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Case report

Enterocutaneous fistula secondary to Richter's femoral hernia in an elderly patient: A diagnostic pitfall - A case report

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ABSTRACT

Introduction: Richter's femoral hernia is a rare form of abdominal wall hernia at the femoral canal. The development of an enterocutaneous fistula (ECF) in this setting is extremely rare and highlights a rare but serious complication resulting from delayed presentation. It underscores the importance of early recognition and timely surgical intervention in resource-limited countries to prevent morbidity and mortality.

Case presentation: A 90-year-old woman from a remote village presented with lower abdominal pain, bilious vomiting, and a right groin wound. Examination revealed bilious discharge from the wound. Imaging showed an incarcerated right Richter's femoral hernia. After stabilization, she underwent emergency laparotomy with resection and anastomosis of the perforated ileal segment, followed by primary repair of the femoral defect. The patient recovered well and showed no recurrence at the 3-month follow-up.

Discussion: The development of a groin wound with an ECF in this context of Richter's femoral hernia is extremely rare. Differentiating this condition from similar presentations such as ruptured inguinal abscess, suppurative inguinal lymphadenopathy, or inguinal necrotizing fasciitis is crucial for timely intervention. A high index of suspicion and the use of advanced imaging modalities are necessary to delineate the pathology. Structured multidisciplinary care and a tailored surgical approach can lead to successful outcomes.

Conclusion: Spontaneous perforation of a Richter's femoral hernia resulting in an enterocutaneous fistula is an extremely rare and serious complication in the elderly with delayed presentation. High clinical suspicion, early recognition, and prompt surgical intervention are crucial for improving outcomes.

1. Introduction and importance

Femoral hernias occur due to the protrusion of abdominal contents through the femoral canal below the inguinal ligament [1]. They account for about 10 % of all groin hernias, especially in older multiparous women (M: F = 1:4) [2]. Risk factors include female sex, pregnancy, obesity, and conditions that increase intra-abdominal pressure. Femoral hernias have a tight neck and are prone to incarceration and strangulation (15–20 %) [2,3]. Richter's hernia commonly occurs in the elderly at 60–80 years, and the most common location is in the femoral canal [4]. Spontaneous perforation of an incarcerated femoral hernia into the groin, creating an enterocutaneous fistula, is extremely rare. Few cases have been reported in the literature, usually in resource-limited settings or with delayed presentation [5]. We present a case of an elderly woman with a spontaneously perforated right femoral hernia manifested by an enterocutaneous fistula in the groin, managed surgically with a successful outcome.

This case is particularly important in the context of a developing and resource-limited country. Delayed healthcare-seeking behavior, limited access to surgical care, and a shortage of diagnostic tools can lead to atypical and advanced presentations. Highlighting this case sheds light on the challenges faced in these environments and emphasizes the need for timely recognition and intervention to prevent complications.

This work has been reported in line with the revised SCARE criteria, 2025 [6].

2. Case presentation

A 90-year-old woman from a remote village was brought by her son to the emergency department of our hospital with complaints of

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intermittent lower abdominal pain for 7 days, bilious vomiting for the initial 3 days, and a wound over the right groin region for 2 days. She had painful swelling over the right groin for 7 days, which spontaneously ruptured 3 days back, discharging foul-smelling purulent material. She was intermittently passing stool and flatus. She had no history of a similar illness in the past. There was no significant past medical and surgical history. She has had 3 pregnancies that were born via normal vaginal delivery in the past.

