

## Case Report

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### \*Corresponding Author

Mathieu Bours, University of Liège,  
Liège, Belgium, Rue du Parc 29, 4800  
Verviers, Belgium, Tel: +32 48445  
1698, E-mail: mathieu.bours@chrve  
rviers.be

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## A Rare Case of Umbilical Hernia with Gastric Involvement

Mathieu Bours<sup>1\*</sup>, Stanislas Laurent<sup>2</sup> and Boyadzhiev Dimitar<sup>3</sup>

<sup>1</sup>University of Liège, Liège, Belgium.

<sup>2</sup>General Surgery Department, Verviers Hospital, 4800 Verviers, Belgium

<sup>3</sup>Radiology Department, Verviers Hospital, 4800 Verviers, Belgium

### Abstract

Umbilical hernia containing a huge part of the stomach is unusual. Such a singular case is presented and discussed. This fact must be kept in mind by surgeons as it always needs a surgical management to repair the hernia and to avoid complications. Diagnosis can sometimes be difficult cause signs and symptoms are non-specific and really frequent. Late delay in management of this hernia can unfortunately result in stomach incarceration with severe consequences such as gastric necrosis.

**Keywords:** Case Report; Umbilical Hernia; Stomach Involvement; Umbilical Hernia; Abdominal Pain

## Introduction

Umbilical hernia is one of the most common abdominal pathology. If the presence of small bowel and colon is really frequent into it, gastric involvement is extremely rare [1]. Signs and symptoms as vomiting episodes, abdominal pain and progressive lack of appetite can be non-relevant and related to many others causes.

## Case Report

A 93 year-old-woman came to the emergency service for impaired general condition while living herself at home. She was initially sent by her general practitioner for a suspicion of urinary infection, outstanding with classic treatment (Furadantine). There wasn't any history of recent infection (either urinary, pulmonary or other).

Her medical history consists of a stroke in 2013, chronic high blood pressure (treated as mentioned below), dyslipidemia (untreated), and a chronic heart failure. In term of chirurgic history, she underwent 2 operations for hip prosthesis (bilaterally).

Usual medications of the patient consist of:

VIT D (once a week)

Asaflow 80mg daily

Coversyl 10mg daily

Burinex 10mg daily

Paracetamol if needed

Bellozal if needed

At her arrival, patient described diffuse abdominal pain and digestive discomfort for few days. The first clinical examination performed at the emergency did not demonstrated any particular abdominal abnormalities, with a tense, tender abdomen. By that time, we did not palp any abdominal mass and there wasn't any visible bulge externally. A CT-scan per-

formed that day at the emergency showed an umbilical hernia with distal ileum and right colon into the hernia sac (figures 1, 2, and 3). Highest measurement of the collar is 55 mm and highest diameter of the sac is 156 mm. That CT-scan was the only imaging realized at the emergency.

A blood test was obviously realized at her arrival. What caught our attention were:

A leukocytosis at  $12.10^3/\text{mm}^3$ ,

CRP at 165, 67 mg/dl

A poor renal function with MDRD at  $10\text{ml}/\text{min}/1.73\text{m}^2$ , creatinine at 4,4mg/L and potassium at 5, 1 mmol/L

The rest of the blood test was normal.

Taken into account the initial suspicion of urinary infection, a urine test was also conducted and reported a hematuria with 24 288 cells/mL and a leukocyturia with 113 322 cells/mL.

