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Reduction En-masse of Inguinal Hernia with Incarcerated Bowel: Report of a Rare Case

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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Conflict of interest: None declared

Patient: Male, 76
Final Diagnosis: Reduction en-masse of inguinal hernia
Symptoms: Abdominal pain
Medication: —
Clinical Procedure: —
Specialty: Radiology

Objective: Rare disease
Background: Reduction en-masse of an inguinal hernia is a very uncommon condition in which a hernia sac migrates into the preperitoneal space containing an incarcerated bowel loop.
Case Report: A 76-year-old male patient with a 4-year history of reducible left inguinal hernia complained of abdominal pain for 2 h before admission. Contrast-enhanced computed tomographic (CT) images revealed a small bowel obstruction with dilatation from the distal jejunum to the proximal ileum and a closed-loop obstruction showing a 6.2-cm oval-shaped sac in the preperitoneal space.
Conclusions: Diagnosis of reduction en-masse of inguinal hernia is often challenging due to the infrequency of its occurrence, although it has specific CT findings. The present case report suggests that clinical and radiological awareness are very important for accurate diagnosis and management in patients with reduction en-masse of an inguinal hernia.

MeSH Keywords: Hernia, Inguinal • Intestinal Obstruction • Multidetector Computed Tomography

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/918059>

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Background

Reduction en-masse of an inguinal hernia is defined as migration or reduction of the inguinal hernia sac into the preperitoneal space, while its bowel component is stuck in the hernia sac. It is a rare condition that occurs approximately 1 out of 13 000 hernias [1]. The current incidence rate is estimated to be even lower since there has been an increase in the number of patients with previously repaired inguinal hernias [2]. Reduction en-masse is most commonly caused by forcible attempts during manual reduction. However, this condition also occurs naturally, mostly in the setting of chronic and repetitive inguinal hernia and reduction. Although it can be diagnosed by specific computed tomographic (CT) findings [3], many radiologists are not familiar with the disease because of its rarity and the lack of published radiological reports, thus making it difficult to diagnose. Herein, we report a rare case of reduction en-masse of an inguinal hernia with CT findings. We also conducted a review of the literature related to this disease.

Case Report

A 76-year-old male patient presented in the Emergency Department complaining of abdominal pain for 2 h before admission. He had a 4-year history of repeated left inguinal hernia and manual reduction, but he had no underlying disease

or surgical history. Surgical repair of a left inguinal hernia was scheduled in the next few days. At the initial physical examination there was increased bowel sound and tenderness in the whole abdomen. Laboratory studies showed a white blood cell count (WBC) of 10 000 cells/mm³ (normal range, 4000 to 10 000 cells/mm³). An abdominal radiograph showed a distended small bowel loop in the left lower quadrant. Contrast-enhanced CT images revealed a small-bowel obstruction, showing dilatation from the distal jejunum to the proximal ileum and a closed-loop obstruction showing a 6.2-cm oval-shaped sac containing a short segment of ileal loop and fluid collection in the left lower quadrant. The sac was located in the preperitoneal space and superior to the left inguinal region. The preperitoneal space is situated posteriorly to the anterior abdominal wall and anteriorly to the parietal peritoneum. There was fat infiltration and edema in the ipsilateral inguinal region. The urinary bladder was compressed by the hernia sac due to a mass effect. The narrowed neck of the hernia sac was visible and there was closed-loop obstruction with 2 points of obstruction (Figure 1A–1G). The patient underwent surgical reduction with herniorrhaphy using the transabdominal preperitoneal (TAPP) technique, and an incarcerated small bowel loop was discovered in the hernia sac, along with fluid. During the operation, the surgeon confirmed the incarcerated bowel had viability. After the surgery, the patient recovered from abdominal pain, and he was sent home on the third day after the operation.

Figure 1. Axial contrast-enhanced CT images (A–D) showing distended ileum and hernia sac (white arrows) containing bowel loop and fluid in the preperitoneal space, superior to the left inguinal area between the parietal peritoneum and the anterior abdominal wall. Two narrowing points (arrowheads) are seen at the neck of the hernia sac causing a closed-loop obstruction. The urinary bladder (asterisk) is compressed by the hernia sac due to a mass effect. Coronal CT images (E, F) and sagittal CT image (G) show the narrowed neck of the hernia sac with bird-beak appearance (dashed arrows), causing dilatation of both the proximal and entrapped bowel loop. Note that the remaining tract of the hernia sac is continuous to the left inguinal hernia (black arrows).

Discussion

Luke, in 1843, was the first to report on reduction en-masse [4]. It occurs in patients with a history of repetitive inguinal herniation and reduction causing fibrotic change of the hernia orifice to develop a narrow neck, which makes it hard for the bowel to withdraw from the sac [5]. If the inguinal hernia is forcibly reduced, the hernia sac with a trapped bowel loop can migrate into the preperitoneal space and a closed-bowel loop obstruction with incarceration remains. Early diagnosis and surgical reduction are important because the delay in prompt management can be associated with bad prognosis [6,7]. Physicians can miss this condition upon physical examination, as the hernia appears to be grossly smaller; therefore, diagnosis based on specific CT findings is crucial for appropriate management. CT images of reduction en-masse of an inguinal hernia show a specific feature, the “Preperitoneal hernia sac sign”, in which the hernia sac is located in the preperitoneal space of the lower quadrant near the inguinal fossa, comprising an incarcerated bowel [3,8]. This location is a specific finding used to diagnose reduction en-masse (Figure 2). Also, prominent soft tissue in the ipsilateral inguinal area can be another clue for diagnosis and suggests a residual hernia sac and/or inflammation caused by recurrent hernia. The combination of these radiologic findings enables the detection of reduction en-masse of an inguinal hernia.

Figure 2. Schematic illustration of a sagittal view of the reduction en-masse of an inguinal hernia shows a hernia sac in the preperitoneal space, between the parietal peritoneum and the anterior abdominal wall.

Conclusions

Here, we report a case of reduction en-masse of an inguinal hernia in a patient with a history of repeated left inguinal herniation and reductions. Although clinical symptoms can be non-specific, it is possible to diagnose with careful history taking and characteristic radiologic findings. Therefore, we suggest that clinical and radiological awareness are very important for accurate diagnosis and management in patients with reduction en-masse of an inguinal hernia.

Conflicts of interest

None.

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