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A case of small-bowel obstruction from synchronous MALT lymphoma

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Abstract

Introduction: Small-Bowel Obstruction (SBO) represents a common surgical emergency entailing considerable morbidity and financial costs. Intraperitoneal adhesions are the leading cause of SBO, with postoperative adhesions responsible for most cases (60-80%). SBO in a virgin abdomen (SBO-VA) is typically caused by etiologies other than adhesions, such as malignancy, internal hernias, or bezoars. In industrialized countries, small bowel lymphomas are rare, as is its presentation as SBO.

Case presentation: We report the case of a male patient in his seventh decade, with a virgin abdomen and no medical history of chronic inflammatory or autoimmune disease, who presented to the emergency department with intestinal obstruction. Non-operative measures were initiated, leading to transient improvement. However, further worsening of the clinical condition occurred. Given the patient's virgin abdomen and lack of diagnosis, an exploratory laparotomy was conducted, revealing two stricture lesions that necessitated a double segmental small bowel resection. Pathology results confirmed MALT lymphoma in both resected lesions.

Discussion and conclusion: MALT lymphoma of the small bowel is relatively rare, as is its presentation as SBO, with synchronous lesions. The management of SBO-VA is contentious, but surgical exploration should be considered in cases of NOM failure or obstruction-related complications. In older patients with a virgin abdomen and exclusion of hernias on clinical examination, malignancy evaluation should be pursued.

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Abbreviations: ASBO: Adhesive Small-Bowel Obstruction; CRP: C-Reactive Protein; CT: Computed Tomography; ED: Emergency Department; GI: Gastrointestinal; IPSID: Immunoproliferative Small Intestinal Disease; MALT: Mucosa-Associated Lymphoid Tissue; NOM: Non-Operative Management; R-CVP: Rituximab, Cyclophosphamide, Vincristine, Prednisone; SBO: Small Bowel Obstruction; SBO-VA: Small-Bowel Obstruction in a Virgin Abdomen; VA: Virgin Abdomen.

Introduction

Small Bowel Obstruction (SBO) accounts for 2-4% of emergency department visits due to abdominal pain and is a common surgical emergency [1]. SBO is a significant cause of morbidity and incurs considerable financial costs [2]. Intraperitoneal adhesions are the leading cause of SBO, with postoperative adhesions responsible for 60-80% of cases, according to various studies. Following these, neoplasms and complicated hernias are also prominent contributors to small bowel obstruction [1,3-5].

The Gastrointestinal (GI) tract is a common site for extranodal lymphomas, accounting for 5-10% of all primary GI neoplasms [6,7]. Mucosa-Associated Lymphoid Tissue (MALT) lymphoma, a subtype of B-cell non-Hodgkin's lymphoma, represents approximately 17% of all GI tract lymphomas [6,7]. Several antigenic stimuli, such as bacterial and viral agents, autoimmune diseases, or IgG4-related diseases, activate the GI immune response and promote MALT proliferation. Prolonged antigenic stimulation may subsequently lead to the development of MALT lymphoma [6,7].

The most frequent site of MALT lymphoma is the stomach, accounting for 35% of cases, typically in response to chronic *H. pylori* infection. This is followed by the ocular adnexa at 13%, lungs at 8.8%, salivary glands at 8.3%, the colorectum at 5.2%, and the small intestine at 3.4% [7,8].

We report the case of a male patient with no history of prior abdominal surgery who presented to the Emergency Department (ED) with abdominal pain and symptoms of partial intestinal obstruction. Further investigations revealed a synchronous tumor involving both the jejunum and ileum.

Case presentation

An autonomous 69-year-old male patient presented to the Emergency Department (ED) with abdominal pain, vomiting, and decreased bowel movements emerging over the past few hours. There was no history of respiratory or urinary complaints, fever, night sweats, or weight loss. The patient reported an about eight-month history of previous similar but milder episodes of abdominal pain, tendency toward constipation, and sporadic vomiting without the need for ED visits. The patient's medical history included hypertension, dyslipidemia, and asthma. There was no reported history of previous abdominal surgery.

