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Case Report

Intestinal obstruction and mesenteric ischemia due to small intestine volvulus secondary to tumor of the root of the mesentery: case report

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ABSTRACT

Neoplasms of the mesentery, although rare, can be benign and a low percentage malignant and derive from the mesenchyme, since the mesentery, which supports the jejunum and ileum along with its vessels, nerves and lymphatics, given its proximity to other structures, is a common site for primary and secondary neoplasms, as well as cysts. Symptoms are nonspecific and include abdominal pain, weight loss, and diarrhea. Computed tomography is the primary diagnostic tool, and other conditions such as infections can mimic neoplasms. Case report of a patient with a tumor of origin in the root of the mesentery that causes volvulation of the intestine due to its location and peritumoral adhesions, which leads to mesenteric ischemia of the compromised intestinal segment, and which required several surgical interventions ending with a syndrome of short intestine carrying a terminal jejunostomy. Mesenteric tumors have various clinical characteristics and can be primary or secondary. Early diagnosis with computed tomography is crucial to differentiate them. Although cystic tumors are usually benign, they can become complicated. Surgical treatment is necessary in most cases, and early detection improves results.

Keywords: Intestinal obstruction, Mesenteric tumor, Intestinal volvulus, Intestinal ischemia, Case report

INTRODUCTION

Neoplasms of the mesentery are relatively rare and, for the most part, derive from the mesenchyme, generally presenting a benign behaviour. To better understand its development, it is important to remember that the peritoneal cavity is lined by a layer of connective tissue and epithelial cells that form the visceral and parietal layers, which fold to give rise to the mesentery. This structure supports the jejunum and ileum, along with their blood vessels, nerves, lymphatics and mesenchymal tissues, fixing them to the posterior abdominal wall.[1] The root of the mesentery extends obliquely about fifteen centimeters, from the duodenal-jejunal angle to the ileocecal region, dividing the abdominal cavity into several virtual spaces. Due to its proximity to these structures, the mesentery is a common settlement site for neoplasms, both primary and secondary, as well as for cysts and other lesions. Symptoms are usually nonspecific and, in most cases, depend on the underlying cause (usually neoplasms of other organs) or its complications.[1,2] Among the most common signs are abdominal pain,

weight loss, diarrhea, the presence of a palpable mass, and blood in the stool. Computed tomography is the preferred diagnostic tool in these cases. Secondary tumors reach the mesentery through various routes of dissemination: direct extension from the small intestine, lymphatic, hematogenous routes or by peritoneal seeding. Likewise, other conditions, such as inflammatory or infectious processes, can simulate neoplastic causes (such as tuberculosis, adenitis or fibromatosis), and must be evaluated according to the clinical context.[3,4]

We report the case of a tumor of origin in the root of the mesentery that caused volvulation of the intestine due to its location and peritumoral adhesions, which leads to mesenteric ischemia of the compromised intestinal segment and which required several surgical interventions ending with a syndrome of short intestine carrying to terminal jejunostomy.

CASE REPORT

A 50-year-old male, with no relevant medical history, presented after a week of symptoms, including moderate to high-intensity abdominal pain, colicky and episodic, accompanied by nausea and six episodes of vomiting with intestinal contents, in addition to dyspepsia and feeling of abdominal distension. On physical examination, a distended abdomen, generalized pain, increased tympany on percussion, and intensified air fluid sounds on auscultation were observed. Laboratory tests show leukocytosis with neutrophilia, and the abdominal x-ray shows multiple air-fluid levels, suggesting intestinal obstruction (Figure 1). Abdominopelvic tomography reveals an intra-abdominal tumor along with distention of the intestinal loops, which contain abundant air-fluid material (Figure 2).

Given this clinical picture, it was decided to perform a surgical intervention due to the suspicion of acute obstructive abdomen. During exploratory laparotomy, the following findings were found: 1. Approximately 1300 ml of dark blood fluid in the abdominal cavity. 2. A solid, lobulated tumor mass with irregular edges, whitish, 10×8×6 cm, located 1 meter from the angle of Treitz, firmly adhered to a 15 cm segment of the jejunal loop, causing torsion of the small intestine at the root of the mesentery with four counter clockwise turns, causing mesenteric ischemia (Figure 3). Dilated and violaceous intestinal loops suggest hypoperfusion. The procedure concludes with manual reduction of the volvulus, resection of the tumor and the affected jejunal segment, end-to-end jejuno-jejunal anastomosis, suturing of the mesenteric gap, and management of the contained abdomen for review in 72 hours.