On physical examination, the patient was dehydrated, frail with a BMI of 18.8 kg/m^2, tachycardic with a pulse rate of 120 beats per minute; the rest of the vitals were within normal limits. There was mild tenderness over the right iliac fossa and hypogastrium of the abdomen on palpation; however, no rebound tenderness, guarding, or rigidity was elicited. Bowel sounds were sluggish. Local examination of the groin revealed a wound in the right groin region below and lateral to the pubic tubercle measuring 6 * 4 cm^2 in size, with sloughs and granulation tissue with bilious discharge (Fig. 1). Laboratory parameters revealed a total leukocyte count of 12,300/cm^3, with sodium at 131 mmol/l and potassium at 2.6 mmol/dl. The rest of the parameters were within the normal limit. Chest X-ray erect did not show any pneumoperitoneum, and Abdominal X-ray erect and supine views revealed no features of bowel obstruction. A contrast-enhanced CT of the abdomen and pelvis was done to further investigate the case, which revealed mildly dilated small bowel loops that can be tracked up to the right pelvis. A small loop of small bowel protruding through the right femoral canal with air foci and an obvious femoral defect was noted (Figs. 2, 3).

A provisional diagnosis of enterocutaneous fistula of the right groin secondary to an incarcerated right femoral hernia was made. Preoperative stabilization with electrolyte correction with adequate resuscitation was done using the SOWATS protocol. Emergency open exploratory laparotomy via a lower midline incision was done for an anticipated strangulated or perforated right femoral hernia. Intraoperatively, approximately 150 ml of the serosanguinous collection was noted in the pelvic cavity. Around half of the circumference of the ileal loop, 90 cm proximal to the ileocecal junction, was herniated into the right femoral

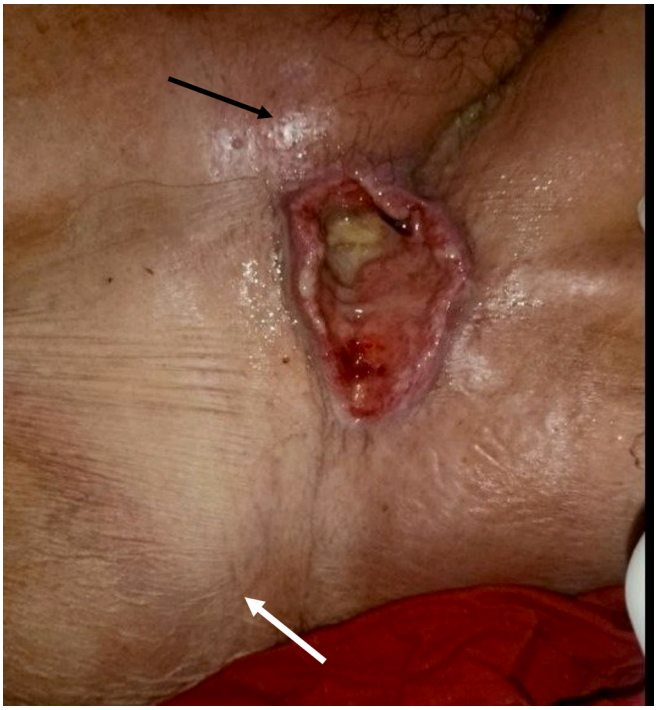

Fig. 1. Preoperative image showing wound over the groin region below and lateral to the pubic tubercle, white arrow representing right anterior superior iliac spine (ASIS), whereas black arrow represents Pubic tubercle.

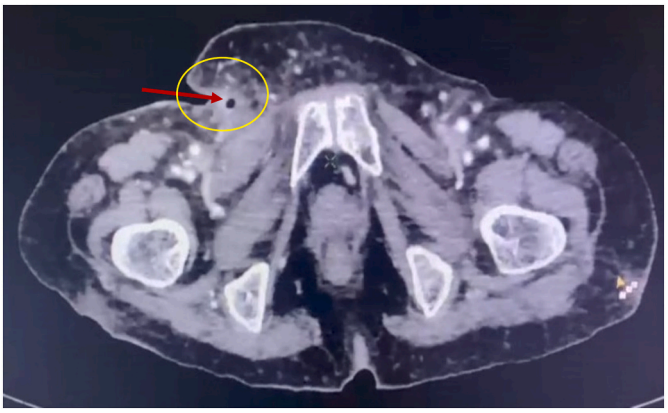

Fig. 2. Axial section of CECT of the abdomen and pelvis showing right femoral defect with bowel as content (yellow circle) and air foci (red arrow) suggestive of fistulation. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

canal with upstream mild dilatation of proximal small bowel loops. On releasing the content from the femoral canal, a 3 * 3 cm^2 perforation was noted at the antimesentric border (Fig. 4). The perforated segment of the ileal loop was resected, and an end-to-end hand-sewn anastomosis was performed. The defect of the femoral canal was closed with an interrupted polypropylene No. 1 suture between the inguinal ligament and pectineal ligament. The groin wound was debrided and kept open.

