

# RARE CAUSES OF MECHANICAL BOWEL OBSTRUCTION IN ADULTS – REVIEW OF THE LITERATURE AND PERSONAL CASES

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**Abstract:** Causes of mechanical bowel obstruction most frequently met in adults are represented by postoperative adhesions, tumours and hernias. However, there are some rare cases that can have a great diversity, representing a surgical challenge. We intend to present a series of such cases taken from both the literature and from our own casuistry. The rare causes of bowel obstruction we present were classified into tumoral disorders, rare cases of hernia, foreign bodies in the digestive tract, bowel obstruction by faulty changes in spindle or by lack of fixation of the mobile parts of the digestive tract and rare disorders of the peritoneum. The etiology of many cases of bowel obstruction is determined intraoperatively, the management of the most common ones being well standardized. However, the surgeon must take into account a possible rare etiology of mechanical bowel obstruction, requiring particular therapeutic conduct.

Bowel obstruction is found in about 20-30% of the patients hospitalized with acute abdomen, being a surgical emergency.(1)

Epidemiological data are difficult to homogenize and assess, depending on several factors, such as the studied population, hospital type or manner of address. The cause of the obstruction and the ischemic or non-ischemic mechanism directly determines the morbidity and the mortality of this condition. Overall mortality reaches 10%, reducing in the first 24-36 hours to 5-8%, as a result of surgical treatment or increasing to values of 25-30% in the absence of surgical treatment for the same period of time.(2)

**Defining the concept.** Causes of mechanical bowel obstruction most frequently met in young adult people are represented by postoperative adhesions and hernias, while the tumoral disease increases in numbers in case of the elderly. The surgical treatment for these cases is well standardized. However, there are some cases that do not follow the normal pattern of the causes of mechanical bowel obstruction, being rare and presenting difficulties in terms of both diagnosis and therapeutic attitude. These rare cases can have a great diversity, representing a surgical challenge.

We intend to present a series of such cases taken from both the literature and from our own casuistry.

**Classification.** Rare causes that determine mechanical bowel obstruction in adults were classified as follows:

1. *Rare tumours or tumours that rarely present the bowel obstruction as a complication.*

A. *Malignant.* They may be further subdivided into primary tumours and secondary tumours of the digestive tract. The primary tumours encountered are represented by gastrointestinal stromal tumours found in the stomach (3) or the small intestine (4), lymphomas or adenocarcinomas.(5) The secondary tumours of the digestive tract that determined bowel obstruction are represented by melanoma metastases in the small

bowel – our casuistry, gallbladder adenocarcinoma metastasized to the valve of Bauhin (6), duodenal relapse in the case of a retroperitoneal sarcoma (7) or ileal metastasis in a cervical neoplasia.(8)

B. *Benign.* These tumours can have inflammatory, vascular, nervous, lipomatous origin or they can develop from the cells specialized in digestion. We encountered Brunner glands adenomas (9), ectopic pancreatic tissue in the jejunum (10), ileal perineurinoma (11), ileal angioliopoma (12), lipomatous type formations in the small intestine (13) and the colon (14,15), benign tumour of the colon as a complication of Crohn’s disease – our casuistry, or even rectal endometriosis that can mimic a rectal cancer.(16)

Tumours determined the bowel obstruction in the selected cases either by stenosis of the digestive lumen due to the proliferative process or by intussusception of the affected digestive tract segment. In addition to intestinal obstruction caused by tumours that directly concern the digestive tract, there can be found cases where tumours belonging to adjacent structures determined compression on the digestive tract, one example being of a patient with multiple exostosis of the lumbar spine with anterior development.(17)

2. *Rare cases of hernia.* We subdivided them into internal and external hernias, the latter ones being classified into primary hernias and incisional hernias.

