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Spontaneous rupture of umbilical hernia without ascites: A case report and literature review

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Abstract

Umbilical hernia is a common condition, but spontaneous rupture with omental evisceration, particularly in the absence of ascites or other risk factors, is extremely rare. We present a case of omental evisceration through a long-standing umbilical hernia in an adult male without any underlying conditions typically associated with elevated intra-abdominal pressure. The patient was treated successfully with emergency surgery, and the postoperative course was uneventful. A literature review revealed only four other reported cases of spontaneous umbilical hernia rupture without ascites in adults. Our case adds to the limited data available and emphasizes the importance of timely surgical intervention even in stable patients. Spontaneous rupture of umbilical hernias without ascites remains a rare occurrence, and this report serves to raise clinical awareness for the management of such cases in emergency settings.

Keywords:

Emergency surgery, hernia management, omental evisceration, spontaneous rupture, umbilical hernia

Introduction

According to the European Hernia Society (EHS), an umbilical hernia is defined as a primary hernia centered in the umbilical ring, extending from 3 cm above to 3 cm below the umbilicus.^[1,2] It is the second most prevalent type of hernia in adults after inguinal hernia.^[3] Typically, it presents as a bulge at the umbilicus. The hernia sac contents often include preperitoneal fat, omentum, or small intestine, either individually or in combination, with rare involvement of the large intestine.^[4] There have also been instances of umbilical hernia containing inflamed and perforated appendices.^[5,6] The spontaneous rupture of untreated umbilical hernia is generally rare, more commonly found in the pediatric age group.^[7] The eviscerated content is usually the bowel but can also include other intra-abdominal organs such as the bladder.^[8]

In adults, it is commonly associated with ascites due to liver cirrhosis.^[9,10] Factors contributing to rupture in such cases include local trauma and sudden increases in intra-abdominal pressure because of events such as coughing or vomiting.^[11] Some cases have reported spontaneous perforation associated with pregnancy.^[12] Spontaneous evisceration of inguinal hernia was reported to be associated with COPD.^[13] In our present case, there was no evidence of any condition that would suggest elevated intra-abdominal pressure.

Case History

A gentleman in his fifties presented to the emergency department with a spontaneous evisceration of the omentum through a long-standing umbilical hernia, which had been ongoing for 3 days. The patient had a body mass index (BMI) of 31 kg/m² and no history of drug or alcohol abuse or previous abdominal surgery. On examination, the

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Figure 1: Eviscerated omentum through the umbilical hernia

patient was alert, oriented, and hemodynamically stable, with minimal abdominal pain. A large portion of the omentum was eviscerated through thin, lacerated, and partially granulated umbilical skin [Figure 1]. Laboratory investigations revealed normal liver and renal function, as well as a normal coagulation profile, with only mild leukocytosis. An emergency operation was performed in the evening during the on-call shift. After thorough sterilization of the surgical field and the protruding viscera, an elliptical incision was made around the umbilical hernia. Dissection of the sac was performed through the subcutaneous tissue down to the level of the fascial hernia defect [Figure 2]. An omphalectomy with resection of the eviscerated omentum was carried out. Dissection of the resected specimen is shown in this video [Video 1]. The remaining healthy omentum was retained within the abdominal cavity. The inspected bowel loops were normal, with no adhesions, bleeding, ascites, or remarkable intra-abdominal pathological findings in the explored area. The fascial defect was approximately 4cm in size [Figure 3]. It was classified as midline, umbilical, and large according to the EHS classification for primary abdominal wall hernia.^[1,2] The defect was

