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Rare Complication of Open Primary Repair of Inguinal Hernia

Medical Science

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Anil Kumar	Assistant Professor Department of Surgical Disciplines All India Institute of Medical Sciences
Manoj Kumar	Senior Resident, AIIMS, Patna
G.K.Singh	Director, AIIMS, Patna
Bindey Kumar	Professor, Pediatric Surgery AIIMS, Patna
Rekha Kumari	Senior Resident, HMRI, PARAS, Patna

ABSTRACT

The "tension-free" technique is undoubtedly the gold standard for hernia repair. However, it is not free of complications, mainly due to technical errors, of which the surgeon must be aware. We described here a case of colocutaneous fistula in a 54 year old male, developed it following open primary repair of inguinal hernia.

Introduction

Primary repair of inguinal hernias is associated with 10 to 15 % risk of recurrence [1]. With the introduction of meshes and their application in the field of hernioplasty by Usher and his colleagues in 1958 using a "Marlex" mesh [2], followed by the Lichtenstein "tension-free" hernioplasty in 1986, the rate of recurrence of inguinal hernias has decreased to around 1 to 2 % [3, 4]. Despite this, several complications have been reported in follow-up series, ranging from urinary retention, foreign body reaction, ischemic orchitis, chronic inguinal pain, and thrombosis of veins [5]. Mesh migration and erosion into hollow viscus, such as small or large bowels, is a pivotal etiology for the formation of either entero- or colo- scrotal/cutaneous fistulas [6].The Lichtenstein technique is commonly used in inguinal hernia repair and a polypropylene mesh is the most frequently used mesh now a days. Mesh migration into the colon has been rarely reported in the literature. Here we report a case of a colocutaneous fistula that developed following open primary repair of inguinal hernia.

Case report

A 54 year old male with history of purulent discharge from the left inguinal region for 6 months presented to our outpatient department. He was operated twice for the same problem in private hospital but he continued to have discharge on & off. He had been operated for inguinal hernia 6 month back. On examination there was a surgical scar in the left inguinal region with discharging sinus through its medial end. Culture and sensitivity of discharge showed growth of *E. coli*. Later fistulogram was performed which revealed presence of colocutaneous fistula (Fig 1). Fistulogram also revealed multiple small radio-opaque density mostly confined to the right side and midline of the body which seems to be pellet which he correlate with the gun shot injury occurred 20 years before.

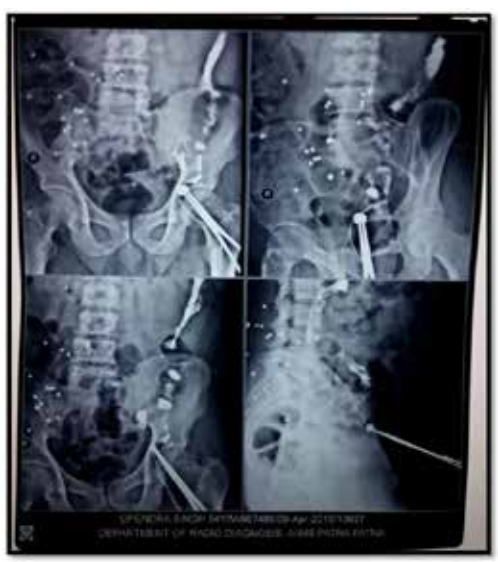

Figure 1: Fistulogram

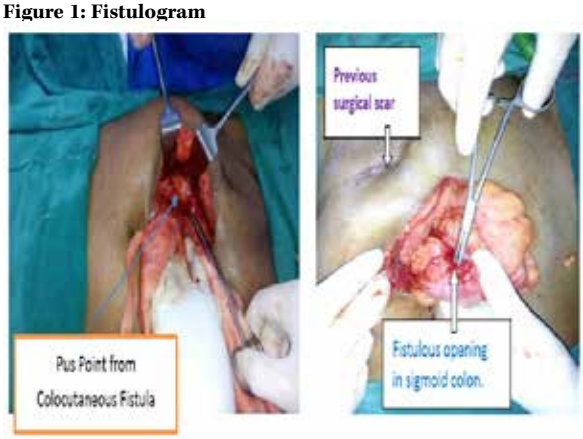

Figure 2

Other lab and radiological investigations were within normal limit. We planned to do fistulous tract excision with primary colonic repair. There was a fistulous tract communicating with sigmoid colon and another blind ending pouch in the lateral abdominal wall communicating with sigmoid colon (Fig 2).

As it was open primary repair of inguinal hernia may be darning or tissue repair because there were no mesh in the inguinal region or it could have been a sliding hernia which the primary treating surgeon missed. Fistulous tract excision with primary repair of bowel and closure of cavity from peritoneal side and exteriorised to the skin and drain placed in it. Drain removed on postoperative day 3.His postoperative course was unremarkable and was discharged on postoperative day 7.

