
Clinical Note

Loop Ileostomy (Decompression Type) Using Polytetrafluoroethylene

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Introduction

Diverting ileostomy was initially introduced and used by Turnbull and Weakley to provide fecal diversion in patients with toxic megacolon.¹ Traditionally, transverse colostomy has been the preferred method for temporary proximal diversion in patients with colonic obstruction.^{2, 3} However, recently, diverting ileostomy has been popularized for proximal diversion, mainly for lack of an offensive odor of the ileostomy effluent compared with fecal material from a colostomy.^{2, 3} We have used diverting ileostomy routinely for protection of ileorectal anastomoses, especially when tension exists at the site of anastomoses or for those patients who have been on steroids.

Several complications such as stenosis, retraction of the stoma (the most common complication), prolapse, fistula, dermatitis, skin irritation (up to 49%), and parastomal hernia have been reported.^{4, 5} So far, several efforts have been made to use mesh or fascia in order to decrease the rate of complications.⁶ Despite the advances in operative techniques, the creation of a satisfactory ileal stoma and the proper management of ileostomy complications are often not feasible so that in some cases, up to 25% revision of the ileostomy after its creation have been reported.⁶⁻⁸

Polytetrafluoroethylene, also known as Gore-Tex, is a nonallergic semirigid substance with no permeable pores in it.⁹ Therefore, for its unique characteristics, it seems that it can be used to

decrease the complications of ileostomy.

Case presentation and surgical technique

A 65- and a 57-year-old men, known cases of rectal cancer, had presented with signs and symptoms of rectal bleeding and abdominal tenderness. They had presented with the stage III disease, had been admitted to the surgery ward, and were operated by very low anterior resection with colorectal anastomoses. No tension existed at the site of anastomoses. For fecal diversion and decompression, loop ileostomy using a tubular Gore-Tex (20 mm in diameter and 6 cm in length) was utilized. A 20-mm incision was made in the ileal wall where the Gore-Tex was continuously sewed to it using a 3 – 0 prolene (Figure 1). Thereafter, a defect with an approximate diameter of two fingers in breadth, was made in the abdominal wall, in the right lower quadrant at the site marked by stoma nurse. The stoma was then pulled through the defect so that at least 2 cm of the Gore-Tex became out of the skin defect (Figures 2 and 3). The ileum was fixed to the peritoneum (using 3 – 0 chromic suture thread) and fixed at eight points to the abdominal wall (using a 3 – 0 vicryl). Since 2 cm of the Gore-Tex was left

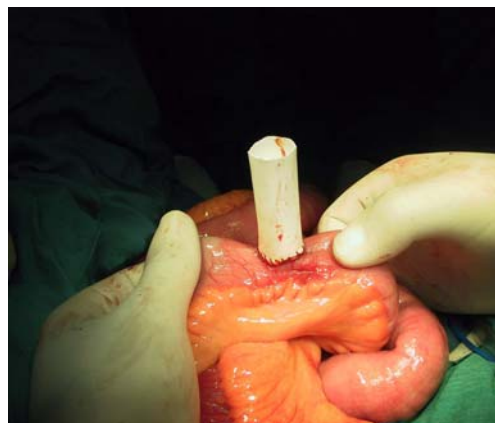


Figure 1. The Gore-Tex was continuously sewed to the 20-mm ileal wall incision.

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Figure 2. Pulling the Gore-Tex out of the skin defect.

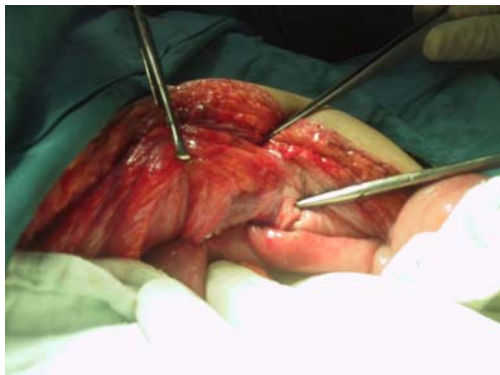


Figure 3. The ileum was lined to the peritoneum, out, a bag or a clip could easily be applied to it (Figure 4).

Postoperative hospital course

Drainage of the intestinal contents started on the 3rd postoperative day. No complications were observed during the hospital course. No fecal materials were drained through the anus. The bowel movement returned to normal function after two weeks. The patients were followed for three



Figure 4. Easily applied reservoir bag to the extracted Gore-Tex.

months and reported no usual complications of ileostomy (e.g., skin irritation, dermatitis, and retraction). After three months, the patients referred for closure of the ileostomy. A small incision was made right next to the Gore-Tex and using 3 – 0 vicryl, the ileal defect was transversely repaired in one layer.

Discussion and comments

An ileostomy is performed in many emergency and elective situations.¹⁰ Despite a proper technique, the conventional ileostomy is frequently not an ideal method considering the high complication rate; in some reports up to 25% of the procedures end up in a revision operation.⁴ The most frequent complications are stenosis and retraction, which constitute 30% of the cases for whom revision operations are performed.¹⁰ Fistula prolapse and paraileostomy hernia are other common complications, which result in a revision operation in an additional 15% of patients.¹⁰ More recently, increase in the number of anal preserving procedures, high incidence of inflammatory bowel disease (IBD), and increasing trauma statistics have made a more efficient ileostomy technique with less complication, mandatory.

Gore-Tex with its mild tissue reaction, cellular and tissue infiltration via graft pores, and establishment of a neomucosa inside and outside the graft,¹¹ has found many applications in various procedures including rectal sling for complete rectal prolapse,¹² repair of large abdominal and thoracic wall defects,^{13, 14} uterine rupture coverage, support of the duodenal defect in high-risk patients,¹⁵ and also for experimental patch closure of gastric defects.¹⁶

According to the previous surgical techniques, as the ileal wall directly stitched to the inner abdominal wall, and no segment of the bowel located outside the peritoneal cavity, complication of the conventional method, including retraction, stenosis, prolapse, etc. are theoretically impossible to occur. Further improvements in quality of life will be achieved by improved hygiene, as clips can be applied directly to the outer end of the Gore-Tex or the applying bag can be attached to it without direct contamination of the adjacent skin with bowel effluent. In future, if the results are satisfactory, we intend to use Gore-Tex in end-ileostomy and even as a continent ileostomy.

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