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CASE REPORT

A.J. Aldridge · J.N.L. Simson

# Erosion and perforation of colon by synthetic mesh in a recurrent paracolostomy hernia

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**Abstract** Parastomal hernia, particularly when recurrent, presents a troublesome problem to the surgeon. Since the late 1970s, prosthetic-mesh repairs have been used increasingly, though, as yet, there is no consensus on the best technique of repair. We report a case of failure of a polypropylene-mesh repair of a recurrent parastomal hernia, complicated by erosion of the mesh edge into the colon proximal to the stoma. This entailed further resection of the colon, excision of the mesh and relocation of the colostomy. The case highlights the potential for serious morbidity from this form of repair and the need for careful assessment of symptoms before contemplating a surgical approach to any type of parastomal hernia.

**Keywords** Synthetic mesh · Parastomal hernia

## Case history

An 85-year-old gentleman presented as an emergency with a 2-week history of parastomal pain. The stomal function remained normal throughout this period.

Three years previously, he had undergone a laparoscopic-assisted abdomino-perineal excision for Dukes' A carcinoma of the rectum with an end colostomy fashioned through the rectus muscle. Nine months later, he developed a parastomal hernia, and a fascial repair was subsequently performed with Prolene. Within 9 months, the hernia recurred. The defect gradually enlarged and became progressively more uncomfortable.

A.J. Aldridge
Department of Surgery, St Helier Hospital,
Wrythe Lane, Carshalton,
Surrey, SM5 1AA, UK

J.N.L. Simson (✉)
Department of Surgery, St Richard's Hospital,
Spitalfield Road, Chichester,
West Sussex, PO19 4SE, UK
E-mail: jnlsimson@rws-tr.sthames.nhs.uk
Tel.: +44-1243-831538
Fax: +44-1243-831683

Due to the worsening symptoms, further repair was undertaken. At operation, via a midline incision, the sac was opened, the contents reduced and the redundant sac amputated. The edges of the defect were opposed with intermittent 0 Prolene, and a pre-cut Prolene mesh was secured around the colon in the preperitoneal plane to reinforce the repair. Mesocolon was sutured to the edge of the mesh. Within a few weeks, the hernia recurred but for 8 months gave rise to minimal symptoms until this presentation.

On examination, he was pyrexial (temperature 37.6°C). There was a large, partially reducible parastomal hernia with erythema and oedema over the lateral extent of the defect. Bowel sounds were normal both over the hernia and elsewhere within the abdomen. The white-cell count was elevated at 19.3.

Urgent exploration was undertaken because of the concern of strangulation. During the operation, performed through a midline incision, the parastomal hernia was found to contain descending colon (Fig. 1). At the neck of the defect, the colon was densely adherent to the Prolene mesh with an adjacent small cavity containing pus and liquid faeces secondary to a defect in the colon. The adhesions were divided and the mesh excised. Twenty centimetres of descending colon, incorporating the perforation site, were resected and a new colostomy fashioned in the right upper quadrant. The deep layers of the old stoma site were closed with interrupted Prolene and the skin left open and packed. The wound healed without further complication.

## Discussion

Parastomal hernia is a relatively common complication after fashioning of either a permanent end colostomy or a temporary defunctioning procedure. According to Goligher, "some degree of herniation around the colostomy is so common that this complication may be regarded as inevitable [7]. The reported incidence, however, is up to 50% [8]. The incidence increases with time, although most cases occur within 2 years of stoma formation.

Early herniation may result from technical errors, including poor choice of stoma [12], too large a fascial defect or peristomal sepsis. Later herniation is consequent upon gradual stretching of the fascial defect [9]. Other important factors include the patient's age, obesity and increased abdominal pressure.

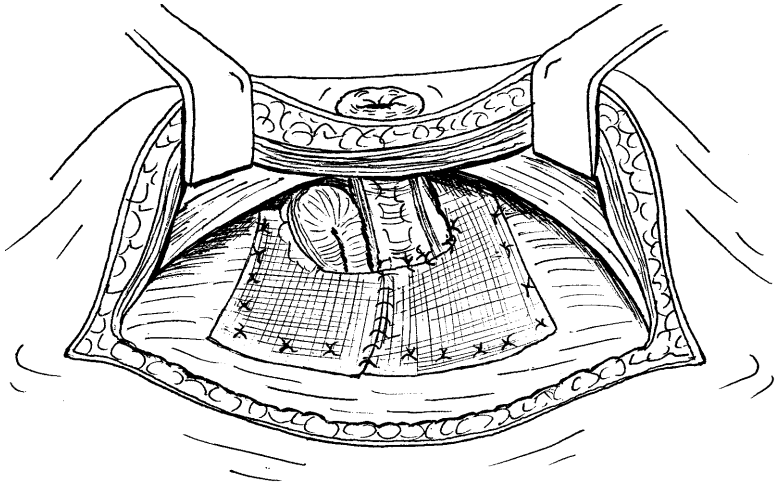

**Fig. 1** View via midline incision of proximal colon herniating through pre-peritoneal mesh

There are three main surgical approaches: stoma relocation, fascial repair and reinforcement with prosthetic mesh.

