

## Endoscopic percutaneous cecostomy (EPC)

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**Summary.** Endoscopic decompression of the distended colon has become a useful method of treating non-obstructive colonic ileus. We propose a method of establishing a cecal fistula by means of percutaneous puncture of the colon and pull-through of a Pezzer catheter. Although until now we have only performed this procedure twice, it seems to be a valuable therapeutic approach in cases of paralytic distension of the large bowel.

**Key words:** Cecostomy – Ileus – Decompression – Surgical endoscopy.

Intestinal paralysis may occur as a complication of different diseases. One of the clinical features is a marked distension of the colon, especially on the right side. The therapeutic approach should include an attempt at endoscopic decompression [2]. If this cannot be done a colostomy will be necessary because of the risk of perforation [5]. We performed endoscopic percutaneous cecostomy (EPC) in two patients following unsuccessful conventional treatment.

### Methods

The equipment is identical to that used for endoscopic percutaneous gastrostomy (EPG), and the method has been described previously [4]. We use an arranged set of Rehbein bougies and a 32 French Pezzer catheter, which is fixed to the end of the bougies without causing a sharp edge (Fig. 1). The connection between the catheter and the rear end of the bougie is achieved by abrading the roughened surface of the bougie to

the appropriate inner diameter of the catheter (W. Rüschi, D-7050 Waiblingen, FRG). No further fixation is necessary.

The nylon thread of the bougie is grasped by forceps lying in the biopsy channel of the endoscope. Colonoscopy is performed under fluoroscopic control in the usual manner. The optimal topographic site for the fistula is determined visually by transillumination (Fig. 2) and by digital compression of the cecum through the abdominal wall. Under aseptic conditions, a needle is introduced into the cecum to identify the direction of the subsequent puncture with a Reverdin needle (Figs. 3, 4). Incision of the skin and outer fascia is made after local anesthesia. The nylon thread can easily be drawn into the eyelet of the needle, which is then closed and withdrawn (Figs. 5, 6).

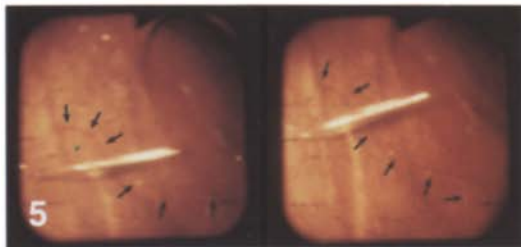
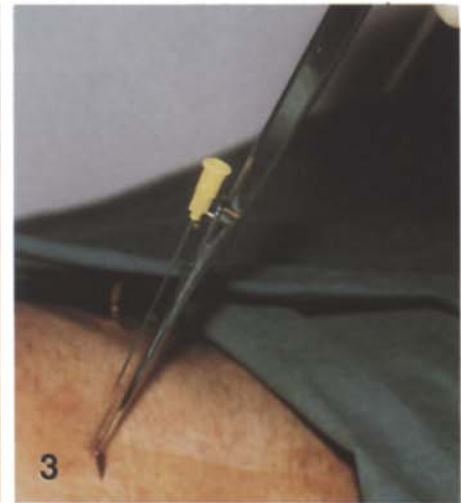
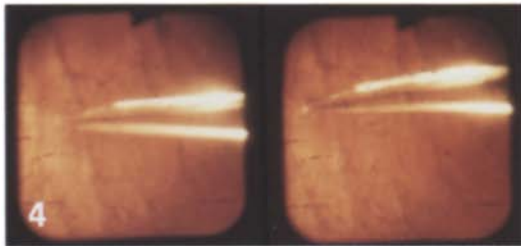
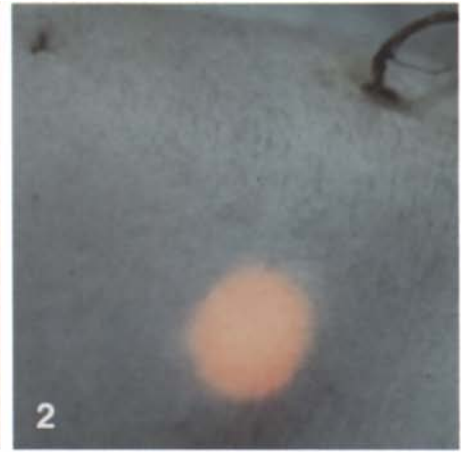
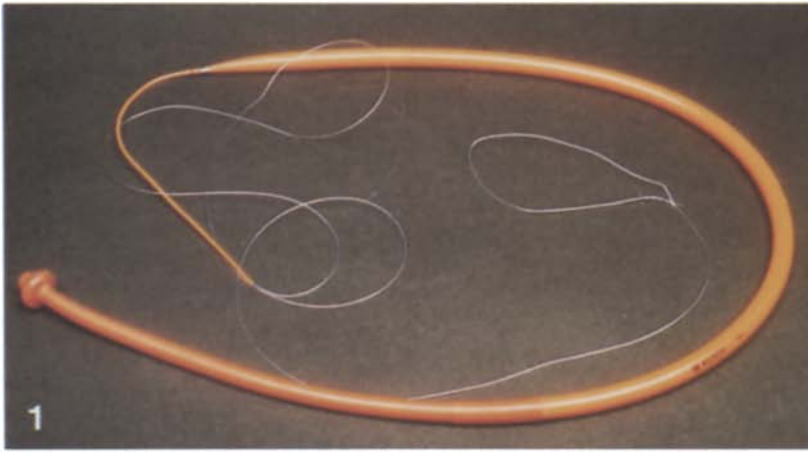
The lubricated bougie and catheter are pulled through the colon perianally and are passed through the cecal and abdominal walls (Figs. 7, 9). The catheter is fixed to the skin under mild traction by a suture for 24 h (Fig. 8). A single-dose antibiotic prophylaxis is given prior to the procedure.