In the ED, the patient presented hemodynamic stability. On examination, the abdomen was distended and tympanic to percussion, with tenderness upon epigastric and periumbilical palpation, without signs of peritoneal irritation. Laboratory blood tests revealed a hemoglobin level of 15.9 g/dL, a white cell count of $15.56x10^3$/uL, with left shift, a C-Reactive Protein (CRP) level of 0.35 mg/dL, and normal lactate. Abdominal and pelvic contrast-enhanced Computed Tomography (CT) showed a small bowel obstruction, with a transition point in an ileal segment at the hypogastrium, to the right of the median line, raising suspicion of a peritoneal band (Figure 1).

A partial intestinal obstruction was assumed, and non-operative measures were initiated, including nasogastric tube insertion, intravenous fluids administration, and prokinetics. The patient showed clinical improvement, characterized by well-controlled abdominal pain, successful progression to an oral diet with tolerance, and the resumption of bowel movements.

He was discharged from the hospital on the fourth day of his in-hospital stay and was guided to an outpatient consultation.

The patient returned to the ED two days after discharge with worsened abdominal pain, vomiting, and constipation, despite symptomatic medication. He remained hemodynamically stable. Abdominal examination revealed abdominal distension, tympanic to percussion, and diffuse tenderness, without signs of peritoneal irritation, and absence of abdominal hernias. A simple abdominal x-ray showed multiple air-fluid levels (Figure 2). The patient underwent repeat abdominal and pelvic CT, revealing significant dilation of the stomach, duodenum, jejunum, and proximal ileum, with a clear transition point at the level of the hypogastrium, with an unclear etiology (Figures 3A-B).

A decision was made to proceed with exploratory laparotomy. Intraoperative findings revealed two tumors causing partial obstruction, one located about 60 centimeters distal to the Treitz angle and the other about 100 centimeters proximal to the ileocecal valve (Figures 4A-B). Two segmental enterectomies were performed, followed by primary latero-lateral mechanical anastomosis using a gastrointestinal linear stapler (100 mm).

The postoperative period was uneventful, with a gradual transition to a normal diet demonstrating oral tolerance and the reestablishment of bowel movements.

Pathology results confirmed MALT lymphoma in both resected lesions. The patient was referred to Hematology for further management. A staging thoracic, abdominal, and pelvic CT was performed, revealing multiple millimetric axillary, mediastinal, and mesenteric nodes. Upper digestive endoscopy showed no major lesions, and *H. pylori* investigation returned negative results. The patient completed six cycles of R-CVP (rituximab, cyclophosphamide, vincristine, prednisone) and is currently under surveillance.

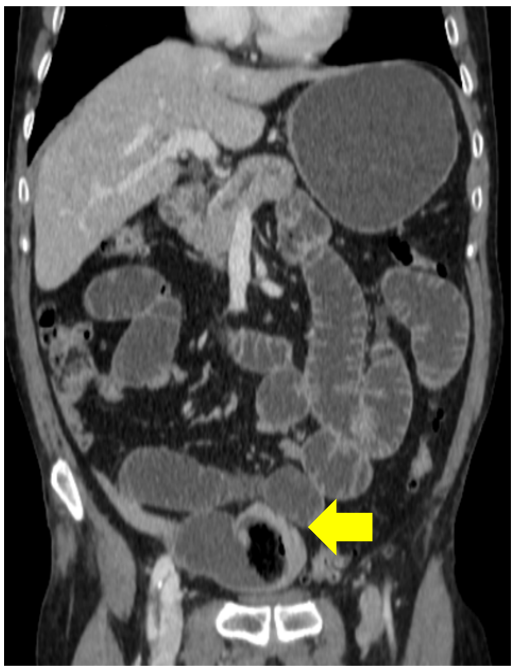

Figure 1: Abdominal and pelvic contrast-enhanced computed tomography (CT) showing dilation of small bowel, with a transition point in an ileal segment at the hypogastrium (arrow).

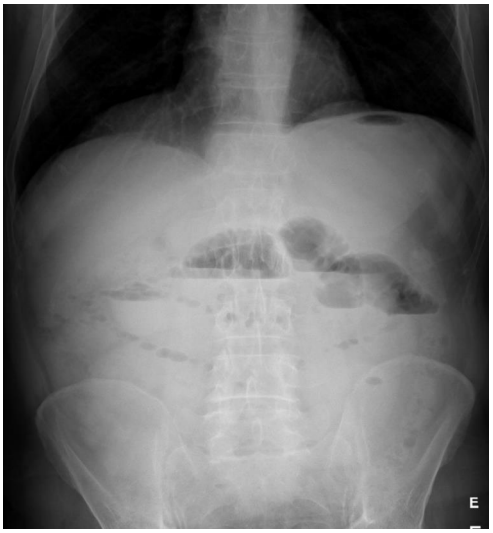

Figure 2: Simple abdominal x-ray at second visit to the emergency department, showing multiple central air-fluid levels.