The patient is admitted to the intermediate care unit, with ceftriaxone-based antibiotics. On the third post-surgical day, his evolution was not favorable, presenting abdominal pain and distention, abundant drainage of intestinal contents through the nasogastric tube, leukocytosis, hydroelectrolyte imbalance, and metabolic acidosis with elevated lactate. A second surgery (second look) is performed to evaluate the abdominal cavity, where the following results are found: Bogotá pouch covering the intestinal loops, hemoperitoneum of approximately 1500 ml distributed in the four quadrants, with a mixture of intestinal fluid and clots in the parietocolic flanks. Extensive intestinal necrosis is observed, from the previously performed jejunal anastomosis to 15 cm from the ileocecal valve, along with intestinal leakage due to dehiscence of the anastomosis (Figure 4). The ends of the small intestine are friable and thickened, with little bleeding at the root of the mesentery and the presence of abundant fibrino-purulent tissue covering the intestinal loops, the parietal peritoneum, and the hepatic, splenic, and rectovesical surfaces. We proceeded to a new intestinal resection, profuse lavage, closure of the proximal and distal ends, packing of the mesentery, placement of a Jackson-Pratt drains in the rectovesical cul-de-sac and abdomen contained with a Bogotá bag for review in 72 hours due to the high degree of contamination.

The patient is admitted to the intensive care unit and is administered a broad-spectrum antibiotic based on piperacillin/tazobactam and metronidazole. In the following surgical revision, a lavage with 10 liters of 0.9% saline solution is performed, an exteriorized terminal jejunostomy is created on the right flank, and the drain is left in the rectovesical fornix. The abdominal wall is closed in planes.

The patient progresses favourably, tolerates an astringent diet, and production through the jejunostomy is controlled. In the context of short bowel syndrome, without signs of an inflammatory response, the patient was discharged definitively 25 days after admission, with outpatient follow-up.

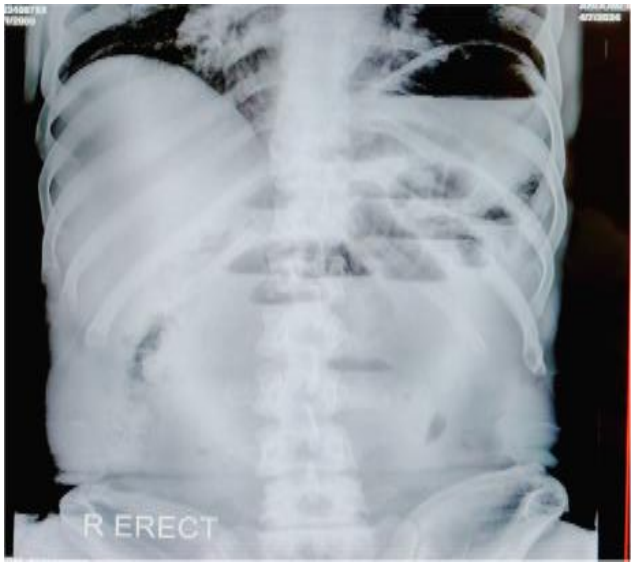

Figure 1: Multiple uneven air-fluid levels, suggestive of intestinal obstruction.

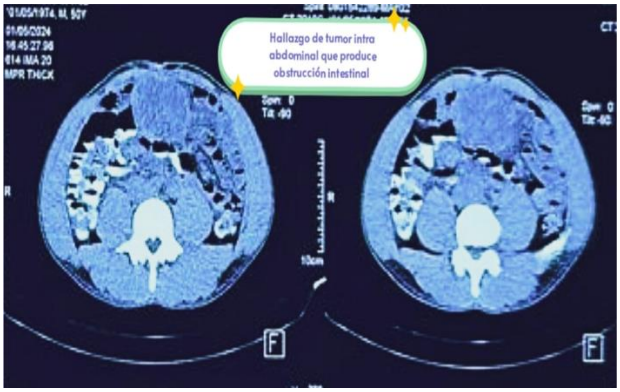

Figure 2: Computed axial tomography: shows an intra-abdominal tumor associated with intestinal obstruction.

