doi:10.22100/ijhs.v12i3.1272
Case Report

SJMS 2026;12(3):21-23
sjms.shmu.ac.ir

SJMS
Shahroud Journal of Medical Sciences

Colocutaneous Fistula Due to Cecum Invasion with Mesh Plug After Inguinal Hernia Repair, Case Report and Literature Review

Fakhry Alsadat Anaraky Firooz[1], Hamed Ebrhimibagha[2], Adel Zeinalpour[2*]

[1] Department of Colorectal surgery, school of medicine, Shahid Beheshti University of Medical Sciences, Taleghani hospital, Tehran, Iran.
[2] Department of Colorectal surgery, school of medicine, Shahid Beheshti University of Medical Sciences, Modarres hospital, Tehran, Iran.

Received: 5 June 2025
Accepted: 20 December 2025

Abstract

Background: *Inguinal hernia repair, among the most frequently performed surgical procedures worldwide, is generally associated with low morbidity. However, complications such as mesh migration and erosion into adjacent anatomical structures, although rare, can have significant clinical implications. Full-thickness erosion of mesh into the cecum, resulting in a colocutaneous fistula, represents an exceedingly rare phenomenon.*

Case Presentation: *This report details the case of an 82-year-old male with a prior history of right inguinal hernia repair who presented with persistent fecaloid discharge from the surgical scar following an initial episode of abscess formation and incision and drainage. Advanced imaging modalities identified an enterocutaneous fistula connecting the cecum to the inguinal region. Diagnostic laparoscopy revealed necrosis of a segment of the cecum caused by erosion of a polypropylene mesh plug. The patient underwent laparoscopic hemicolectomy with complete excision of the mesh and subsequent debridement and repair of the inguinal wound. Postoperatively, the patient experienced an uneventful recovery, and the surgical site healed successfully.*

Conclusion: *Clinicians should maintain a high index of suspicion for mesh-related complications, such as erosion and fistula formation, in patients presenting with delayed abscesses or intestinal discharge at prior hernia repair sites. This case underscores the importance of careful patient selection and consideration of alternative techniques in high-risk individuals to minimize the incidence of such rare but serious outcomes.*

Keywords: Inguinal hernia repair, Mesh migration, Colocutaneous fistula, Polypropylene mesh erosion, Laparoscopic hemicolectomy.
***Corresponding to:** A Zeinalpour, **Email:** Adel.zeinalpour@gmail.com

Please cite this paper as: Anaraky Firooz FA, Ebrhimibagha H, Zeinalpour A. Colocutaneous Fistula Due to Cecum Invasion with Mesh Plug After Inguinal Hernia Repair, Case Report and Literature Review. Shahroud Journal of Medical Sciences 2026;12(3):21-23.

Introduction

Inguinal hernia repair is one of the most commonly performed surgical procedures worldwide and typically does not result in serious complications [1]. Various surgical techniques exist, including the use of mesh in the Lichtenstein technique or the plug-and-patch method. In the plug-and-patch approach, the mesh plug is typically secured around the internal ring to prevent migration [2]. Although mesh migration and erosion into surrounding structures are uncommon, there have been documented cases. Notably, full-thickness mesh erosion into the cecum following right inguinal hernia repair, which can lead to the formation of a colocutaneous fistula, is exceedingly rare. This case presentation discusses a patient who experienced mesh plug migration from the right inguinal region to the cecum, resulting in an abscess and subsequent fecal discharge from the previous surgical scar.

Case Presentation

The patient is an 82-year-old male with a history of right inguinal hernia who developed a postoperative abscess at the previous surgical site and subsequently underwent incision and drainage. During this procedure, no foreign body or mesh was identified, and the patient received postoperative antibiotic treatment. In 2024, he presented to the Colorectal Clinic at Modarres Hospital in Tehran, Iran reporting fecaloid discharge from the wound site. Despite medical management, the discharge persisted for six months.

The patient's medical history included chronic obstructive pulmonary disease (COPD), but he had no history of diabetes or immune disorders and was not on any specialized medications. Initial laboratory results upon admission indicated a white blood cell count (WBC) of 1000, hemoglobin (Hb) of 13, and C-reactive protein (CRP) of 45.

Upon examination of the surgical scar in the right inguinal area, there was evidence of a fistula with intestinal discharge and surrounding erythema. The patient's vital signs were stable, and abdominal examination revealed no abnormalities.

An ultrasound of the right inguinal revealed an irregular fluid collection measuring approximately 35 x 9 mm, with a volume of 8 cc extending superiorly toward the right inguinal area, suggestive of a possible fistula to the bowel loop. An abdominopelvic CT scan confirmed the presence of an enterocutaneous fistula between the cecum and right inguinal region (Figure 1).

Details regarding the surgical technique employed during the patient's initial inguinal hernia repair are unavailable. Diagnostic laparoscopy revealed that the cecum was adherent to the abdominal wall near the lateral aspect of the appendix, with no intra-abdominal collections noted (Figure 2).