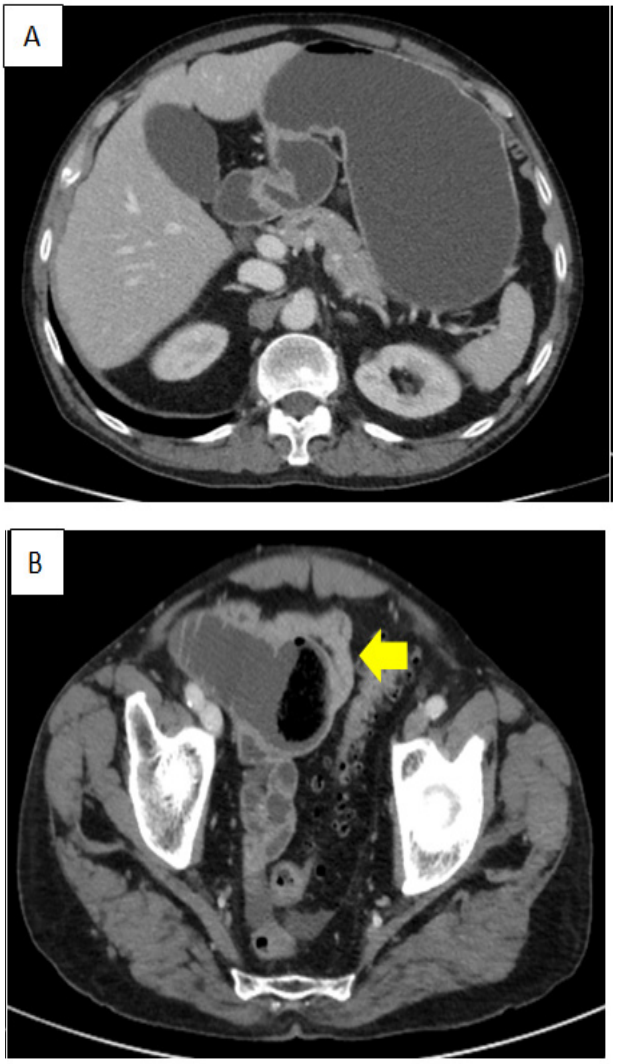

Figure 3: Abdominal and pelvic contrast-enhanced Computed Tomography (CT) revealing significant dilation of the stomach and duodenum **(A)**, as well as the jejunum and proximal ileum, with a clear transition point at the level of the hypogastrium (arrow) **(B)**.