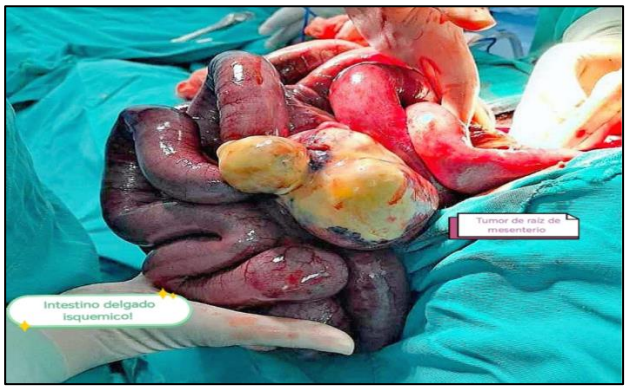

Figure 3: Tumor of origin in the root of the mesentery that causes volvulation of the intestine due to its location and peritumoral adhesions, which leads to mesenteric ischemia of the compromised intestinal segment.

Figure 4: Intestinal necrosis evident in the second look, secondary to tumor resection of the root of the mesentery.

DISCUSSION

Mesenteric tumors are generally divided into cystic or solid and present clinically as palpable abdominal masses, accompanied by symptoms such as abdominal pain, nausea, vomiting or signs of intestinal obstruction. Due to the diversity in their clinical manifestation, these tumors are usually diagnosed during surgery or through imaging studies. The main treatment consists of complete removal of the tumor, a decision that depends both on the size of the mass and the degree of involvement of surrounding organs.[5,6]

Primary neoplasms

Desmoid tumor: This is an aggressive fibroblastic lesion that does not metastasize but has a high recurrence rate. It usually affects the mesentery of women in the fifth and sixth decades of life. The main treatment is surgical, but it is important to keep in mind that it can recur in up to 65% of cases.[7]

Mesenteric GIST (Gastrointestinal stromal tumors): They are mesenchymal neoplasms derived from Cajal cells, and are considered more aggressive than digestive GISTs, with a metastasis rate that can reach up to 50%. These tumors usually present as large, heterogeneous and well-defined masses, which makes them easier to identify through imaging studies.[8]

Mesenteric lymphoma: Although primary mesenteric lymphoma is rare, it can resemble nodal lymphomas. Affected patients may present lymphadenopathy, and on tomographic images, lymphoma appears as homogeneous masses. Early diagnosis is essential for the implementation of adequate treatment.[9]

Secondary neoplasms

The mesentery can be affected by tumors originating in other organs, such as the colon, pancreas and stomach, or even by peritoneal spread of cancers. Carcinoid tumor is one of the most common neoplasms that affect the mesentery, compromising it in 40-80% of cases, which highlights its importance in the diagnosis and treatment of secondary mesenteric tumors.[10]

Cystic tumors

Mesenteric cysts: Generally, mesenteric cysts are benign and congenital in origin. Although they are generally asymptomatic, they can present acute complications such as torsion or intestinal obstruction, which may require urgent surgical intervention.[11]

Mesenteric teratoma: This type of tumor contains tissues from all three germ layers and is quite rare in the mesentery, although more common in the pediatric population. Mesenteric teratomas are usually benign, but in some cases, they can be aggressive depending on the components present in the tumor.[12]

Mesenteric inflammatory processes: Sclerosing mesenteritis is a chronic inflammatory disorder that affects

the fatty tissue of the mesentery, leading to the formation of masses that can exert extrinsic compression on blood vessels, which affects circulation in the region. On CT scans, this process is characterized by the presence of heterogeneous masses that may present areas of necrosis, which helps differentiate it from other mesenteric pathologies.[13]

This comprehensive approach to mesenteric tumors and disorders allows for a more detailed understanding of diagnostic and treatment options, underscoring the importance of early detection and appropriate management of the various neoplasms and inflammatory processes that may involve this area of the abdomen.

CONCLUSION

In conclusion, mesenteric tumors present a wide variety of clinical and diagnostic characteristics, ranging from palpable abdominal masses to symptoms of intestinal obstruction. Although most of these tumors are secondary to intra-abdominal processes, some, such as desmoid tumors, mesenteric GISTs, and lymphomas, have a primary origin and require specialized surgical care. Early diagnosis, through imaging studies such as computed tomography, is crucial to identify both primary and secondary neoplasms, as well as to differentiate between the various types of tumors. Mesenteric cystic tumors, although generally benign, can present serious complications requiring urgent intervention. Additionally, inflammatory disorders such as sclerosing mesenteritis should also be considered, as they can generate masses that affect abdominal circulation. Surgical treatment is essential in most cases, although specific management will depend on the type and aggressiveness of the tumor. Overall, early detection and an appropriate diagnostic approach are essential to optimize outcomes in patients with mesenteric conditions.

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