Discussion

Inguinal hernias are common presentation to the surgical clinics, worldwide. A lot of advancements have occurred, from the time Bassini reported his herniorrhaphy technique in 1884. Herniorrhaphy operations were further modified by Shouldice, Halstead, and McVay [7]. The concept of using prosthetic material was envisioned by Billroth in 1878, but was only feasible in the late 1950's, when Usher publicized the use of polypropylene prosthetic mesh in hernia repair, followed by Irving

Lichtenstein, who coined the term "tension-free" mesh hernia repair in 1986. The main benefit of the Lichtenstein repair is the avoidance of tension at suture line, therefore decreasing recurrence rate, markedly [3]. The literature reports several studies comparing different meshes, focusing on the various biomaterial properties and the extent to which they can trigger the body's own innate immunity [8]. This proved critical in determining the rate of complications, each mesh type, can induce. Complications may sometimes occur with the use of a mesh in inguinal hernia repair. In a review of 1834 patients who underwent mesh inguinal hernia repair, Akyol et al. reported an infection rate of 0.8%. However in a similar review on patch inguinal hernia repair, Lichtenstein reported an infection rate of 0.003% . Different incidences of chronic infection after mesh inguinal hernia repair have been reported in the literature, and this inconsistency has been shown to occur because of differences in the type of mesh used, the surgeon's technical ability, and the use of prophylactic antibiotics [9]. Chronic infections can result in serious complications such as sinus tract formation, abscess, visceral adhesions, and fistulas.

Additionally, mesh migration followed by fistula formation is a rare and serious complication that may occur after mesh inguinal hernia repair [9, 19]. These complications may occur after both open tension free hernia repair and laparoscopic hernia repair. A colocutaneous fistula is a very rare complication and may develop over a period of 20 years after inguinal hernia repair [10]. Enterocutaneous or enteroscrotal fistula, with mesh infection, is caused by the gradual erosion of the prosthetic mesh into the bowel wall, resulting in perforation, bowel contents spillage, and abscess formation. Such fistula does occur when the prosthetic mesh is placed in proximity to a hollow organ [11]. The presentation of fistula, secondary to mesh erosion, can be delayed, and has been reported to occur in the postoperative period, ranging from 9 days up to 10 years [12]. It has been reported that the incidence of enterocutaneous fistula, due to prosthetic mesh, is higher, when placed in the subfacial versus the onlay position (5.2 % versus 2.6 %, respectively) [13]. There are several reasons why prosthetic meshes can fistulise into a hollow viscus. Meshes do induce an inflammatory process, and at some point, can get infected. This infectious process, if untreated properly, can result in abscess formation and later fistula formation. Close proximity of the mesh with the serosal layer of the bowel, without proper protection by a peritoneal flap, can lead to mesh erosion and fistulisation. In addition, a serosal tear, which occurred during reduction and manipulation of the herniated bowel, can be complicated by erosion of the mesh at the same site, ultimately leading to fistulisation. All of the above hypotheses have been quoted in the literature as an explanation for mesh erosion and fistulisation [12].While superficial wound infection is relatively easily managed, the deep-seated prosthetic infection is more problematic. In that instance, most surgeons agree on total mesh removal [14].Radiological modalities available for the diagnosis of mesh erosion and fistulisation depend on the suspected location of the fistula and the hollow viscus involved. Because of its simplicity, a fistulogram or sinogram is ideally an initial approach for enterocutaneous fistulas. Small bowel follow-through or computed tomography could be performed as adjuncts [15].Our case represents a modification to the surgical management, commonly reported in the literature. Most cases of mesh-related enteric fistulas involve bowel resection in addition to fistulectomy. Fistulectomy alone has been reported in cases of Inflammatory Bowel Disease and Diverticulitis. None has been performed in mesh-complicated cases. Several case reports have reported the low incidence of recurrence after division of such fistulae, even after median follow-up of 59 months [16, 17]. To the best of our knowledge, there are no established guidelines as to the standard of care for such complication. Fistulectomy and primary repair of the bowel wall, in contrast to bowel resection and primary anastomosis, is a worthwhile option [18]. Mesh migration after mesh inguinal hernia repair is unpredictable. A previous report has presented complications related to prosthetics in hernia repair, such as infection, contraction, rejection, and, rarely, mesh migration. Mesh migration may occur as an early or late complication after hernioplasty. During hernia repair, the surgeon should carefully check for a sliding hernia , which may contain the sigmoid colon within the sac, especially in elderly patients, because failure to identify this hernia may lead to direct contact between the mesh and the colon, which may cause pressure necrosis and fistula formation followed by mesh migration [19].

Conclusion

During hernia repair, the surgeon should carefully check for a sliding hernia, which may contain the sigmoid colon within the sac, because failure to identify this hernia may lead to direct contact between the mesh and the colon, which may cause pressure necrosis and fistula formation followed by mesh migration.

Conflict of interest

The authors do not have any disclosable interest

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