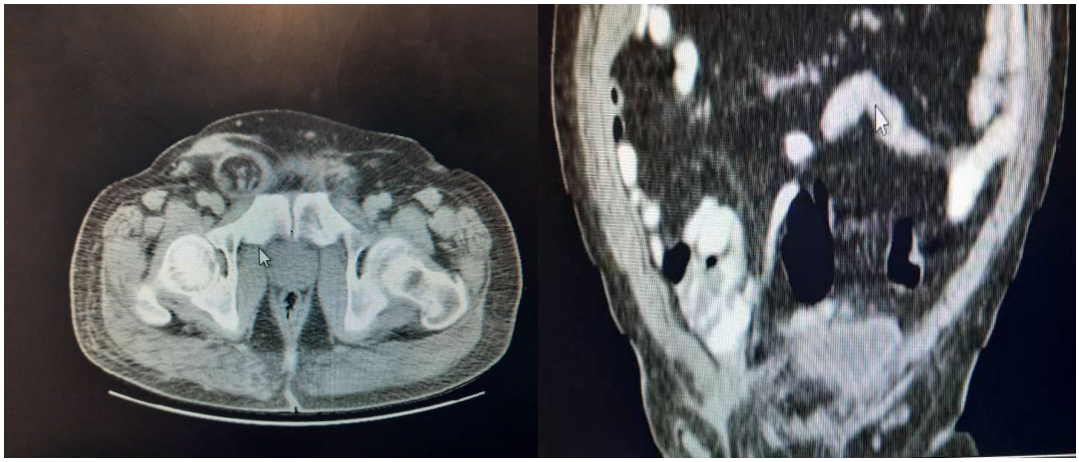

Figure 1. Abdominopelvic CT scan with IV and oral contrast with evidence of enterocutaneous fistula between the cecum and right inguinal region

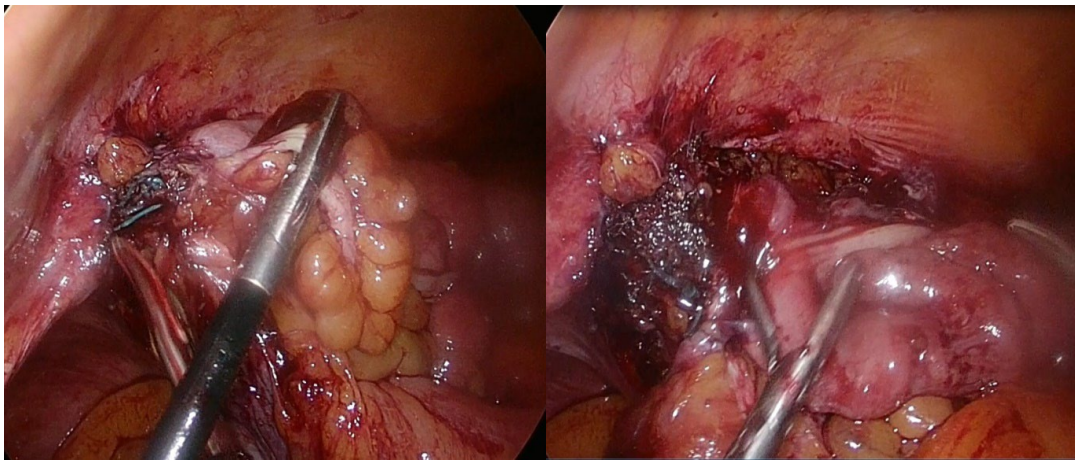

Figure 2. Laparoscopy revealed that the mesh had penetrated to the cecum

Following adhesiolysis, necrosis of a portion of the cecum was identified, attributed to invasion by a polypropylene plug mesh. A laparoscopic hemicolectomy was performed, and the infected mesh was completely excised. The wound and external fistula opening were thoroughly debrided and irrigated. The pathology report indicated erosion of the mesh into the cecum accompanied by granulation tissue and abscess formation.

To sum up, the whole procedure steps were as follow:

1. Diagnostic laparoscopy revealed cecal adhesion near the appendix.

2. Adhesiolysis was performed.

3. Necrotic cecal segment identified due to mesh erosion.

4. Laparoscopic hemicolectomy and complete mesh excision performed.

5. Inguinal wound debrided and repaired.

The patient experienced an uneventful recovery and was discharged on the third postoperative day. During follow-up, the inguinal wound was successfully repaired and no intraoperative or early postoperative complications were observed within 48 hours following surgery. The patient was followed up for 3 months, and no complications or recurrence were detected during this period.

Discussion

Mesh migration following inguinal hernia repair is an uncommon complication, typically associated with erosion into the sigmoid colon or small bowel [1]. To date, cecal involvement remains exceedingly rare, with only three cases documented in the literature [3-5] (see Table 1). Several reports have noted instances of sigmoid involvement with mesh [2, 6]. On average, fistula formation occurs approximately five years post-surgery [5], while in our case, it developed after four years. Notably, there has been one reported instance of cecal involvement following abdominal incisional hernia repair [7]. The cecum is

anatomically fixed in the retroperitoneum and is situated farther from the internal inguinal ring than the sigmoid colon, making its involvement with mesh less likely [5].

