

# MJA

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## INTERNAL INCARCERATION OF THE SMALL INTESTINE

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### ABSTRACT

Incarcerated hernia is often accompanied by strangulation and subsequent necrosis of the strangulated tissue. Incarcerations through visible natural openings in the abdominal wall or at the incision sites of previous surgeries, are much easier to diagnose. In contrast, incarcerated internal hernias with the same danger and risk to the patient are often much more difficult to diagnose preoperatively.

Often, computed tomography cannot confirm internal incarceration with complete certainty (3). Such a diagnosis should be suspected especially in any patient who has had previous abdominal surgery and it occurs in a state of intestinal obstruction or acute abdomen, with no signs of pneumoperitoneum.

This case report describes a 73-years-old male with internal incarcerated hernia with small intestine obstruction, who was found an opening – defect of the gastrocolic ligament in which was herniated and strangulated part from the small intestine.

**Key Words:** *abdominal surgery, ileus, internal incarceration, intestinal obstruction, strangulation,*

### Introduction

During the strangulation of the small intestine, its circulation is disturbed and its vitality is endangered. Firstly, venous return is compromised. As a result, capillary pressure increases, and loss of intravascular fluid and erythrocytes occurs in the intestinal wall (edema) and its lumen. Deterioration of the arterial blood supply leads to intestinal infarction. Translocation of anaerobic microorganisms and their toxins follows. The strangulation morbidity in internal incarceration is much higher than in external incarceration due to much larger absorbent surface. Potential sites of internal incarceration include the Winslow foramen, an opening in the mesentery, an opening in the mesocolon transversus, a congenital or acquired diaphragmatic hernia, and of course, postoperative unclosed openings in the meso or some intra-abdominal ligaments (1).

When the patient complains of severe pain, which is often resistant to analgesics, it is indicative of ischemic pain that is also present during strangulation. For example, such pain is not found in paralytic ileus. Strangulation may be associated to elevated levels of K, amylase and lactate dehydrogenase. There may be leukocytosis or leukopenia. Clinical symptoms of strangulation include:

- Persistent pain despite conservative treatment,
- Localized pain in the abdomen,
- Shock (4).

In the case of intestinal obstruction, conservative treatment should not be longer than 72 hours, but in the case of strangulation, surgical treatment should be instituted very soon. In the case described below, due to an opening in the gastrocolic ligament, the small intestine-penetrated through it, filled the omental bursa, and then pierced the hepatogastric ligament. After penetrating the hepatogastric ligament, it passes along the hepatoduodenal ligament, incarcerates, and then strangulates, bringing the patient to an acute abdominal condition (2).

### Case Report

A 73 years old patient, was brought to our clinic as an emergency case, with severe abdominal pain, especially epigastric. He was also afebrile and tachycardic with a pulse of 108. The pain started that day and was sudden and persistent, followed by multiple vomiting. On palpation the abdomen was tense, especially painful in the epigastric region. No contents were obtained during nasogastric tube placement. From laboratory findings, there were elevated leukocytes 12.70 (reference value 3.5-10.00). Elevated platelets 568.00 (reference value 150.00-390.00). The other values of the parameters were normal (even CRP).

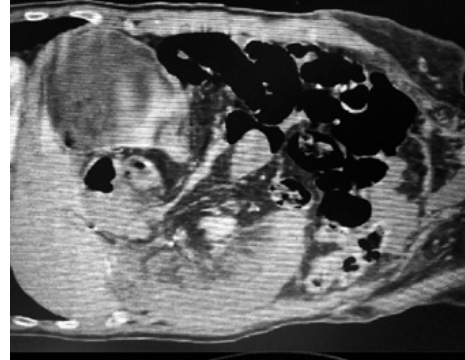
Anamnestic, he has previously had problems with epigastric difficulties and the appearance of heartburn. The patient was operated more than 20 years ago from acute appendicitis, and immediately afterwards from ileus, with a partial resection of the small intestine and T-T anastomosis (we noticed the same during the operation).

We made native abdominal X-ray and CT of the abdomen – non contrast and contrast enhanced. On the CT a cluster of dilated small bowel loops with wall thickening was seen, feces sign and mesenteric edema. After application of contrast medium, the thickened wall was with lack of enhancement (6). There was also ascites in the abdominal cavity (transudate).