Postoperatively, the patient was shifted to the intensive care unit for monitoring. The NG tube was removed on the 1st postoperative day (POD), feeding started from the 3rd POD, and the drain was removed on the 4th POD. Daily dressing of the wound with secondary suturing done on 10th POD. At 3 months follow-up, patient was doing well and there was no evidence of recurrence. The patient and her family were grateful that she received timely surgical intervention despite her advanced age. The patient reported improvement in her quality of life, with no recurrence of symptoms and the ability to perform her usual activities independently at 3 months follow-up. Her family emphasized the challenges of delayed access to healthcare in the remote villages of Nepal and appreciated the efforts of the entire surgical team in providing comprehensive care. The sequence of key clinical events is outlined in the following timeline (Table 1).

3. Discussion

Richter's hernia is a herniation of a portion of the circumference of bowel, usually the antimesenteric border, through the fascial defect. Femoral hernia constitutes 36–88 % of Richter hernia, as it has a narrow femoral ring with a tight ligamentous attachment [4]. The narrow neck of the femoral canal predisposes to incarceration and strangulation, reported in up to 15–20 % of cases, with the reported risk up to 22 % within 3 months [3]. Femoral hernia typically presents with a groin heaviness, painless bulge, or a painful mass in the groin below the inguinal ligament. However, in 1/3rd of cases, there is incidental discovery during Ultrasonography of the groin region for other pathology. The incarcerated femoral hernia presents with a painful, tense bulge in the groin with signs and symptoms of bowel obstruction [2]. In case of Richter's type of femoral hernia, the signs and symptoms may be subtle because of incomplete obstruction of the intestinal lumen [4]. Features of intestinal obstruction are rarely present if there is involvement of less than 2/3rd of the circumference of the bowel wall, resulting in late diagnosis, bowel ischemia, and perforation [7].

An enterocutaneous fistula (ECF) is formed when there is an abnormal communication between the gastrointestinal tract and the skin [8]. The most common cause of ECF is iatrogenic (post-visceral surgery), constituting 80 % cases, and the remaining 20 % occurs in the

