implications.**

Sirin Sindhuphak\*

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*Absorbable plain catgut and Braided polyglycolic acid were used in 24 OB-GYN patients undergoing abdominal surgery at Chulalongkorn Hospital. By using both materials in the same patient, 6 weeks follow up revealed no significant difference in healing processes. The cost of plain catgut is however 4 times more expensive than that of braided polyglycolic acid.*

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ศรีริน สินธุกัท. การศึกษาเปรียบเทียบการเย็บแผลโดยใช้ไหมละลายชนิด เพลน แคนกัท และ เบรคเดด พอลีไกลิโคลิค แอซซิด : ผลทางการแพทย์และทางเศรษฐกิจ จุฬาลงกรณ์เวชสาร 2533 พฤษภาคม ; 34(5) : 345-348

ได้ทำการศึกษาผลของการใช้ไหมละลาย *Plain catgut* และ *Braided polyglycolic acid* เย็บแผลหน้าท้อง ผู้ป่วยที่ทำการผ่าตัดที่แผนกสูติศาสตร์-นรีเวชวิทยา โรงพยาบาลจุฬาลงกรณ์ 24 ราย โดยใช้ไหมทั้ง 2 ชนิด ในคนไข้รายเดียวกัน และติดตามดูผลนาน 6 สัปดาห์ พบว่าการหายของแผลไม่แตกต่างกัน แต่ค่าใช้จ่ายในการใช้ *Plain catgut* ต่ำกว่าการใช้ *Braided polyglycolic acid* ถึง 4 เท่า

In obstetric and gynecological operations, many surgeons now-a-days prefer subcuticular skin suture to interrupted ones. With subcuticular suture; patients are satisfied since no stitches have to be painfully removed and leave no telltale "railroad track" as often seen with interrupted sutures.

Dexon, a braided polyglycolic acid, is commonly used for this purpose. It is often advertised for its strength, less tissue reaction and healing capacity and thus superior to the old fashioned plain catgut.<sup>(1)</sup> However, in economic terms, the cost of braided polyglycolic acid to accomplish the same skin closure is approximately 4 times that of plain catgut or about Baht 30 more expensive for every single case. The objective of this study is therefore to confirm clinical skin healing using the two materials in the same wound closure and to justify the extra expenses incurred by the use of "Dexon".

## Material and Methods

The subjects were female patients under going abdominal operations at the Department of Obatetrics and

Gynecology, Chulalongkorn Hospital. The suture materials used were braided polyglycolic acid 3/0 packed with a straight needle and plain catgut 2/0 also used with a straight needle. The operations were all performed by the same investigator and using the same technique. The abdominal incisions were all lower longitudinal median incisions. Skin closure was accomplished in equal halves with braided polyglycolic acid and plain catgut randomly assigned so that each material will be used equally on the upper and lower portions.

Follow up evaluations were made at day 5 or 7 and at 6th week after surgery. Clinical wound healing was observed for skin redness, tenderness or induration. The complications of the healing process such as stitch abscesses or wound infections were also recorded by the same operator.

## Result

Twenty four cases were recruited into the study. The patients' ages ranged from 14 to 64 years old. The types of operation were listed in Table 1

Table I. Types of operation.

Types of operations	Number of cases
1. Total abdominal hysterectomy with bilateral salpingo-oophorectomy.	15
2. Cesarean section	5
3. Exploratory laparotomy and unilateral salpingo-oophorectomy	2
4. Myomectomy	1
5. Exploratory laparotomy and lysis of tubal adhesions	1
<b>Total</b>	<b>24</b>

Twelve patients had braided polyglycolic acid suturing on the upper halves and plain catgut on the lower halves of the wound. The other 12 patients had the materials used in the reversed order.

At 5 to 7 days after surgery all the wounds healed satisfactorily. No erythema, tenderness, unusual induration or stitch abscesses were observed. There was no difference in the healing process between the upper and the lower portions of the wound.

At 6<sup>th</sup> week checkup, one patient was lost to follow-up. Of the 23 cases, only 2 had slight induration of the wounds, the rest had normal wound healing with no hypertrophic scars or keloids formation. There was no distinct difference in the healing between the upper and lower portions of the incisional wounds.

### Comments

From this study, the uses of braided polyglycolic acid and plain catgut in abdominal skin closures showed no difference in healing process and tissue reaction in all patients after 6 weeks of operation. This finding was similar to that reported by Beard et al who compared these two materials in episiotomy sutures and showed the same

result.<sup>(2)</sup> Using 2 different suture materials in the same patient excludes variation in the individual healing process. Operations performed by one and the same surgeon minimize healing variation that may occur from different suturing techniques. Two cases developed slight induration of the whole scar, which may have been due to individual tissue hyperreaction, and not related to suturing materials. In economic terms approximately Bath 30 can be saved on each patient by using plain catgut in all patients undergoing abdominal surgery in OB-GYN department, which are around 3000 cases per year, we can save a total amount of Bath 90,000.

### Conclusion

The use of plain catgut for abdominal skin closure has been shown to be as satisfactory as the much more expensive braided polyglycolic acid in terms of wound healing process and adverse skin reaction, but much less expensive. It is therefore recommended that plain catgut be used instead of braided polyglycolic acid for skin closure in order to help conserve foreign exchange in a developing country like Thailand.

### Reference

1. Duvivier R. New concepts in suture selection and technical approaches in gynecological surgery. Bull NY Acad Med 1985 Sep; 61(7): 621-8
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