A. *Internal hernias.* There have been reports of intestinal obstruction due to a Morgagni hernia in an adult, this hernia totalling only 2% of diaphragmatic hernias and found in 95% of the cases in children (18,19), a case of peritoneal-pericardial diaphragmatic hernia (20) and a case of Bochdalek hernia associated with intestinal malrotation.(21) In our casuistry we had a case of intestinal obstruction caused by a diaphragmatic hernia, the hernia sac containing the stomach and splenic flexure of the colon (figure no. 1). In literature, there were also reports of bowel obstruction caused by left

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paraduodenal hernia (22-26), hernia through the falciform ligament (27), hernia through the small omentum (28), hernia through the gastrocolic ligament (29), hernia through the great omentum (30), paracecal hernia (31), right colic gutter hernia (32), transmesosigmoid hernia (33), hernia through the broad ligament (34;35) or Petersen hernia after gastro-jejunum anastomosis.(36)

**Figure no. 1. Diaphragmatic hernia – “Bagdasar-Arseni” General Surgery Department casuistry**



**B. External hernias.** There are cited in the literature cases of intestinal obstruction by obturator hernia (37), parastomal hernia (38), perineal hernia (39), Spiegel hernia(40), retromuscular interparietal hernia (41), lumbar hernia (42), hernia through a 10 mm port following a laparoscopic intervention (43) or supravesical hernia (44-46), having in our casuistry such a patient with a supravesical hernia associated to an acute cholecystitis (figure no. 2).

**Figure no. 2. Supravesical hernia – “Bagdasar-Arseni” General Surgery Department casuistry**

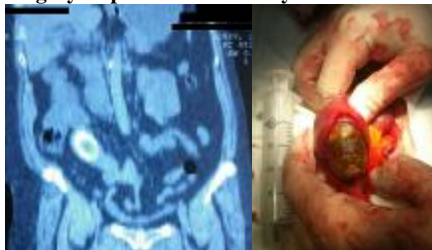


**3. Foreign bodies in the digestive tract.** The diversity of these factors that can lead to bowel obstruction is very high. We aim to classify these foreign bodies from the digestive tract into endogenous and exogenous. Endogenous factors cited in the literature are represented by lithiasis that may originate from the biliary tree – gallstone ileus (figures no. 3,4) (47,48) or by formation in the digestive tract, in diverticula such as jejunal ones.(49) In case of exogenous factors, the bowel obstruction occurs either by presence in the digestive tract of such factors that do not have any role in nutrition, by shortage in absorption of certain food (50), or by improper action of certain biomaterials resulting from medical procedures. In literature, there are cited cases of bowel obstruction due to ingestion of objects made of plastic, metal (51-54), introduction of foreign bodies into the anus, vagina, urethra (55-57) or by forming a gastrointestinal bezoar.(58-63) Other rare causes of intestinal obstruction encountered in the literature make reference to gastrostomy tube migration (64), migration of a mesh used for the repair of an abdominal hernia (65), migration of a retained gauze after various abdominal surgical procedures (66,67) or bowel obstruction due to electrodes implanted for the treatment of gastroparesis.(68)

**4. Bowel obstruction by faulty changes in spindle or by lack of fixation of the mobile parts of the digestive tract.** In this category, there are cited in the literature intestinal

intussusception, more rare in adults than children and occurring especially in cases of tumours (69), small bowel volvulus (70,71), cecum volvulus (72), intestinal malrotation (73) or the so-called “ileosigmoid knot”, in which an ileal loop and a sigmoid loop are twisted around each other.(74)

**Figures no. 3, 4. Gallstone ileus - “Bagdasar-Arseni” General Surgery Department casuistry**



**5. Bowel obstruction by rare disorders of the peritoneum.** Although the most frequent etiology of the bowel obstruction is the postoperative adhesion; there are some rare disorders of the peritoneum that can lead to occlusive type phenomena. Among them, there are cited in the literature the congenital bands (75) and a condition called encapsulated peritoneal sclerosis or abdominal cocoon in which the abdominal viscera are partially or totally coated by a fibrous membrane.(76-78)

### Conclusions:

1. Although the urgency of the bowel obstruction prevails, history of the patient should be carefully taken because it could determine the cause of the obstruction by highlighting the medical procedures performed to the patient in the past or the possible psychiatric disorders.
2. Bowel obstruction can have many causes. The etiology of many cases of bowel obstruction is determined intraoperatively, the management of the most common ones being well standardized. However, the surgeon must take into account a possible rare etiology of bowel obstruction that requires particular therapeutic conduct.
3. The surgeon should not fall into the so-called “mirage of the first damage”, knowing that two causes of bowel obstruction may associate or that a rare cause of bowel obstruction may be overlooked because of the discovery of another abdominal disorder that can explain the symptoms of the patient.

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