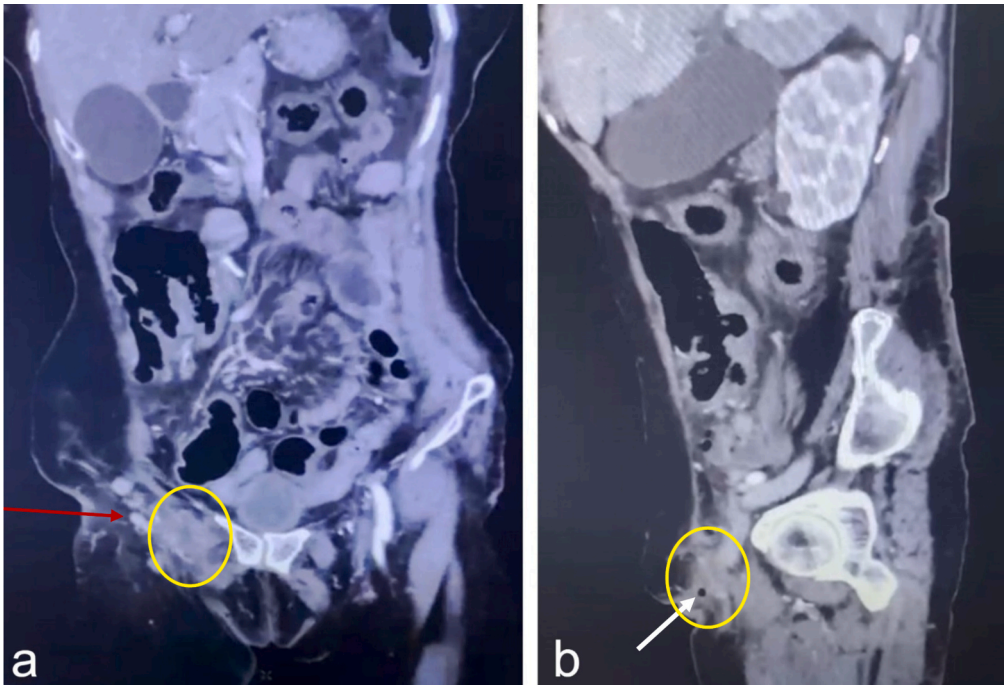

Fig. 3. CECT of the abdomen and pelvis (a) Coronal view (b) Sagittal view showing femoral hernia (yellow arrow) medial to femoral vessels (red arrow) with air foci (white arrow) suggestive of fistulation. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

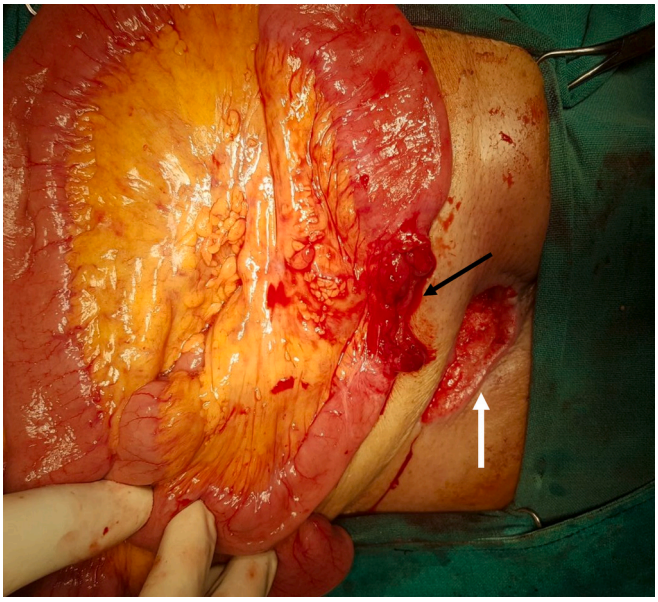

Fig. 4. Intraoperative image showing a perforated ileal segment, which was entrapped in the femoral canal (black arrow) and wound over the groin region (white arrow).

setting of systemic diseases such as Crohn's disease, radiation enteritis, malignancies, trauma, and ischemia [9]. Spontaneous fistula between the affected bowel and necrotic skin, creating an enterocutaneous fistula in the groin as a result of a femoral hernia, is very rare and is reported in only a few case reports [1].

Our case closely mirrors the presentation of Richter's type of femoral hernia in the elderly, leading to incomplete obstruction and subtle cardinal signs of bowel obstruction. She lived in a remote village away from her son and daughter and only sought medical attention after a rupture of the swelling in her groin (7 days after the onset of symptoms). These factors together contributed to delayed diagnosis and complications in the form of ECF.

The diagnosis of Richter's type of femoral hernia is extremely difficult because of its silent clinical features. Detailed history and clinical examination should be obtained, and a high index of suspicion should be kept in elderly females presenting with a groin wound, as it might be the only manifestation of complicated femoral hernia with ECF (as in our case) [8]. The evolution of ECF in the setting of femoral hernia is associated with increased incidence of sepsis and mortality, especially with high output fistulae (>500 ml/24 h) [10]. The differential diagnosis includes ruptured inguinal abscess, suppurative inguinal lymphadenopathy, and inguinal necrotizing fasciitis [11]. Both Ultrasonography of the groin and contrast-enhanced CT of the abdomen and pelvis have a high degree of sensitivity and specificity for the detection of femoral hernia. CT provides better visualization in patients presenting with incarceration or strangulation, or when there is diagnostic uncertainty. It not only identifies bowel obstruction but also demonstrates a loop of bowel within the right femoral canal [2]. Fistulogram with urograffin or a Magnetic resonance fistulogram is the investigation of choice for ECF, as they can delineate the source of fistula, the length and width of the fistula, and also the etiology of the fistula [7].