### Results

#### Case 1

A man, 65 years of age, was admitted because of an ischemic cerebral insult with hemiplegia on the left side. Further diagnoses were alcoholic cirrhosis of the liver, diabetes mellitus and pneumonia. Four days later, a paralytic ileus developed. Radiography showed massive dilation of the colon with a maximum diameter of the cecum of 13.5 cm (Fig. 10). A water-soluble contrast enema demonstrated the absence of stenosis of the colon. When medical treatment and several enemas proved to be ineffective, EPC was performed.

The site of the fistula was in the transrectal line on the level of the umbilicus because of the mobile cecum. During retraction of the endoscope, gas and 500 ml of liquid stool were removed by suction. Instillation of contrast medium following introduction of the catheter showed no



**Fig. 1.** Set for EPG and EPC composed of Rehbein bougies and Pezzer catheter

**Fig. 2.** Abdominal wall in the cecal region transilluminated by the light of the endoscope (*upper right corner*: suprapubic catheter)

**Fig. 3.** Puncture of the cecum by a needle showing the correct site and direction for introduction of the Reverdin trocar

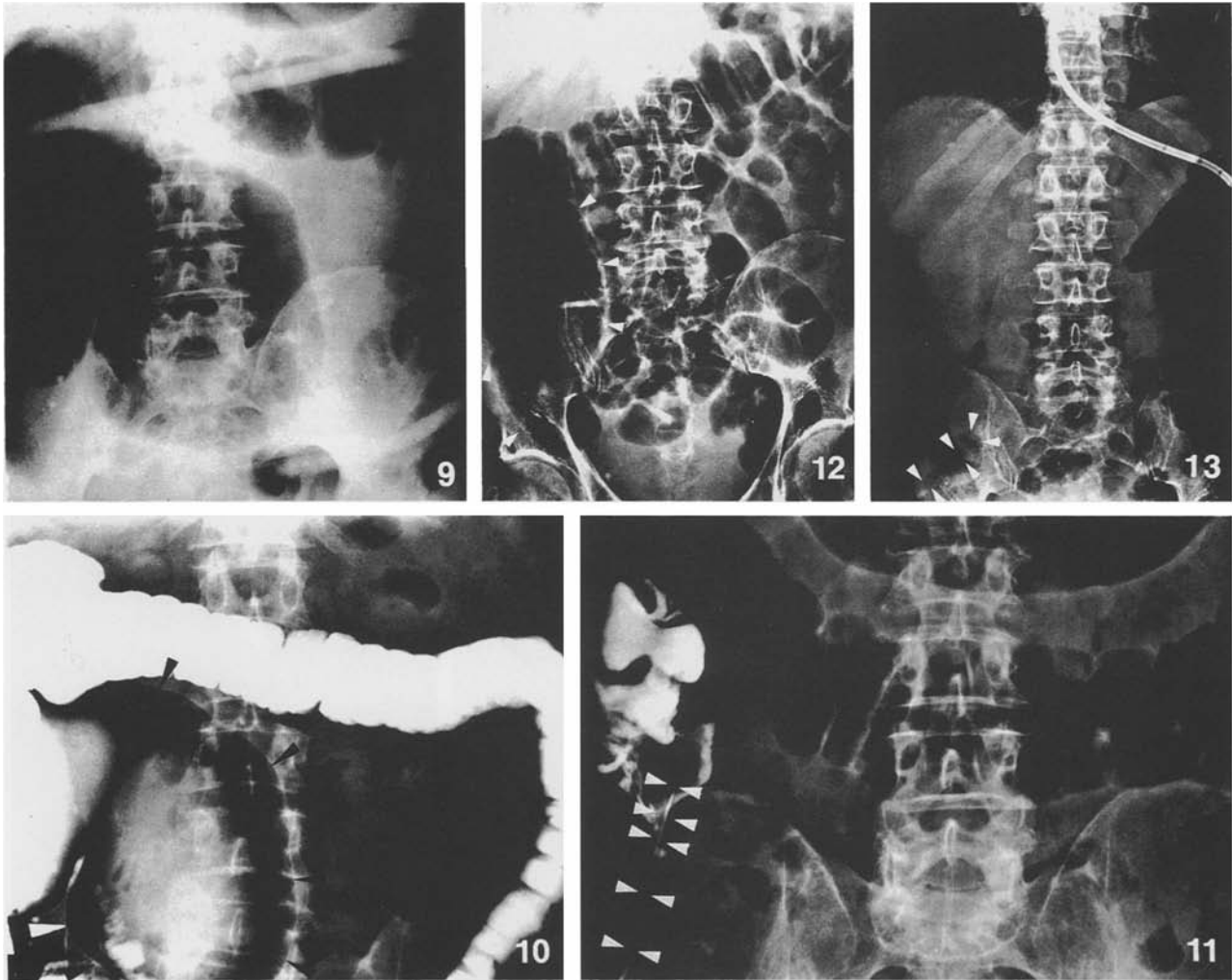
**Fig. 4.** Tips of needle and trocar in the colon

