

## CONTINENT ILEOSTOMY

### Background

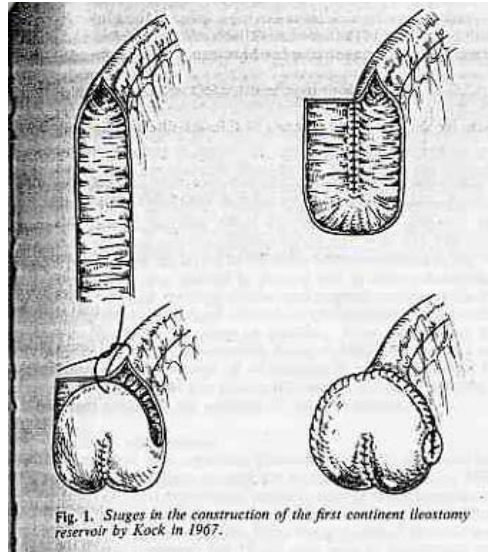
- The surgical therapy of patients requiring total proctocolectomy (UC, FAP) has changed dramatically over the past 40 years with reconstruction progressing from permanent end ileostomy to restorative proctocolectomy with pelvic pouch construction
- Prior to the advent of restorative proctocolectomy with ileal pouch-anal anastomosis, the notion of a continent ileostomy was an appealing alternative to the conventional Brooke ileostomy
- Popular in the 1970s and 1980s but have lost favor as pelvic pouch procedures have become the standard of care

### Problems with the Convention Ileostomy

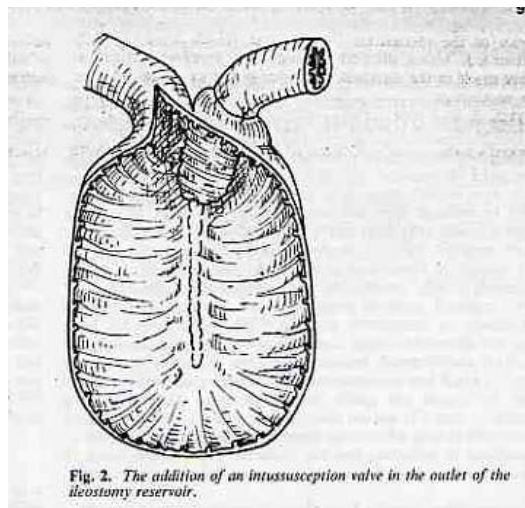
- **Psychosocial** – patients are frequently self-conscious and quality of life studies report that recreational, social, and sexual function are negatively affected in these patients
- **Leakage** – leakage of ileal effluent around the stoma remains one of the most difficult problems in managing ileostomies and may give rise to skin excoriation and odor
  - Skin problems affect up to 75% of patients with conventional ileostomies
  - Up to 35% of patients complain of malodorous ileal effluent

### Development of the Continent Ileostomy

- 1967 – Nils Kock developed a method of creating a reservoir from the terminal ileum which could give a patient voluntary control of egress from an ileostomy
- Theoretical advantages of the Kock Pouch
  - Patients would be continent and could intubate and evacuate the reservoir at convenient and socially acceptable times
  - Ostomy would be flush with the skin and would not require an external appliance offering an improved cosmetic and psychosocial result
  - Skin excoriation and malodor would not occur
- Early construction
  - In its earliest form, 40 cm of terminal ileum was used to create a reservoir and an opening in the reservoir was pulled through a tunnel in the abdominal wall and sutured to the skin