Treatment of ECF comprises using the SOWATS regimen as proposed by the Maastricht group. It consists of the following components: Sepsis control, Optimization of nutritional state, Wound care, Anatomy (of the fistula), Timing of surgery, and Surgical strategy [10]. Our patient was managed according to this guideline, and she had an uneventful recovery. Surgical management of femoral hernia can be done by both open and minimally invasive approaches. The key principles include dissection and reduction of the hernia sac, followed by closure of the defect or obliteration of the defect with or without the placement of a prosthetic mesh [12]. Open lower midline laparotomy was preferred in our case for better exposure, peritoneal lavage, and resection and anastomosis. The prosthetic mesh was avoided in our patient because of a contaminated field [13].

The mortality of groin hernia repair in the elderly in elective and emergency surgery is 0.1 % and 1.7–7 % respectively [3]. It can rise as

Table 1
Timeline of events.

Day/time	Event	Details
7 days before presentation	Symptom onset	Patient developed lower abdominal pain and painful groin swelling
4 to 7 days before presentation	Progression of symptoms	Bilious vomiting with intermittent passage of flatus and stool
3 days before presentation	Formation of ECF	Spontaneous rupture of swelling with discharge of foul-smelling purulent material.
Day 0	Presentation to the emergency department	CECT abdomen and pelvis: Small bowel protruding through the right femoral canal with a few air foci and an obvious femoral defect
Day 0	Stabilization followed by emergency exploratory laparotomy	• Right Richter's femoral hernia • Bowel involved: Ileum, 90 cm proximal to IC junction with 3*3 cm2 perforation at anti-mesenteric border • Resection and end-to-end anastomosis • Primary repair of femoral defect with non-absorbable suture • Debridement of open groin wound
1st and 2nd POD	Postoperative care	• NG tube removed, ambulation • Sips feeding started
3rd POD	Diet progression	Liquid to soft diet
4th POD	Continued recovery	• Tolerated normal diet • Drain was removed
6th POD	Discharge	Patient was discharged with stable vitals Advised for daily dressing of the groin wound
10th POD	Wound closure	Secondary suturing of the open groin wound
2nd-week follow-up	Early postoperative check	No complaints, well-healing midline wound
3rd-week follow-up		Completely healed midline and groin wound
3-month follow-up	Midterm outcome	Asymptomatic, no signs of recurrence

high as 5–15 % even in experienced centers in cases of ECF [7]. The reported morbidity of the surgery is up to 50 % [3]. The relatively smooth postoperative course in this 90-year-old is likely attributable to prompt surgery and attentive perioperative care, underscoring that even frail patients can benefit from timely intervention. The recurrence rate for non-mesh and mesh repairs is 6.5 % and 1.9 % respectively. Similarly, it is 3.7 % and 0.71 % in the emergency and elective repair, respectively [14].

Strengthening community-level healthcare through regular outreach programs, mobile clinics, telemedicine, and training community health workers to recognize early signs of hernias is crucial, especially in the elderly population. Implementing education campaigns on timely health-seeking behavior, access to basic diagnostic tools, and the establishment of a structured referral pathway helps in timely surgical intervention, reducing such complications.

A comparison of key features from similar published cases—including demographics, presentation, imaging, surgical approach, and outcomes—is summarized in Table 2. This contextualizes our findings and highlights the consistent role of early diagnosis through detailed history and clinical examination, use of contrast-enhanced CT in atypical groin presentation with a high index of suspicion, early surgical intervention, and vigilant postoperative care, especially in the elderly population.

