Crohn's Disease as a Contraindication to Kock Pouch (Continent Ileostomy)

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Crohn's disease is often described as a contraindication to the construction of a Kock pouch (KP), but a consensus opinion is less definite. One hundred consecutive patients with a KP were reviewed after a minimum follow-up time of 2½ years. The 95 patients with inflammatory bowel disease were analyzed for serious complications. All eight patients in whom the diagnosis of Crohn's disease or inflammatory disease of indeterminate type was made suffered serious complications requiring resections of the pouch or continuing treatment. By contrast, of the 87 cases with ulcerative colitis, only 17 (20 percent) had complications, six of which were readily and simply corrected. Our findings suggest that Crohn's disease should continue to be regarded as a firm contraindication to the KP procedure. It should be actively sought out preoperatively, and it should be treated aggressively if it is discovered after surgery. If such a patient requires further surgery, the KP should be removed. [Key words: Kock pouch; Continent ileostomy; Crohn's disease]

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Many surgical patients, when faced with the prospect of losing their entire colon and rectum, prefer reconstruction with a Kock pouch (KP) continent ileostomy or an ileal pouch-anal anastomosis. Unfortunately, not all patients are good candidates for these procedures because of the risk of recurrent disease, suture line failure, fistulas, or strictures. Any of these complications may lead directly to incompetence of the valve, primarily or secondary to deformity. This ensuant leakage defeats the purpose of the operation. These events may result from technical flaws, but faulty healing may also be a major cause. Pouchitis is yet another entity that may plague patients and lead to a failure.

Foremost among the causes of such complications in a KP is Crohn's disease. It was recognized in the early 1970s that Crohn's disease probably posed an unusual threat to these patients. Failure of healing, stricture formation, and fistula formation are well-known characteristics of this disorder, which could impair continence or intubation, thus blocking major goals of the operation. It was also known that Crohn's disease often recurred after surgery and that a favorite site was the bowel proximal to an anastomosis. In general, a history of Crohn's disease began to be regarded as an important contraindication to the creation of a KP. However, during recent years, there has been some tendency to regard Crohn's disease as a less formidable threat.

We have reviewed 100 consecutive cases of KP construction to see whether our attitude of caution merited change. In evaluating these cases, we attempted to identify factors that were associated with failure, to determine whether Crohn's disease was a factor in the failures, and to identify any pathologic features that might have concerned us more about Crohn's disease preoperatively.

PATIENTS AND METHODS

One hundred consecutive cases of KP construction were reviewed.

These patients were all cared for and operated upon by the senior author (J.C.H.) and two other interacting surgeons of a single group, adhering to completely comparable techniques. The surgery was carried out over a period from 1975 to 1989. All patients have been followed for at least 2½ years.

Forty-seven males and 53 females ranging in age from 13 to 66 years composed the group under consideration. Eighty-four patients had a KP constructed at the time of proctocolectomy, while 16 KP procedures represented conversions from an existing standard ileostomy (Table 1).

In all cases, preoperative diagnosis was made as follows: Medical records, x-ray studies, and biopsy material from other hospitals or our own departments were reviewed. Colonoscopy and biopsies were carried out anew in any case where such studies had not been done in a period contempor-

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Table 1.
100 Cases of KP

Description
N: 100
Males: 47; females: 53
Age: 13–66 years
KP construction
At time of colectomy: 84
Conversion from ileostomy: 16

aneous with the current state of the disorder. Under a circumstance that raised a question of Crohn's disease, a current small bowel series was made available. Following proctocolectomy and creation of a KP or conversion of a standard ileostomy to a KP, new tissue made available was examined and compared with that available preoperatively. All tissue review was supervised by one pathologist (S.R.H.).

Five patients were operated upon for adenomatous polyposis and were excluded from further consideration in this report. Of the remaining 95 patients with idiopathic inflammatory bowel disease, 88 were diagnosed as having chronic ulcerative colitis. Two patients in this group were eliminated from further review in this report because they were obliged to lose their KPs for causes irrelevant to this study. In one case gangrene of the bowel was associated with massive volvulus after discharge from the hospital, and in the second the KP was disrupted traumatically by a kick of a horse.