Table 1. Cases of colocutaneous fistulas due to cecal involvement with mesh

Case	Studies	Technique	Sex
Case 1	K. Sekiguchi, et al, 2015	plug and patch	male
Case 2	Broderick et al, 2022	plug and patch	male
Case 3	F. Policarpo et al, 2023	plug and patch	male

Mesh migration can occur through two primary mechanisms. In primary migration, the mesh may displace due to non-fixation, incomplete fixation to surrounding tissues, or external pressure, leading it to migrate into weaker adjacent tissues. Secondary migration arises from chronic inflammation caused by the presence of the mesh itself, resulting in erosion into surrounding anatomical structures [7]. In some cases, a combination of primary migration into the peritoneum followed by secondary migration into adjacent viscera can occur [8].

Risk factors for mesh migration are more prevalent in male patients and are associated with the use of polypropylene and heavy-weight mesh, as well as absorbable sutures. Specific factors contributing to this phenomenon include sliding hernias, direct contact of the mesh with the colon, inadvertent suturing of the colon wall, and infection of the mesh [1, 4, 9]. Additionally, mesh migration is reported to be more common following the plug-and-patch technique compared to the Lichtenstein technique [9, 10]. Notably, 91% of cases involving intestinal involvement with mesh necessitate surgical intervention for treatment [11], with laparoscopic surgery being recommended when feasible. Although mesh erosion is rare, its potential severity underscores the ongoing debate about the use of plug-and-patch techniques in high-risk patients.

Conclusion: To date, fistulas between the cecum and skin following inguinal hernia surgery utilizing the plug-and-patch method have been reported in only three cases. In instances of delayed abscess formation at a prior surgical site or intestinal discharge, one differential diagnosis for colocutaneous fistulae is mesh erosion, which should be ruled out. It is advisable to avoid the plug-and-patch technique in high-risk cases whenever possible.

Ethical Considerations

Informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this article. All the participants agreed to publish and use their medical and surgical information and their follow-up photographs in this article.

Acknowledgment

Finally, we thank all colleagues and participants who contributed to the successful completion of this work.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Funding

None.

References

1. Isaia M, Christou D, Kallis P, Koronakis N, Hadjicostas P. Colocutaneous fistula after open inguinal hernia repair. Case Reports in Surgery 2016;2016(1):2019212. doi: 10.1155/2016/2019212

2. Murphy J, Misra D, Silverglide B. Sigmoid colonic fistula secondary to Perfix-plug, left inguinal hernia repair. Hernia 2006; 10:436-438. doi: 10.1007/s10029-006-0113-3

3. Policarpo F, Rafael AA, Borges MF, Azevedo F. Cecum perforation by plug migration: an unexpected late complication of inguinal hernia mesh repair. Journal of Surgical Case Reports 2023;2023(3): rjad137. doi: 10.1093/jscr/rjad137

4. Broderick J, Siegel T. A Case of an Anomalous Tract Involving the Cecum After Open Right Inguinal Hernia Repair. Cureus 2022;14(2) doi: 10.7759/cureus.22275

5. Sekiguchi K, Mizuguchi Y, Mamada Y, Koizumi M, Uchida E. Intraperitoneal migration of a mesh plug from a hernioplasty forming a colocutaneous fistula with the cecum: report of a case. Journal of Nippon Medical School 2015;82(5):246-249. doi: 10.1272/jnms.82.246

6. Jayamanne H, Williams GL, Stephenson BM. Colocutaneous fistula after left inguinal hernia repair using the mesh plug technique. Surgery 2009;145(6):690. doi: 10.1016/j.surg.2009.03.013

7. Gandhi D, Marcin S, Xin Z, Asha B, Kaswala D, Zamir B. Chronic abdominal pain secondary to mesh erosion into cecum following incisional hernia repair: a case report and literature review. Annals of Gastroenterology: Quarterly Publication of the Hellenic Society of Gastroenterology 2011;24(4):321.

8. Agrawal A, Avill R. Mesh migration following repair of inguinal hernia: a case report and review of literature. Hernia 2006; 10:79-82. doi: 10.1007/s10029-005-0024-8

9. Al-Subaie S, Al-Haddad M, Al-Yaqout W, Al-Hajeri M, Claus C. A case of a colocutaneous fistula: a rare complication of mesh migration into the sigmoid colon after open tension-free hernia repair. International Journal of Surgery Case Reports 2015; 14:26-29. doi: 10.1016/j.ijscr.2015.06.039

10. Singh RR, Gupta AK, Shah AS, Singh R, Singh A. A study about inguinal hernia mesh repairs: plug and patch versus lichtenstein mesh repair technique. International Surgery Journal 2016;3(4):1967-1974. doi: 10.18203/2349-2902.isj20163562

11. Cunningham H, Weis J, Taveras L, Huerta S. Mesh migration following abdominal hernia repair: a comprehensive review. Hernia 2019; 23:235-243. doi: 10.1007/s10029-019-01898-9