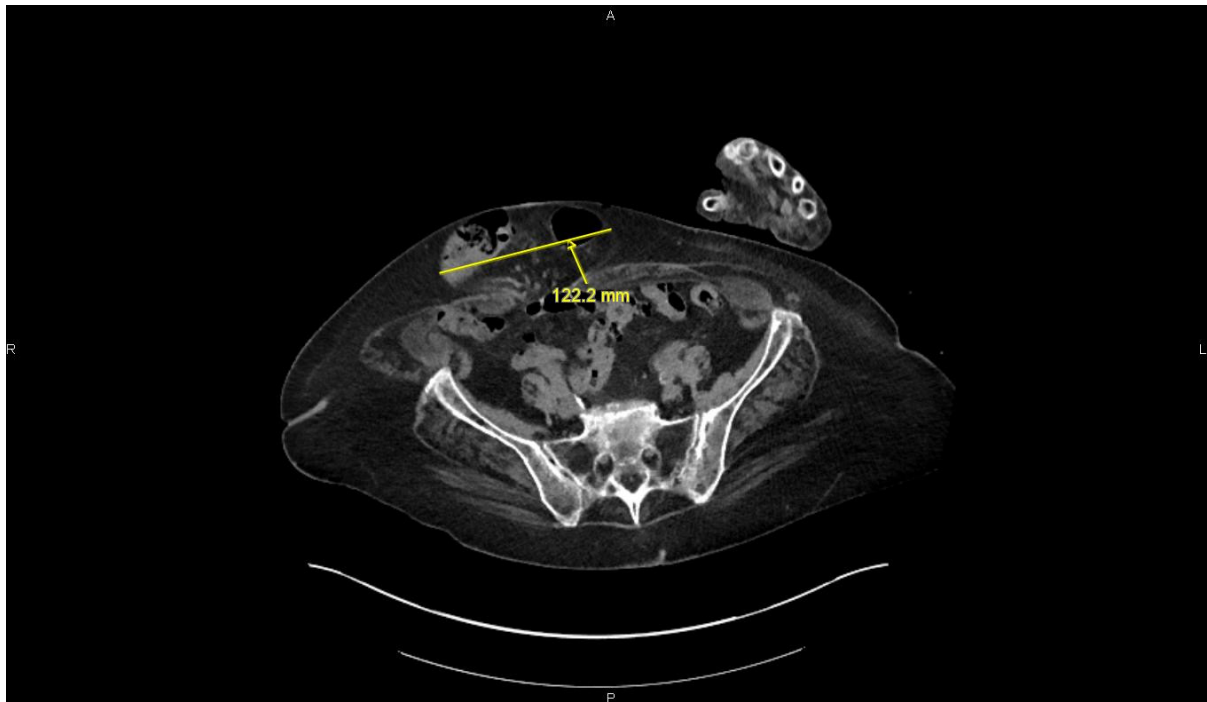
Patient was nevertheless hospitalized in geriatric service given her poor global shape and social situation.

After 9 days of hospitalization, going along with increased abdominal pain, abdominal distension and fecal vomiting a second CT-scan was performed. That time, it showed a huge umbilical hernia with still distal ileum, right colon, but also large gastric involvement (Figures 4 & 5). The gastro-duodenal junction appears to be located at the collar level, with a relatively marked folding at this site. The stomach is distended.

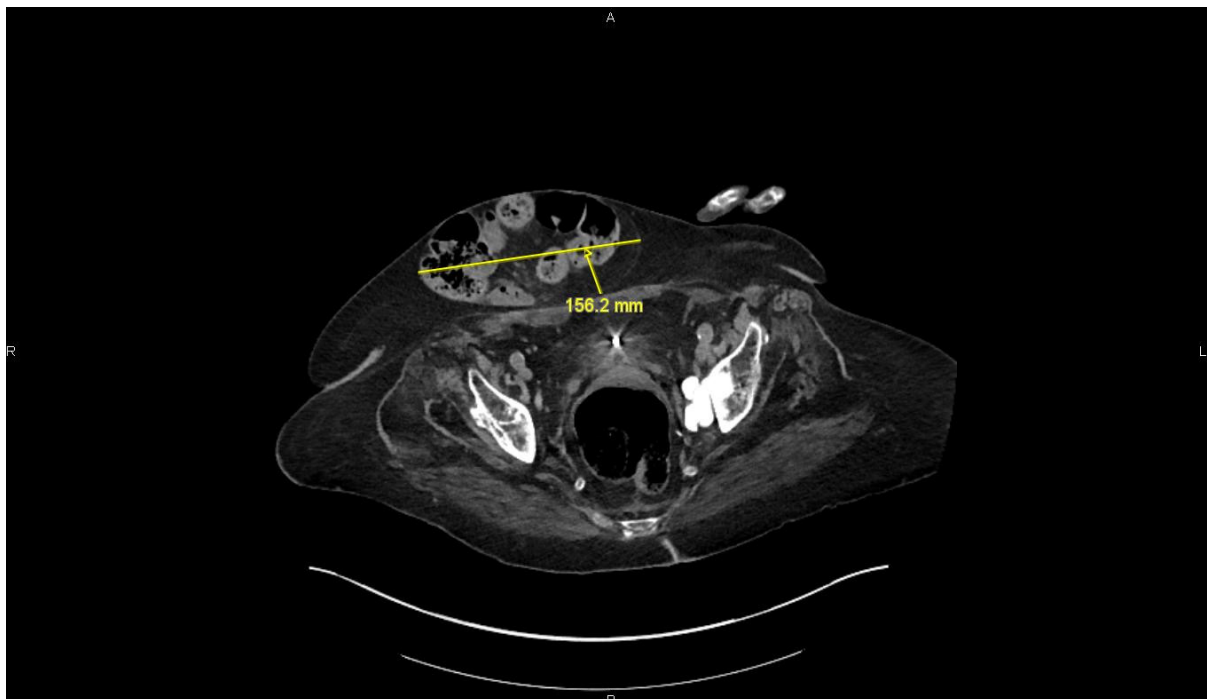
None abdominal echography was performed during the patient's stay at the hospital.