RESULTS

On the basis of preoperative and postoperative diagnostic study, seven patients were described as having Crohn's disease or colitis of indeterminate type. Each study of this group of seven cases had revealed some gross or microscopic characteristic commonly associated with Crohn's disease. In an eighth case the patient had ulcerative colitis at the time of the resection and KP construction. Thirteen years later, severe ileal disease of unclear etiology appeared and was extremely symptomatic. While some ileal inflammation with granulomatous characteristics was noted at the time of original resection, repeated reviews of the colectomy specimens confirmed the diagnosis of ulcerative colitis with "backwash" ileitis. However, the more recent ileal resection led to a pathologic diagnosis of ileitis of indeterminate type. The possibility of coexistent ulcerative colitis and Crohn's disease or of Crohn's disease appearing in a patient with previous ulcerative colitis exists in this case (Table 2).

Seven patients diagnosed as having Crohn's disease or indeterminate colitis at the time when the pouch was constructed developed serious complication within the first year of this operation. In two patients serious fistulas appeared, and preservation of the pouch was eventually impossible. In three patients the pouch was removed after efforts to cope medically and surgically with obstruction and leakage due to transmural disease of the stoma and outflow tract met with repeated failure from scarring or healing deficiency. Two patients require frequent or ongoing medical treatment for diarrhea, intermittent leakage, and excessive mucous secretion, with or without fever. The pouch was removed from the eighth patient 14 years after the original operation. The Crohn's disease first appeared then, primarily involving the ileum afferent to the pouch, but not the pouch proper. It was deemed prudent to resect the pouch with this bowel since florid systemic and obstruction symptoms prevailed.

Of the 85 patients with ulcerative colitis who remained in this study, 17 (20 percent) required attention for complications. Six patients underwent KP resection for recurrent valve incompetence. Five patients required surgery for correction of intestinal obstruction secondary to adhesions. Six others required minor procedures under local anesthesia to deal with stomal stricture or prolapse (Table 3). The difference in frequency of complications in these two groups of patients was impressive. In addition, the complications in patients with

Table 2.
Diagnosis in 100 Cases of KP

Preoperative	
N	100
Chronic ulcerative colitis	88
Crohn's disease or indeterminate colitis	7
Adenomatous polyposis	5*
Postoperative	
N	95
Chronic ulcerative colitis	87
Crohn's disease or indeterminate colitis	8†

* Eliminated from this study.
† Diagnosis in one case made 13 years after KP surgery

Table 3.
Complications Following KP

Group: Chronic Ulcerative Colitis	
n	87
Intestinal obstruction requiring surgery	5
Resection of pouch	
Volvulus	1*
Destructive external trauma	1*
Recurrent incompetent valve	6
Lesser problems: stricture or prolapse	6
Group: Crohn's Disease or Indeterminate Disease	
n	8
Resection and conversion of pouch for stigmata of Crohn's disease	4
Continuing treatment of KP: local and/or systemic	4

P value by Fisher's exact test is under 0.00001.
* Irrelevant to this study.

ulcerative colitis were in aggregate much less threatening (Table 3).

DISCUSSION

Since the earliest times that the KP was coming into its own as a viable surgical procedure, concerns about Crohn's disease have prevailed. The possibility that Crohn's disease might appear in the pouch raised fears that leakage would ensue. It required no great exercise of imagination to see that severe inflammation of the pouch, mural rigidity, or fistula in or around the valve would defeat the intent of the operation. So worrisome were these possibilities that, for many surgeons (ourselves included), a history or demonstration of Crohn's disease was regarded as one of the absolute contraindications to the procedure. Increasing interest in ileal pouch-anal anastomoses was attended by the same concerns. Each procedure required that the ileum assume a reservoir function unnatural to it, and in each there was a valve or sphincter that imposed an obstruction. The latter situation has long been of concern as a possible reason for exacerbation or recurrence of Crohn's disease.