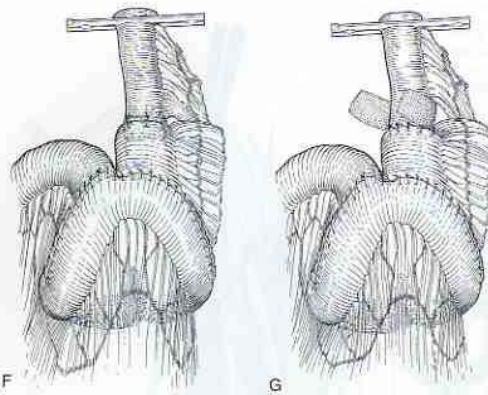
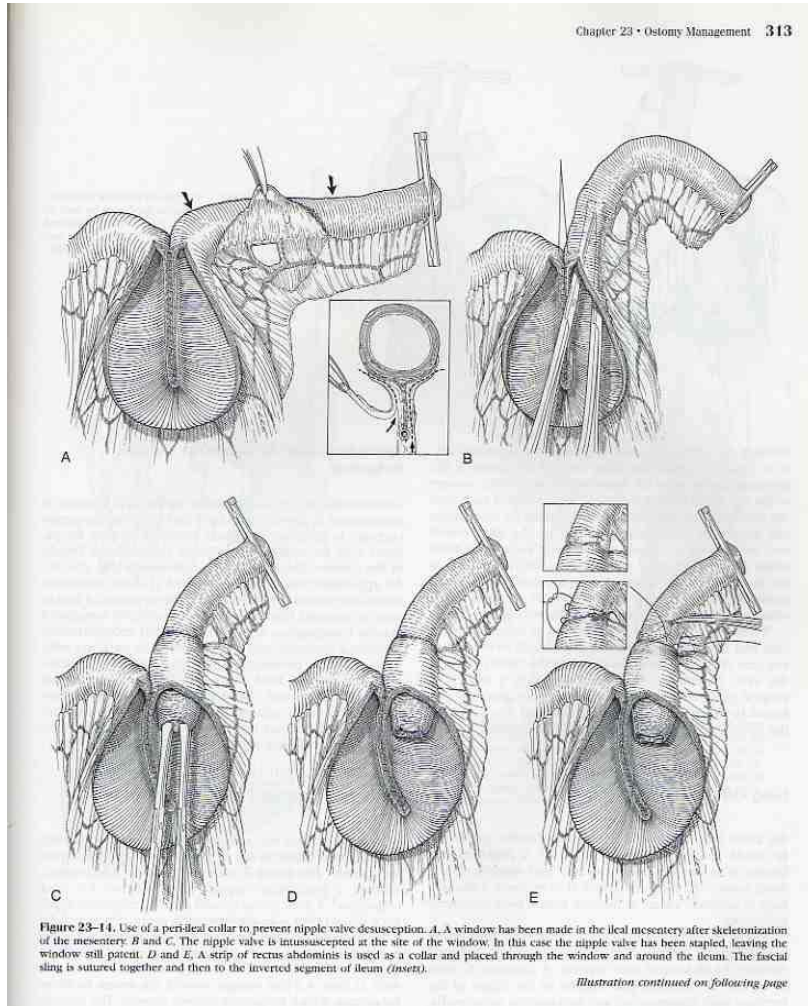


- It quickly became obvious that the outlet had to be improved to prevent leakage caused by increased intra-abdominal pressure with straining and coughing
  - Many early modifications were attempted to improve continence including the addition of an antiperistaltic outlet tract
  - It was only when a nipple valve mechanism was constructed in the outlet loop that a reliable continent system seemed feasible