Stoma relocation is the simplest approach, with the benefit of a complete closure of the defect at the old stoma site and a "fresh start". A laparotomy is required, and the presence of multiple previous abdominal incisions or extensive adhesions may make the procedure difficult or impossible. Local approaches would, therefore, appear to carry many advantages [11].

Simple fascial repair [15], with non-absorbable sutures, has been associated with recurrence rates of around 50% [2]. The results are poorer still for recurrent parastomal hernias.

Since the late 1970s, in an effort to improve this disappointing outcome, various procedures incorporating synthetic mesh have been advocated , either as a primary strengthening technique at the time of stoma fashioning [3] or to facilitate repair [1, 10, 13]. In spite of concerns about the presence of prosthetic material in a potentially contaminated field, there is little evidence in the literature to suggest this is a major problem in practice. Methods involving the positioning of mesh intraperitoneally – thus not disturbing the stomal opening – may further reduce the risk of infection [3, 14], and laparoscopic intraperitoneal repairs have recently been reported [4].

In this case report, we describe a previously unreported complication of prosthetic-mesh repair. The erosion of Prolene mesh through the colonic wall at the neck of a recurrent parastomal hernia entailed a substantial emergency revision, with excision of contaminated mesh, further colonic resection and relocation of the stoma. Most reports of mesh repair of parastomal hernia describe the use of Marlex (polypropylene), and there is very little information regarding the employment of other materials. The rather rigid, abrasive cut edges of polypropylene may be an important factor leading to colonic perforation in this patient, in which case, a softer material, such as polyester, might be preferable.

Whilst prosthetic-mesh repair carries a lower recurrence rate than fascial repair, recurrence is not uncommon. Such serious morbidity as that described above highlights the need for careful case selection. Most patients can be managed quite satisfactorily by non-surgical measures, such as a well-made stomal support [7]. In a review by Pearl, only 15% of parastomal hernia patients required an operation [8]. Urgent surgery is indicated for symptoms of impending obstruction with risk of strangulation, which has been described by several authors [5, 6]. Elective surgery may be indicated for local pain refractory to use of a support, incarceration, difficulty with appliance application, associated prolapse, stenosis or problems with evacuation and cosmesis.

No technique of parastomal-hernia repair has been shown to give satisfactory long-term results, and repair should be reserved for patients with symptoms that severely disturb quality of life.

## References


1. Abdu RA (1982) Repair of paracolostomy hernia with Marlex mesh. Dis Colon Rectum 25:529–531
2. Allen-Mersh TG, Thompson JBS (1988) Surgical treatment of colostomy complications. Br J Surg 75:416–418
3. Bayer I, Kyser S, Chaimoff C (1986) A new approach to primary strengthening of colostomy with Marlex mesh to prevent parastomal hernia. Surg Gynecol Obstet 163:580
4. Bickel A, Shinkarevsky E, Eitan A (1999) Laparoscopic repair of paracolostomy hernia. J Laparoendosc Adv Surg Tech 9:353–355
5. Cuthbertson AM, Collins JP (1977) Strangulated paraileostomy hernia. Aust N Z J Surg 47:86
6. Daniell SJ (1981) Strangulated small-bowel hernia with a prolapsed colostomy hernia. J R Soc Med 74:687
7. Goligher JC (1985) Surgery of the anus, rectum and colon, 5th edn. Bailliere Tindall, London
8. Pearl RK (1989) Parastomal hernias. World J Surg 13:569
9. Prian GW, Sawyer RB, Sawyer KC (1975) Repair of peristomal colostomy hernias. Am J Surg 130:694
10. Rosin JD, Bonardi RA (1977) Paracolostomy hernia repair with Marlex mesh: a new technique. Dis Colon Rectum 20:299–302

11. Rubin MS, Schoetz DJ, Matthews JB (1994) Parastomal hernia. Is stoma relocation superior to fascial repair? Arch Surg 129:413–418
12. Sjodahl R, Anderberg B, Boin T (1988) Parastomal hernia in relation to site of the abdominal stoma. Br J Surg 75:339–341
13. Sugarbaker PH (1980) Prosthetic-mesh repair of large hernias at the site of colonic stomas. Surg Gynecol Obstet 150:577–578
14. Sugarbaker PH (1985) Peritoneal approach to prosthetic mesh repair of paracolostomy hernias. Ann Surg 201:344–346
15. Thorlaksen RH (1965) Technique of repair of herniation associated with colonic stomas. Surg Gynecol Obstet 120:347