The patient was referred to the surgical team and the decision to perform a surgical repair of the hernia was made in agreement with the patient. In this case, as the content of the hernia sac was healthy and viable nothing had to be resected. The repair was reinforced with an absorbable polyglactin mesh (coated Vicryl). The operation was performed under general anesthesia, operation time was about 1 hour and we did not face any surgery difficulties.

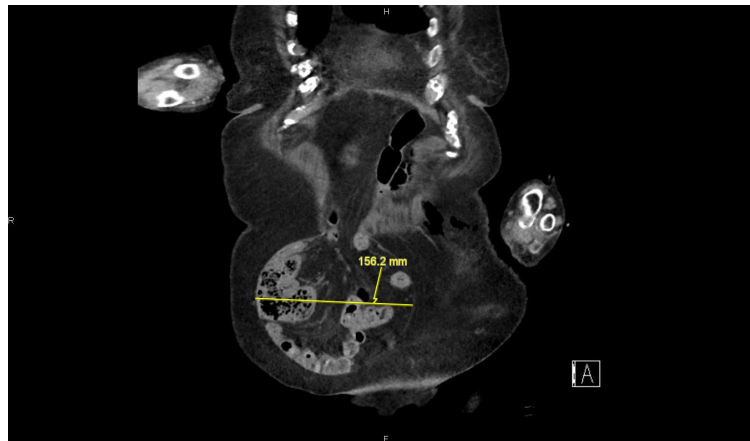
After that, our patient had a favorable post-operative evolution. She presented minor pain at day one but analgesia was rapidly controlled with medications.



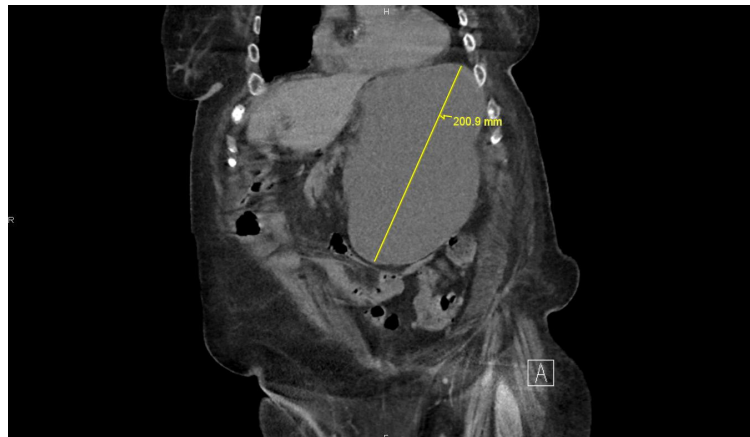
**Figure 1:** Umbilical Hernia without Stomach Involvement (22/03/2025)



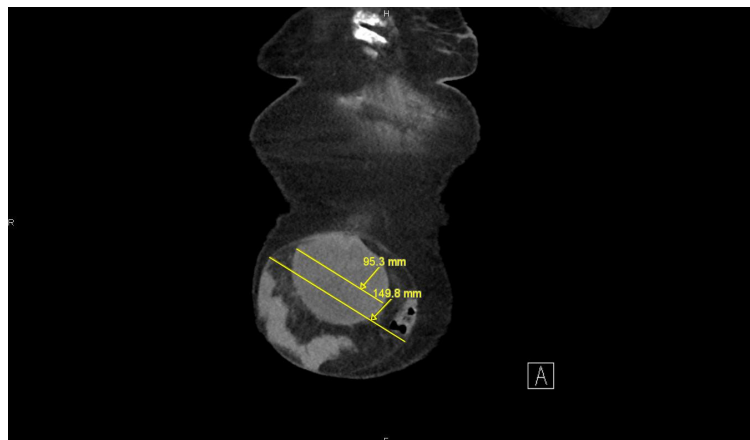
**Figure 2:** Umbilical Hernia without Stomach Involvement (22/03/2025)



