Evaluation of polyglycolic acid suture vs catgut in closed hemorrhoidectomy with local anesthesia.

Indru Khubchandani MD
Lehigh Valley Health Network, Indru.Khubchandani@lvhn.org

H D Trimpi

J A Sheets

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CLINICAL BRIEF

Evaluation of Polyglycolic Acid Suture vs Catgut in Closed Hemorrhoidectomy With Local Anesthesia*

INDRU T. KHUBCHANDANI, MD, HOWARD D. TRIMPI, MD, and JAMES A. SHEETS, MD,† *Allentown, Pa*

Closed hemorrhoidectomy implies complete closure of operative incisions following excision of hemorrhoidal tissue. Experience with several thousand of these procedures performed by Ferguson and associates[1] and Khubchandani and colleagues,[2] among others, has shown conclusively that wound approximation in this potentially contaminated area can be performed with impunity. The wound healing is rapid; complications are minimal; and, most significantly, the postoperative discomfort is remarkably less when compared to the conventional open technic.

We performed this procedure exclusively with local anesthesia, using no other intraoperative adjunct, as previously reported.[3] Analysis of 3,274 operations has shown gratifying results (Table 1). Complications, when compared with the conventional open technic, show the obvious superiority of the closed technic. The minimal postoperative infection attests to the immunity of this region to local organisms. The wound healed in 16 days with the open technic and in 27 days with the closed technic. By the same token, the average return to work following the open procedure was 21 days as compared to 28 days with the closed method. The most outstanding feature, however, is the acceptance of the operation by the patient and the community. Evaluation of pain following any procedure is conjectural, at best. Crude analysis, based on the method of Golligher and colleagues,[4] show significantly less postoperative pain when raw areas were closed. It is hard to determine the factors contributing to postoperative discomfort following hemorrhoidectomy. However, the spasm of the sphincter apparatus associated with fissure in ano and the resultant pain is universally recognized. Perhaps the alkaline bowel movement coming in contact with the exposed nerve endings mediate the pain impulse, either directly or

TABLE 1

COMPLICATIONS OF CLOSED HEMORRHOIDECTOMY IN 3,274 CASES

Complication	*Number*	*Percent*
Bleeding		
Requiring packing	16	0.5
Requiring reoperation	0	0
Abscess formation		
Opened in office	4	0.1
Requiring reoperation	2	0.06
Suture line dehiscence		
One quadrant only	163	5.0
Circumferential	2	0.06
Urinary retention	121	3.7
Excessive edema	199	6.1

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†From the Allentown and Sacred Heart Hospitals, Allentown, Pa.

Reprint requests to Liberty Square Medical Center, Allentown, Pa 18104 (Dr. Khubchandani).

The polyglycolic acid suture (Dexon) used in this study was supplied by American Cyanamid.

TABLE 2

AGE AND SEX

	10-19	*20-29*	*30-39*	*40-49*	*50-59*	*60-69*	*70-79*	*NS**
PGA								
Men	1	8	11	14	8	5	0	0
Women	1	12	13	9	8	3	1	7
Catgut								
Men	1	12	11	14	8	6	0	0
Women	1	4	10	13	10	4	1	2

*NS = Not stated.

TABLE 3

EXTENT OF SURGERY

Number of Quadrants	*Suture Material* PGA	*Chromic Catgut*
1	1	0
2	7	14
3	62	63
4	24	17
5	4	2
6	2	0
7	1	0
NS*	0	1

*Not stated.

by spasmodic contraction of the sphincter. That would explain the relief obtained by the patient when washing himself after defecation or following a sitz bath.

Applying the parameters of direct patient questioning, impressions of the nursing staff, the frequency and dosage of analgesics, and a description of the associated discomfort with the first bowel movement, there is little doubt that convalescence is infinitely more comfortable when the operative wounds are closed.

It became apparent, after using catgut material of various strengths, that a fine suture material elicited minimal tissue reaction and produced better results. The use of 5-0 chromic catgut sutures with low tensile strength, however, made the operation technically more cumbersome. A study was, therefore, undertaken to evaluate sutures of 5-0 polyglycolic acid and chromic catgut. Polyglycolic acid sutures are inert, noncollagenous, nonantigenic, nonpyrogenic synthetic absorbable sutures. They have a high tensile strength[5-7] and their minimal tissue reactions have been confirmed clinically.[6, 8-10]

Protocol. One hundred ninety-eight subjects had operation for hemorrhoids and associated pathologic conditions. Two suture materials were used in alternate subjects; 101 were sutured with polyglycolic acid and 97 with chromic catgut.