Gradually, however, this stern attitude began to abate. In 1980 and again in 1987, Kock and his associates[1, 2] reviewed their experience and indicated that complications of all categories were markedly higher in patients with Crohn's disease. They did conclude that it should be extended to patients with Crohn's disease "only exceptionally" but did not indicate these criteria. Others with extensive experience have shared this view. In 1986, Bloom *et al.*[3] reported the Stanford experience with seven patients with Crohn's disease in a series of 95 cases of KP. In this group of patients who had been clinically symptom free for five years and were not receiving systemic steroids, the point was made that the complication rate and need for revision (28 percent) were comparable to those seen in groups with ulcerative colitis and polyposis (28 percent). We find it disturbing, however, that, during this follow-up period of 4 to 50 months, two recurrences of Crohn's disease had already occurred. Fleshman *et al.*[4] describe their experience with ileoanal reservoir in 1987. They cite an inordinately high frequency of failures in their experience and others' to support their position in considering Crohn's disease a firm contraindication to this operation. This attitude was reaffirmed strongly in 1991 when Koltun and coauthors[5] added the group with "indeterminate colitis" to the group of patients with Crohn's disease as patients in whom this surgery should be undertaken with caution. In 1991, Hyman and colleagues[6] made an interesting observation concerning patients with ileoanal anastomosis. Nine patients of concern because of clinical evidence of Crohn's disease preoperatively had very serious problems and failed to benefit from the purpose of the operation. In 16 patients in whom there was no clinically evident Crohn's disease, only one had a pouch excised.[6] Although this is a strong suggestion that clinical activity may be an indicator that certain patients with Crohn's disease may tolerate ileal pouches, circumspection appears prudent while firmer data are developed. The report of Deutsch and coworkers[7] makes the point that Crohn's disease is a contraindication in considering the pelvic pouch procedure because of the high risk of complication.

Our own experience with the KP procedure has confirmed the attitude that we have maintained since beginning this surgery in 1976. We have felt that a diagnosis of Crohn's disease is a firm contraindication to the surgery, and, within this framework, we have been wary of idiopathic inflammatory bowel disease of indeterminate type. In our first 100 cases, all now followed for no less than 2½ years, every such patient has had pouch resections for serious complications or for recurrent

disease requiring some degree of additional treatment subsequent to the operation.

Those interested in continuing to offer the continent ileostomy surgical option have available a body of statistical data and clinical observations, which can be summarized as follows:

1) The patient with Crohn's disease is unquestionably under greater risk of serious complication after undergoing this surgery than a patient with polyposis or ulcerative colitis.
2) The patient with an indeterminate colitis is likewise in a high-risk group.
3) While it is possible that a patient who has known Crohn's disease that has been clinically inactive for a number of years is under no greater hazard of problems subsequent to this surgery, this observation has not been confirmed.

We feel that these observations aid in the formulation of answers to some troublesome and persistent questions. First, is it possible to identify with greater accuracy preoperatively those patients who have Crohn's disease? We assiduously search out all old records, tissue slides, and other clinical information from all sources to aid in this. Second, should KP surgery be offered to a patient with Crohn's disease or indeterminate disease? We believe not unless the criterion of prolonged clinical quiescence as a favorable sign is confirmed. Third, how should one deal with the patient in whom these unfavorable diagnoses are made after the pouch surgery? Such a patient should be kept under indefinite ongoing observation. Appearance of any adverse symptoms should lead to treatment promptly in the hope of averting surgery. Fourth, what if surgery is needed? In general, we feel that the pouch should not be left in this circumstance. The prospect of continued trouble would seem to be greater than with standard ileostomy.

REFERENCES

1. Kock NG, Myrvold HE, Nilsson LO. Progress report on the continent ileostomy. World J Surg 1980;4:143–8.
2. Myrvold HE. The continent ileostomy. World J Surg 1987;11:720–6.
3. Bloom RJ, Larsen CP, Watt R, Oberhelman HA Jr. A reappraisal of the Kock continent ileostomy in patients with Crohn's disease. Surg Gynecol Obstet 1986;162:105–8.
4. Fleshman JW, Cohen Z, McLeod RS, Stern H, Blair J. The ileal reservoir and ileoanal anastomosis procedures: factors affecting technical and functional outcome. Dis Colon Rectum 1988;31;10–6.
5. Koltun WA, Schoetz DJ Jr, Roberts PL, Murray JJ, Coller JA, Veidenheimer MC. Indeterminate colitis predisposes to perineal complications after ileal pouch-anal anastomosis. Dis Colon Rectum 1991;34:857–60.
6. Hyman NH, Fazio VW, Tuckson WB, Lavery IC. Consequences of ileal pouch-anal anastomosis for Crohn's colitis. Dis Colon Rectum 1991;34:653–7.
7. Deutsch AA, McLeod RS, Cullen J, Cohen Z. Results of the pelvic-pouch procedure in patients with Crohn's disease. Dis Colon Rectum 1991;34:475–7.