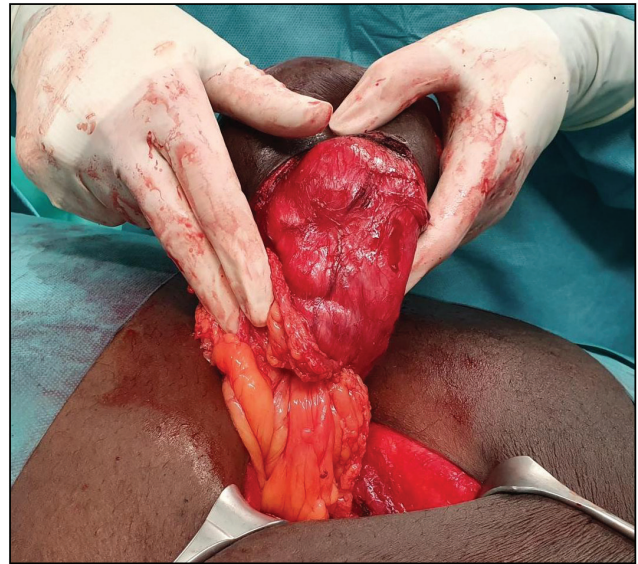


Figure 2: Dissection of the umbilical hernia sac

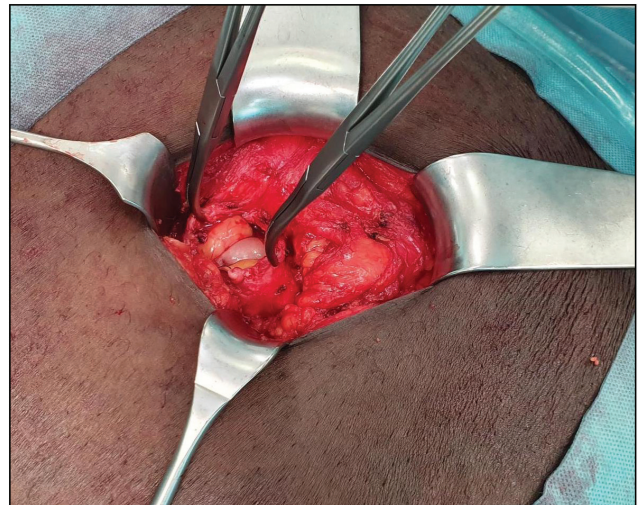


Figure 3: Fascial defect after resection of the eviscerated omentum

closed with simple interrupted sutures using a non-resorbable material [Figure 4]. No further dissection of the abdominal wall planes was needed, and no mesh was placed. The patient was extubated on the table and transferred to the normal ward. The postoperative course was uneventful, and the patient was discharged on the third postoperative day.

Discussion

We conducted a search in PubMed and Google Scholar using the keywords “umbilical hernia” and “evisceration,” including non-English publications translated using Google Translate. Inclusion criteria were primary umbilical hernia cases, patients older than 18 years, cases involving spontaneous rupture, articles published in any language, and studies with

available full text or detailed abstracts online. We excluded cases reporting pediatric age (under 18 years), patients with known umbilical hernia since birth, patients with ascites, pregnant patients, patients with liver cirrhosis, hernias other than primary umbilical, cases with history of trauma to the abdomen, articles with no available abstract online, and studies focused solely on hernia repair techniques without discussing spontaneous rupture. According to the inclusion and exclusion criteria, we found only four reported cases of spontaneous rupture of umbilical hernia without ascites.^[14-17] We analyzed these cases and compared them to our case [Table 1].

The patient cohort consisted of three men and two women, with a common age range of 40–50 years. Four patients had a BMI >30 kg/m², indicating obesity. Including our case, all patients presented to the emergency department in a stable condition. In the four

additional cases reviewed, the herniated organ was the small intestine. In contrast, the herniated organ in our case was the omentum. Other documented cases of omental evisceration have been reported in patients with ascites.^[18,19] Two of the reported cases had a clear history of local trauma, such as scratching or the application of hot compresses. In four of the patients, the umbilical hernia had been present for more than 5 years. For two of the patients, there was an identifiable inciting event that led to the evisceration, such as a coughing episode or physical exertion at work. In all patients, placing a mesh was avoided, possibly due to the risk of contamination. Although mesh repair in an emergency setting can be considered according to the current European and American Hernia Societies guidelines,^[2] a patient- and hernia-characteristic tailored approach is only suggested but not recommended, due to weak evidence in this matter. In our case, there was a high risk of infection as the perforated omentum was exposed for 3 days. In all reported cases, the postoperative course was smooth without complications.

