Perforated Diverticulum of Sigmoid Colon within Chronically Incarcerated Scrotal Hernia

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Abstract

Unexpected findings during elective repair of large inguinal hernias can be challenging to the surgeon. We present a perforation of a sigmoid colon diverticulum encountered during elective repair of a chronically incarcerated scrotal hernia in a 34-year-old man without any evidence of diverticulitis. An elective sigmoid colon resection was performed with primary anastomosis, followed by inguinal hernia repair with a modified tissue repair and biologic mesh reinforcement. The finding of a perforated colon diverticulum in an inguinal hernia is a very rare finding, and only four cases have been reported in the literature. We did not identify any reported cases of a perforated large bowel diverticulum in the absence of frank diverticulitis. A review of the literature is presented, and options for surgical management are discussed.

KEYWORDS: inguinal hernia, sigmoid diverticulum
INTRODUCTION

Various uncommon structures in inguinal hernias have been reported, including bladder, Meckel’s diverticula, appendices, and ovaries (1-4). A perforated large bowel diverticulum is a very unusual finding in an inguinal hernia, and only four cases have been reported in the literature to date. We present the first case of a perforated colon diverticulum without frank diverticulitis in an incarcerated inguinal hernia. We present options for surgical management and review the current literature.

CASE REPORT

A 34-year-old man presented to the general surgery clinic with an enlarging left scrotal mass. On examination, the hernia was irreducible, but not tender. He had no obstructive symptoms. He was scheduled for repair. At operation, a standard left oblique inguinal incision was made. The subcutaneous tissue was divided, and the external oblique was identified and incised. A large sliding indirect hernia was identified with sigmoid colon as part of the sac. Pressure was placed on the scrotum to reduce the hernia and bring the contents of the hernia into the field. The lateral attachments of the colon were the lateral wall of the hernia sac. There was a single perforated diverticulum with a stool ball in an otherwise not inflamed colon. A sigmoid colon resection was performed via the
inguinal incision, as there was excellent exposure. With two firings of the 3.5-mm GIA™ stapler (Covidien Surgical, Mansfield, MA), the colon was divided. The mesentery was divided with the LigaSure™ device (Covidien Surgical, Mansfield, MA). A side-to-side functional end-to-end anastomosis was created with the GIA™ stapler. The sigmoid colon was sent to pathology. The remaining contents of the hernia were reduced into the abdomen. A modified Bassini-type tissue repair was performed. A relaxing incision was made in the transversalis fascia. Interrupted sutures were used to suture the shelving edge of the inguinal ligament to the conjoined tendon. The tissue repair was then reinforced with an onlay XenMatrix™ biologic mesh (non-crosslinked, regenerative porcine collagen matrix, Bard, Davol, Inc, Warwick, RI). The patient’s postoperative hospital course was uneventful, and he was discharged home on the third postoperative day. Surgical pathology was significant for segment of colon with focus of fibrosis, histocystic inflammation, and foreign body giant cell reaction surrounding foreign body material, which was consistent with a previous perforation.

**DISCUSSION**

It is very rare for a large bowel diverticulum to perforate in an inguinal hernia, but diverticulitis must be included in the differential diagnosis of a tender groin or scrotal mass. Cases of diverticulitis and diverticular abscesses presenting as incarcerated inguinal hernias are described and result from pus tracking into the
hernia sac from the peritoneal cavity (5-9). Four cases of perforated large bowel diverticula as the content of inguinal hernias are reported in the literature (10-14). All four cases were associated with inflammation and underlying diverticulitis. The patients presented with acute pain and signs of inflammation.

The first option for repair of a hernia containing a perforated diverticulum is resection of the inflamed colon via an inguinal incision with a stoma at the inguinal incision and restoration of continuity at a later date once the inflammation resolves. A case of a perforation of a solitary diverticulum of the sigmoid colon in an incarcerated scrotal hernia was reported in 2004 (11). The patient had active diverticulitis at the time of operation. The inflamed sigmoid colon was resected, and a double barrel ostomy was formed at the inguinal incision. Four weeks later, after the diverticulitis was treated, the stoma was reversed.

The second option is conversion to midline laparotomy with Hartmann’s procedure. In 2008, another case of a perforated diverticulum of the sigmoid colon in an inguinal hernia was described (13). The patient presented with an acutely tender hernia and inflamed overlying skin. After making an inguinal incision, stool was located in the hernia sac. A midline laparotomy was performed and a nonviable diverticulum of the sigmoid colon was found to be in the hernia sac. A Hartmann’s procedure was performed, and the hernia was repaired primarily with the Bassini technique.
The third option for repair is resection of the involved colon with primary anastomosis. Unlike the described cases in the literature, where perforation of colonic diverticula occur in the presence of inflammation of the colon, our case describes a situation where no surrounding inflammation was present. Our case is unique because there was no diverticulitis involved, but a chronically herniated sigmoid colon had a contained ruptured diverticulum with a stool ball but no other gross contamination. The colon was resected around the diverticulum. The neck of the hernia sac acted to restrict and protect the peritoneal cavity from contamination, as other authors have discussed (11). The remainder of the sigmoid in the hernia sac was not inflamed, unlike other cases described in the literature, and we elected to perform a primary anastomosis. Once the colon was returned to the abdomen, a Bassini tissue repair was performed reinforced with an onlay biologic mesh.

Ideally, given the risk of infection, tissue repair is preferred. There was a large defect, so we elected to accept a risk of infection and proceed with placement of a biologic mesh. Tissue repairs are associated with a 10% average recurrence rate, while mesh repairs have a recurrence rate of 1-4% (14). Use of biologic mesh in inguinal hernia repair is mostly limited to repairs where there is concern for infection, as biologic mesh has decreased wound strength and use results in increased rates of recurrence. A recent randomized controlled trial comparing synthetic polypropylene mesh with biologic porcine mesh showed no recurrences.
in either group at 3 months, but longer follow up must be obtained to determine long term risk of hernia recurrence (15).

CONCLUSION

In conclusion, we report a perforation of a single sigmoid colon diverticulum found during elective repair of a chronically incarcerated scrotal hernia. This is the first case reported of a perforated diverticulum in the absence of frank diverticulitis in an incarcerated inguinal hernia.

REFERENCES