4. Conclusion

Spontaneous perforation of a femoral hernia leading to an enterocutaneous fistula is an extremely rare and life-threatening complication, especially in elderly patients with delayed presentation. Early diagnosis should be made through high clinical suspicion and appropriate imaging in patients presenting with a groin wound with abdominal symptoms. Stabilization followed by timely surgical intervention can lead to favorable outcomes even in frail, high-risk individuals. This case highlights the importance of early recognition and aggressive multidisciplinary management of complicated femoral hernias to reduce morbidity and mortality.

Table 2
Comparative analysis of ECF secondary to incarcerated femoral hernia based on patient's demographics, symptoms, surgical approach, intraoperative findings, and outcomes.

Case reference (year)	Patient demographics	Presenting symptoms/duration	Surgical approach	Intraoperative findings	Outcomes/follow-up
Kumar et al. (2012) [15]	60-year-old male	Spontaneous fecal discharge from the left groin; no peritonitis	Exploratory laparotomy through lower midline incision	Perforated ileal segment	Uneventful; no recurrence at 10 months
Xia et al. (2016) [16]	77-year-old male	24-day history of an enlarging groin mass Managed as an inguinal lymphadenitis 4 days of fistula output; no obstruction and peritonitis	Laparoscopic exploration	Richter's femoral hernia with partial ileal wall defect	Uneventful
Chalise et al. (2021) [8]	72-year-old female	Irreducible right groin swelling × 10 days Spontaneous rupture with discharge of pus and fecal material 3 days before presentation, no obstruction/ peritonitis	Exploratory laparotomy through lower midline incision	Perforated ileal loop 20 cm from the IC junction	Uneventful; discharged POD5; doing well at follow-up.
Anumolu et al. (2022) [1]	65-year-old female	Swelling in the right groin for 2 years, became red, painful and ruptured 3 days prior with feculent discharge, no obstruction/ peritonitis.	Right inguinal approach	Ileal loop in the femoral canal with 15 ml of pus, perforation 20 cm from the IC junction.	Uneventful; no recurrence at 10 months
Cheng et al. (2022) [17]	80-year-old female	Swelling in the left groin for 2 weeks. Initially managed as inguinal lymphadenitis. Later, swelling ruptured with discharge of pus and fecal matter No features of obstruction and peritonitis	Exploratory laparotomy with lower midline incision	Perforated left Richter's femoral hernia	Uneventful, discharged at 14th POD, no recurrence at 12 months.
Current case (2025)	90-year-female	Painful swelling in the right groin for 7 days Spontaneous rupture 3 days before presentation No feature of peritonitis	Exploratory laparotomy with lower midline incision	Perforated Richter's femoral hernia	Uneventful, discharged at 5th POD, no recurrence at 3-month follow-up

Author contribution

1. Constructing hypothesis for the manuscript: Sabin Kumar Ghimire, Rahul Jha
2. Planning methodology to reach the conclusion: Sabin Kumar Ghimire, Rabin Kumar Ghimire, Rahul Jha,
3. Organizing and supervising the course of the article and taking responsibility: Sabin Kumar Ghimire, Rahul Jha, Rabin Kumar Ghimire, Niliza Shakya, Samrat Shrestha, Suresh Maharjan
4. Patient follow-up and reporting: Sabin Kumar Ghimire, Samrat Shrestha
5. Logical interpretation and presentation of the results- Niliza Shakya, Sabin Kumar Ghimire, Samrat Shrestha, Rabin Kumar Ghimire, Suresh Maharjan
6. Construction of the whole or body of the manuscript- Sabin Kumar Ghimire, Rahul Jha, Rabin Kumar Ghimire
7. Reviewing the article before submission not only for spelling and grammar but also for its intellectual content- Sabin Kumar Ghimire, Rahul Jha, Rabin Kumar Ghimire, Niliza Shakya, Samrat Shrestha, Suresh Maharjan

Informed consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Ethical approval

Ethical approval by the ethics committee is not required for a case report in our country.

Guarantor

Sabin Kumar Ghimire accepts the full responsibility for the work and/or the conduct of the study, has access to the data, and controls the decision to publish.

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Conflict of interest statement

The authors declare that there is no conflict of interest regarding the publication of this paper.

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