**Fig. 5.** Nylon thread (*arrows*) engaged into the eyelet of the trocar

**Fig. 6.** Extraction of the nylon thread through the abdominal wall

**Fig. 7.** Transmurial passage of bougie and catheter

**Fig. 8.** Fixation of the catheter. Note the immediate distension of the bag due to the evacuation of air from the colon



**Fig. 9.** Set of bougie and catheter being drawn through the colon (X-ray of case 1)

**Fig. 10.** Extremely dilated cecum and ascending colon

**Fig. 11.** X-ray monitoring of EPC: no extravasation, normal size, and contour of the right colon (*arrows* delineating catheter)

**Fig. 12.** Intestinal paralysis with distension of the cecum of more than 10 cm (*arrows*)

**Fig. 13.** Colon decompressed by the catheter lying in the cecum (*arrows*). Meteorism of the small intestine has also decreased

extravasation (Fig. 11). In the next few days, the abdomen showed no signs of peritonitis or ileus. The catheter released about 200 ml of liquid stool and a great amount of gas per day. Normal bowel movements began to occur, and there was no local inflammation.

### Case 2

A 63-year-old man was injured in a road accident. He had fractures of the 6<sup>th</sup> through 10<sup>th</sup> ribs on the right and the 5<sup>th</sup> through 9<sup>th</sup> ribs on the left side, contusion of the lungs, and aspiration of blood. There was no abdominal trauma, however. Mechanical ventilation was necessary for 2.5 weeks because of severe respiratory insufficiency.

Enteral nutrition was not possible due to intestinal paralysis. Extensive meteorism developed (Fig. 12) and was refractory to therapeutic attempts, including ceruletide and sympathicolysis. Thus, cecostomy became necessary. The endoscopic procedure was performed without complications, but the first results seemed to be poor. The abdomen remained meteoric and signs of peritonitis developed. Leakage of the cecum was ruled out by radiography via EPC. Pain in the right upper quadrant and fever were signs of a

calculous cholecystitis, confirmed by ultrasonography. Cholecystectomy was performed and the patient recovered rather quickly. After that, the cecostomy functioned satisfactorily. From 200 to 800 ml of liquid stool and gas were evacuated daily into the bag fixed to the catheter (Fig. 13). After the patient advanced to full enteral nutrition at 4 weeks and was having normal bowel movements, the Pezzer catheter was removed. The fistula healed within 1 week, as did the parastomal dermatitis.

### Discussion

Percutaneous needle decompression in the Ogilvie syndrome [1] and the technique of percutaneous endoscopic cecostomy [3] have already been described. On the basis of our experience with EPG, we performed a cecostomy as a variation of the method. The technical aspects and device used are identical. The technique presented here could probably be performed in other parts of the colon

if necessary, as the procedure was surprisingly easy to perform. In both patients the cecostomy fulfilled the purpose of definitely decompressing the paralytic colon without complications. Although two patients, are too few for definite evaluation, we feel that in case of prolonged intestinal paralysis EPC should be taken into consideration.

### References

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