Figure 1



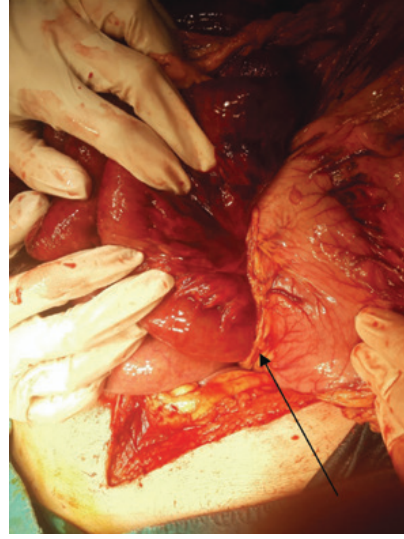
Figure 2



The first picture shows a group of dilated small bowel loops with an edematous, thickened wall and mesenteric edema, and lack of enhancement of the wall after application of contrast. The same can be seen in the second image with a picture of a distended stomach and ascites.

So, we decided on surgery without a definite preoperative diagnosis. On operation was encountered a gangrenous altered small intestine about 1.5 m long as a result of its strangulation. That part of the small intestine was resected and was made T-T anastomosis. The opening of the gastrocolic ligament was sewn (closed). A lavage of the abdominal cavity was performed and a drain was placed in the Douglas. More than 1 m from the small intestine, mostly the jejunum, remained after resection. The postoperative course went smoothly, without complications and the patient was released home on the 9th day postoperatively, with a proper diet and stool.

**Figure 3.** The picture shows the part of the small intestine where it penetrates the hepatogastric ligament and strangulates



**Figure 4.** The image shows where the small intestine enters the gastrocolic ligament and omental bursa.



**Figure 5.** Gangrenous changes in the small intestine after release from strangulation.



**Figure 6.** Resected part of the small intestine, mostly ileum (about 1.5 m).



## Discussion

Internal hernias can be the cause of acute, life-threatening conditions, and often with difficulty, a preoperative diagnosis can be made with certainty. Therefore, in any patient with an acute abdomen, especially if he has previously had abdominal surgery, the possible cause of internal hernia and its incarceration should be considered. The importance of the presence of congenital

openings in the mesentery, abdominal ligaments or non-closure of newly created openings in the mesentery, omentum or other intra-abdominal openings of ligaments during surgery can also be confirmed in this case (1. 2. 5). In addition, it turns out that even after a very long period (in which the body compensates), the problem of internal incarceration can occur, followed by all possible complications.

The condition of the acute abdomen does not always allow enough time for a reliable diagnosis preoperatively and as in our case the operation was necessary without a definite preoperative diagnosis. In this case, it was assumed that during one of the previous two surgeries that the patient had several years ago (probably the second), an iatrogenic opening was created in the gastrocolic ligament and this led to the small intestine entering it after a long period and gradually leading to a state of incarceration, ileus and strangulation. Of course, in such emergencies, one should not wait too long to make a reliable diagnosis, but an urgent operation is needed, which in this case was performed about 3.5 hours after the arrival of the patient in our institution.

### Conclusion

Incarceration of internal hernias are rarer cases in clinical practice and their preoperative diagnosis is difficult to establish with certainty. They are often accompanied by strangulation. In order to maximally expect a good outcome of the disease, short preoperative preparation of the patient and prompt surgical intervention are required.

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Review articles, case reports, therapeutic and technological innovation, discussions, critiques, impressions from meetings, information for international conferences and reviews of new books or variate may be written in different sequences and manners.

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The title of the manuscript written in CAPITAL LETTERS.

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### 3. Books

Brown, D.L. Spinal, epidural, and caudal anesthesia. In R.D. Miller Miller's Anesthesia, 6th edition. Philadelphia: Elsevier Churchill Livingstone; 2005.p 98-198

### 4. Doctoral or master thesis

Jelisavac Cosic S. Urokinazni I tkivni aktivator plazminogena i njihov inhibitor u raku dojke (Master thesis). Zagreb: Farmaceutsko-biohemijski fakultet 2004, p.50

### 5. Electronic reference

Dag Stat. Mackinnon A. Available from: <http://www.mhri.cdu.au/biostats>. Accessed May 5th 2006.

Webster NR. The anaesthetist as peri-operative physician. Anaesthesia. <http://dx.doi.org/10.1046/j.1365-2044.2000.01722.x>

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