**Figure 3:** Umbilical Hernia without Stomach Involvement (22/03/2025)



**Figure 4:** Huge Stomach Distension (01/04/2025)



**Figure 5:** Umbilical Hernia with Stomach Involvement (01/04/2025)

## Discussion

Umbilical hernias are seen mostly in middle-aged and elderly females in whom intra-abdominal pressure from pregnancy or obesity causes defects at naturally weak areas. A study realized in 2011[1] mentioned that herniation of the stomach through the umbilicus has only been reported twice over the past 40 years [2, 3]. The rarity of involvement of the stomach in umbilical hernia is explained by the stomach's relatively fixed position in the abdomen through its ligamentous attachments. These attachments include the gastro-hepatic ligament along the lesser curvature, the gastro-colic and gastro-splenic ligaments along the greater curvature, and the gastro-phrenic ligament along the posterior aspect of the fundus [4]. Also, the oesophagus holds the stomach in place superiorly, and the fixed duodenum tends to anchor it inferiorly. Thus, the stomach is fixed in position compared to the relatively mobile small bowel, transverse and sigmoid colon, which are more frequently involved in abdominal wall hernias [4].

Imaging is able to characterize hernia morphology pre-operatively including its precise location, content and its volume. Imaging can also determine "loss of domain", which describes the ratio between the volume of the hernia and residual abdominopelvic cavity volume [5].

Previously, while physicians suspected an abdominal wall hernia, plain radiography or barium studies were predominantly used to confirm [2]. Currently, CT-scan is the accepted standard imaging modality in the diagnosis and pre-operative assessment of epigastric and umbilical hernias with advantages including the more accurate identification of the hernia contents, recognition of associated masses (if present) and detection of complications (incarceration, strangulation, and obstruction). However, the supine, static nature of the CT examination can result in undetected hernias that are instead apparent clinically or sonographically. Thus, dynamic abdominal US is increasing in popularity as an imaging method for detection of this type of hernia. Overall, dynamic US of the abdominal wall has proven to be an accurate alternative to CT-scan for detection of ventral hernias, with a sensitivity and spe-

cificity of 98% and 88%, respectively [7].

But these numbers given, a systematic review of studies of ventral hernia repair found that both pre- and post-operative imaging are used rarely [5]. In fact, based on the analysis of literature (31 RCT, 32 prospective cohort studies and 95 retrospective), only 2% of patients undergo a pre-operative imaging (CT-scan predominantly for 63%) and 4% a post-operative (mainly in order to detect recurrence of the hernia) [5].

It's well known in abdominal surgery that long term treatment of every symptomatic hernia should be surgical [7]. The only question is "What's the best timing to operate"?

Elective surgery must be considered in case of complete asymptomatic patient, when hernia is discovered incidentally or if a mass (umbilical, inguinal,) is palpated but without any pain or discomfort for the patient.

In the other hand, for symptomatic patient (as presented in this case) and if there is a complication going along with the hernia (strangulation, incarceration, occlusion, etc), surgery must be done in emergency. As elderly patient could frequently be less symptomatic than young people, pre-operative imaging is even more important to confirm or exclude the presence of these complications. The mortality rate in elderly patients after surgery is 3.5-times that of the adult sample, and may be attributed to the weakening of the abdominal wall in elderly patients [8]. In order to avoid emergency surgery (and the higher rate of mortality/complications going along) -particularly in elderly population- a good clinical examination and a CT-scan performed as soon as possible are keys for quick diagnosis.

The particularity of this case and what makes it even more interesting is that our patient switched from a situation of elective surgery on day 1 (22/03/2025) to a situation of immediate surgery on day 9 (01/04/2025). Without any gastric involvement and distention (causing fecal vomiting, pain and risk of major complications) the repair of the primary hernia could have been done few days or weeks after her arrival at the emergency.

## Conclusion

Stomach involvement in umbilical hernia is extremely rare. Abdominal pain, feeding fear, nausea and vomiting are usually the first signs and symptoms to appear. Even if manual reduction of the hernia is sometimes a temporary solution, surgery is always the only definitive solution. Depending of the situation, the surgery is either elective or made in emergency. For the huge majority of patients, CT-scan is still the “gold standard” radiologic examination to diagnose umbilical hernia and provide a good description of its characteristics in the same time.

## Funding Information

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## Conflicts of Interests

Not applicable

## Consent to Participate

Consent has been received from the patient mentioned in this

case report.

## Written Consent for Publication

All 3 authors give their consent for publication.

## Availability of Data and Materials

Data are available and can be shared.

## Code availability

Not applicable

## Author's Contributions

Bours Mathieu: - 1<sup>st</sup> Author of the manuscript, made the research and the writing part.

Laurent Stanislas: - 2<sup>nd</sup> Author Overlooked and helped in the manuscript redaction.

Boyadzhiev Dimitar: - 3<sup>rd</sup> Author Helped in the imaging analyze and provided the best CT scan images.

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