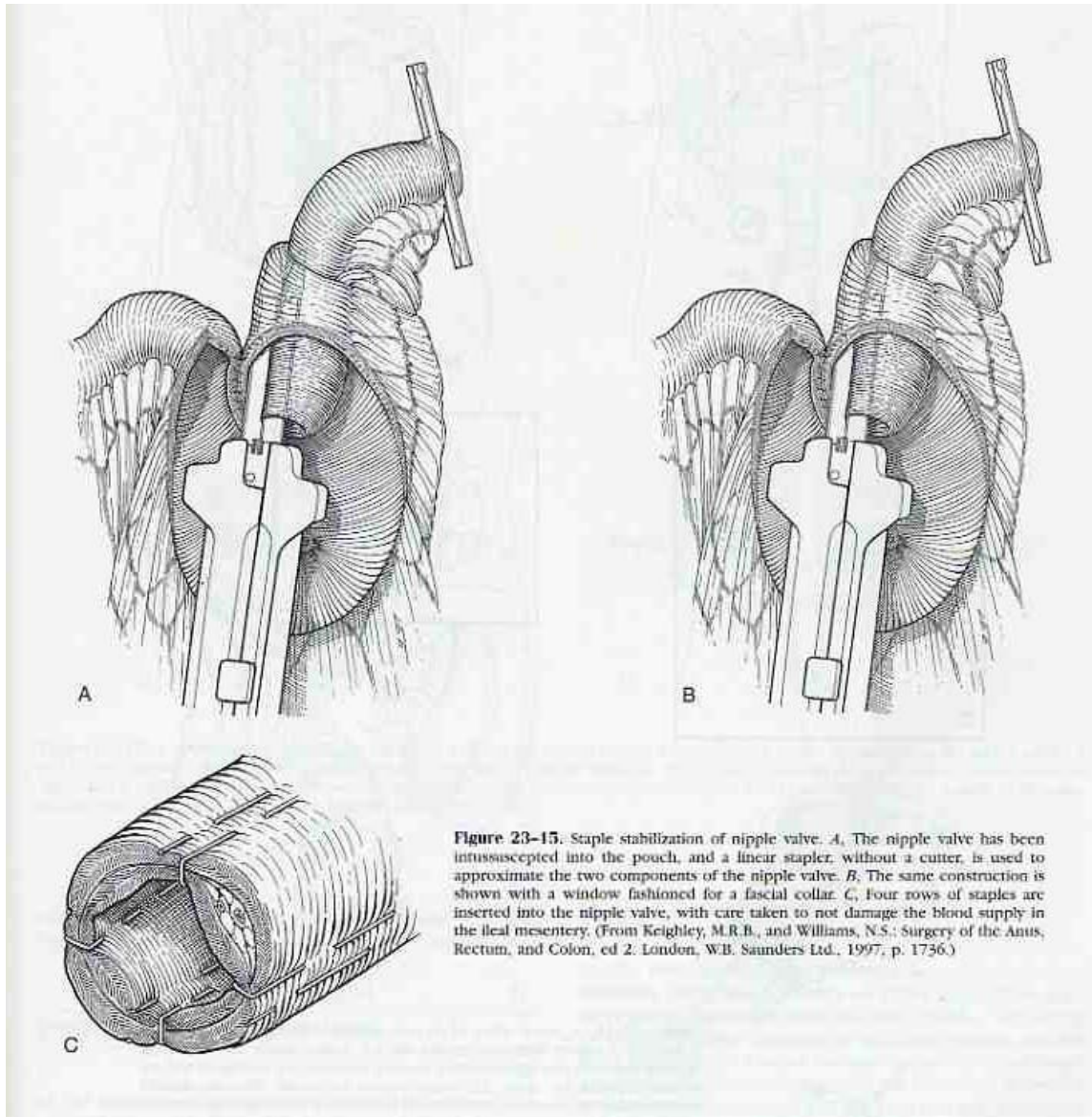


- Early results
  - Out of 90 patients, there were 3 perioperative deaths and 3 pouches had to be removed (suture line leak and peritonitis, development of Crohn's disease in the reservoir, and a poor functional result)
  - High tendency for desusception of the valve within 3 months of the operation requiring reoperation for valve revision

# Construction of the modern modified Kock Pouch



(From Keigley, M.R.B., and Williams, N.S.: *Surgery of the Anus, Rectum, and Colon*, ed 2. London, W.B. Saunders Ltd., 1997, pp. 1734-1735.)



### Intermediate results

- In 1979, Beart reported the first 150 cases at the Mayo Clinic over a 9-year period. 55% of patients were completely continent but 13% were so incontinent that they required an appliance at all times. The remainder achieved adequate continence to feel that the reservoir was socially acceptable (*Mayo Clin Proc* 1979; 54:643)
  - 80% of patients reported that the reservoir did not interfere with their life
  - 43% required subsequent surgery for valve revision
  - 16% required excision of the reservoir (Crohn's, fistula, inflammation)
  - An update to their series in 1980 suggested substantially improved results attributed to modifications in valve construction (lengthening and stapling) (*Ann Surg* 1980; 192:319)
  - Revision rate decreased to 22%
  - Goldman et al reviewed 479 cases in the literature (*DCR* 1987; 21:594) and reported an overall incidence of continence of 80%

## Complications

- Slippage of the nipple valve (desusception)
  - Incidence of 10-45% in most series
  - Most common complication and occurs often within the first 3 months
  - Presents with difficulty in intubation of the pouch and incontinence
  - Many techniques have been proposed to avoid valve desusception
- Fistulas
  - Incidence of 8-10%
  - Through the base of the valve bypassing the valve resulting in incontinence (without difficulty intubating as seen with valve desusception)
  - Also can arise from any of the suture lines
- Pouchitis
  - Incidence ranging from 13-43%
  - Presentation, symptoms, and treatment similar to pelvic pouchitis
- Reservoir leakage and intraabdominal sepsis
- Outflow tract stricture/stenosis
- Perforation by intubation
- Valve necrosis
- Pouch volvulus

## Recent series:

- Castillo et al reported the outcomes of 29 patients in whom a Kock Pouch operation was performed (*DCR 2005; 48:1263*)
  - 28 revisions patients (58%) were performed in 14 patients (outlet stenosis, valve repair, fistula, peristomal herniation)
  - Need for revision by 12 months was 30%
  - 90% of patients had continent pouches and were satisfied with the results
  - Overall failure rate was 8.3%
- Berndtsson et al assessed the long-term durability and health-related quality of life in 68 patients in whom a continent ileostomy was performed (*DCR 2004; 47:2131*)
  - Patients evacuated their pouch a median of 4 times per day
  - 65% of patients required at least 1 operative revision and 50% of these patients required more than 1 revision
  - 18% of patients had leakage
  - 10% suffered peristomal skin excoriation
  - 87% of patients were satisfied (good, very good, or excellent) with their result
  - SF-36 QOL health survey results were comparable to the general population
- Lepisto et al reported the results of 96 patients (*DCR 2003; 46:925*)
  - Cumulative success rate was 96% at 1 year, 86% at 10 years, 77% at 15 years, and 71% at 30 years
  - 59% reoperation rate (nipple valve dysfunction most common indication)
  - 24% converted to conventional stoma (nipple valve dysfunction most common indication)

- Litle et al reported on 129 consecutive patients (*J Gastro Surg* 1998; 3:625)
  - 36% of patients failed requiring conversion to conventional ileostomy (valve dysfunction (42%), refractory pouchitis (23%), fistulas (26%), Crohn's disease (6%)
  - Over 90% of patients who did not fail had a good to excellent quality of life and were not limited in their daily activities

Conclusions:

- Creation of a continent ileostomy is an alternative to conventional ileostomy in selected patients who sustain pelvic pouch failure or are not candidates for a pelvic pouch procedure
- This is a complex operation with a high rate of complications potentially requiring many reoperations
- Continent ileostomies can be durable over the long-term and provide patients with excellent quality of life
- These patients must be willing to accept the possibility of requiring multiple pouch revisions, pouch failure, and excision and conversion to end ileostomy

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