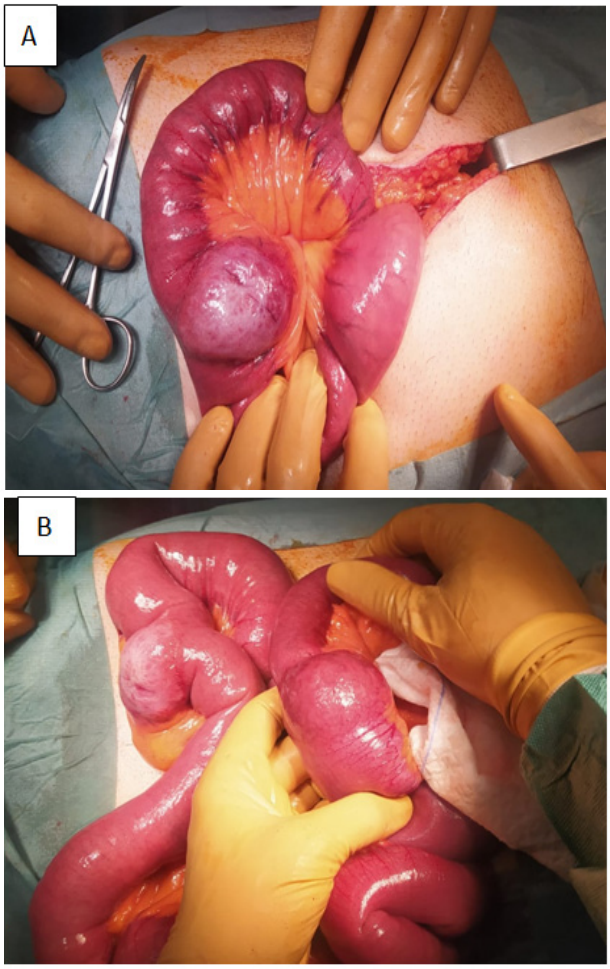

Figure 4: Intraoperative findings revealed two tumors causing partial obstruction, one located about 100 centimeters proximal to the ileocecal valve **(A)**, and the other about 60 centimeters distal to the Treitz angle **(B)**.

Discussion

SBO is a common surgical emergency, entailing considerable morbidity and financial costs [2,5]. Approximately 80% of SBO patients have a history of previous abdominal surgery, with adhesions being the single most frequent cause (60-75%) [5]. Nevertheless, SBO also occurs in patients without prior abdominal surgery, a condition referred to as a Virgin Abdomen (VA) [5]. Other causes of SBO, following adhesions in frequency, include tumors (benign or malignant), complicated hernias, and inflammatory bowel disease [9].

Nowadays, most SBO cases are treated with Non-Operative Management (NOM) [4,5]. However, there is controversy surrounding NOM for SBO in a Virgin Abdomen (SBO-VA). Some authors advocate for surgical exploration in these cases, as SBO-VA is often caused by etiologies other than adhesions, such as malignancy, internal hernias, or bezoars, which are among the most prominent causes [5]. Conversely, recent studies indicate a high incidence of adhesions in patients with SBO-VA [5].

The majority of studies report a high rate of surgery in SBO-VA cases, ranging from 39-83%, compared to 20-30% of patients with Adhesive SBO (ASBO) requiring operative treatment [4,5].

In industrialized countries, small bowel lymphomas are rare and predominantly affect middle-aged men. The two largest studies of GI lymphoma conducted in Greek and German populations reported that most cases involve the stomach (68-75%),

9% the small bowel, 7% the ileocecal valve, and 6-13% more than one GI site [10,11]. The most common type of primary GI lymphoma is diffuse large B-cell lymphoma. MALT lymphoma, also known as extranodal marginal zone B-cell lymphoma, accounts for approximately 17% of all GI tract lymphomas [7]. MALT lymphoma of the small bowel is relatively rare [8]. Presentations symptoms may vary with histologic tumor type [8]. A variant of MALT lymphoma called Immunoproliferative Small Intestinal Disease (IPSID) secretes alpha heavy chains. Patients with IPSID typically present with malabsorption, intermittent diarrhea, and abdominal pain [8]. Non-IPSID lymphomas present with more nonspecific symptoms, such as abdominal pain, GI bleeding, intestinal obstruction or perforation, and/or a palpable mass [12].

This is an unusual case involving a male patient in his seventh decade, with a virgin abdomen and no medical history of chronic inflammatory or autoimmune disease, in which MALT lymphoma presented as small bowel obstruction caused by a synchronous tumor. At first ED visit, NOM was initiated with transient clinical improvement, leading to the patient's discharge and referral to outpatient care. However, worsening of the clinical condition occurred within a few days. Given the patient's virgin abdomen and lack of diagnosis, an exploratory laparotomy was conducted, revealing two lesions that necessitated a double segmental small bowel resection.

Conclusion

SBO represents a common surgical emergency entailing considerable morbidity and financial costs. Adhesions are the primary cause, followed by complicated hernias, neoplasms, and inflammatory disease. Most cases of Adhesive SBO (ASBO) are linked to prior abdominal surgery. SBO in a Virgin Abdomen (SBO-VA) is typically caused by etiologies other than adhesions, such as malignancy. MALT lymphoma of the small bowel is relatively rare, as is its presentation as SBO. The management of SBO-VA is contentious, but surgical exploration should be considered in cases of NOM failure or obstruction-related complications (ischemia, pneumatosis, perforation). In older patients with a virgin abdomen and exclusion of hernias on clinical examination, malignancy evaluation should be pursued.

Declarations

Conflicts of interest: No conflicts of interest to declare.

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Informed consent: Obtained from the patient.

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