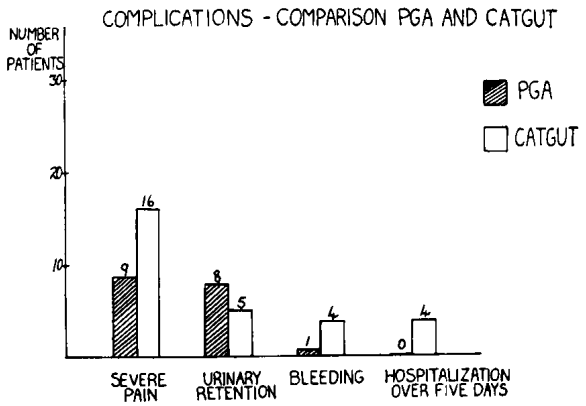
The following parameters were evaluated: (1) extent of operation; (2) postoperative pain; (3) urinary retention; (4) postoperative bleeding; (5) period of hospitalization; (6) office follow-up (pain, suture line reaction, wound edema, suture line dehiscence, infection, time to return to work, time to return to full activity).

TABLE 4

EVALUATION OF PAIN IN POSTOPERATIVE COURSE

Pain	*PGA*	*Catgut*
None	1	0
Minimal	65	34
Moderate	19	35
Severe	9	16
Not stated	7	12
Analgesic required		
No	10	4
Yes	89	91
Not stated	2	2

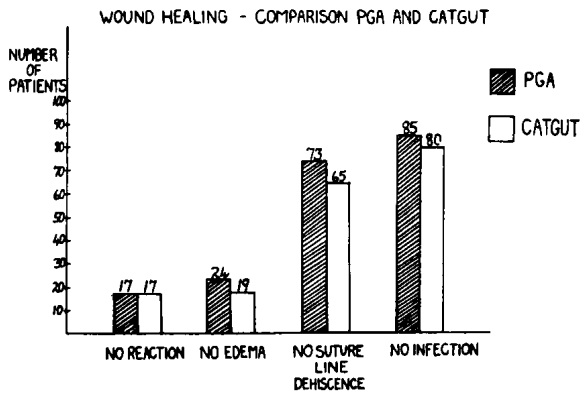
FIG 1



The age and sex of the subjects were comparable (Table 2), as was the operation (Table 3). The postoperative pain was estimated to be minimal in 66 patients (65%) who had polyglycolic acid sutures for hemorrhoidectomy wound closure, as compared with 34 patients (35%) where chromic catgut was used (Table 4). An analysis of other complications and postoperative follow-up is shown in Figures 1 and 2. One patient sutured with polyglycolic acid had postoperative bleeding as compared with four in whom chromic catgut was used. Tissue reaction, tissue edema, suture line dehiscense, and infection were less with polyglycolic acid sutures than with chromic catgut. The postoperative hospitalization period and the return to full activity was similar for both types of suture material, being 2.4 days and 20.9 days for polyglycolic acid sutures, and 2.5 days and 21.3 days for catgut, respectively.

Summary. Closure of the operative wounds following excisions of hemorrhoidal tissue contributed to a smoother postoperative convalescence and alleviated much discomfort. The use of a fine suture material aided healing by evidencing minimal edema and minimal tissue reaction.

FIG 2



Synthetic absorbable polyglycolic acid suture of 5-0 strength was compared with 5-0 chromic catgut in 198 alternating patients in an open study. Polyglycolic acid sutures were found to be clinically superior. Postoperative pain was considerably less and complications were fewer with this suture. Less tissue reaction, tissue edema, suture line dehiscence, and infection were also noted. We were particularly impressed with the low infection rate inasmuch as the use of a multifilament suture in a potentially infected area is traditionally contraindicated. The polyglycolic acid suture absorbed in two to three weeks and held the suture line together long enough for healing per primum. From a purely technical standpoint, the polyglycolic acid suture, with its easier handling and greater tensile strength, was found superior to catgut of equivalent strength.

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