Umbilical hernia is a common condition, but spontaneous rupture with evisceration, particularly in the absence of ascites, is exceedingly rare. This case adds to the limited body of literature on such occurrences, highlighting the unique presentation of omental evisceration without any underlying conditions that typically elevate intra-abdominal pressure. The absence of typical risk factors such as liver cirrhosis or ascites underscores the need for heightened clinical awareness and vigilance in managing long-standing umbilical hernias, even in seemingly uncomplicated cases.

This article has several limitations. One significant limitation is the loss of follow-up, which prevents a comprehensive understanding of the long-term outcomes for the patient. Additionally, the rarity of the condition and the limited number of similar cases in the literature restrict the generalizability of the findings. Further research is needed to better understand the mechanisms and risk factors contributing to spontaneous rupture of umbilical hernias in adults without ascites.

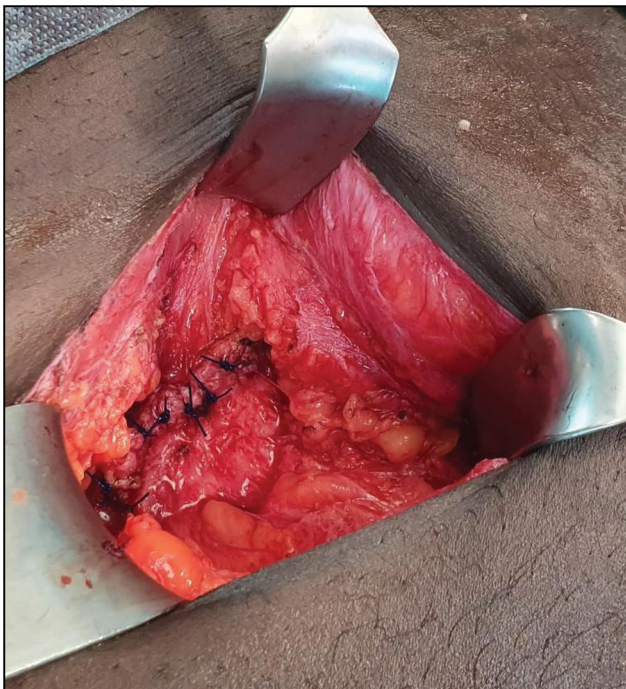


Figure 4: Closure of the fascial defect

Table 1: Detailed comparison of spontaneous umbilical hernia rupture cases without ascites

Author	Year	Age (years)	Sex	Comorbidity	BMI (kg/m ²)	Local trauma	Duration of known umbilical hernia	Inciting event	Eviscerated organ
Takehiro K <i>et al.</i> ^[14]	2013	88	Female	Not known	20	Scratching	50 years	Not mentioned	Small bowel
Limbu Y <i>et al.</i> ^[15]	2020	43	Female	Hypertension	41	Hot bag compression	5 years	Not mentioned	Small bowel
Bolívar-Rodríguez MA <i>et al.</i> ^[16]	2020	46	Male	Not known	40	Not known	6 years	Physical exertion at work	Small bowel
Grappolini N <i>et al.</i> ^[17]	2024	50s	Male	Alcoholism and drug abuse	30.1	Not known	Not mentioned	Coughing episode	Small bowel
Our case	2024	50s	Male	Not known	31	Not known	Many years	Non	Large proportion of the omentum

Identifying predisposing factors and developing preventive strategies are key to reducing the risk of this rare but serious complication. Timely surgical intervention, especially for long-standing umbilical hernias, is crucial to avoid events like evisceration. Clinicians should prioritize prompt scheduling of procedures for patients with risk factors or early symptoms. This case, alongside a comprehensive literature review, highlights the importance of individualized care and underscores the need for ongoing research to enhance clinical approaches for complex hernia management.

Author contributions

Zaid Malaibari treated the patient clinically, drafted and critically revised the manuscript. Razaz Aldemyati performed the literature search and data analysis, drafted and critically revised the manuscript.

Ethical policy and institutional review board statement

The study was performed in accordance with the Declaration of Helsinki.

Declaration of patient consent

Written informed consent was obtained from the patient for anonymous use of data for publication and registry. A copy of the written consent is available for review upon request.

Data availability statement

All data supporting the results reported in the article is available for review on request.

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Conflicts of interest

There are no conflicts of interest.

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Not applicable.

List of Abbreviation

EHS European Hernia Society

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