

## Laparoscopic approach in a case of left paraduodenal hernia

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## **ABSTRACT**

The Para duodenal hernia represents a herniation of the small intestine in a peritoneal sac found in the fourth portion of the duodenum and it stands as a rare cause for intestinal obstruction. The case reports to a 30-year-old male patient diagnosed with a left internal Para duodenal hernia. The patient was admitted for a laparoscopic approach, being submitted to closure of the hernia hole in topography below the Treitz angle. The postoperative period was uneventful. It is crucial to include Para duodenal hernia in any list of differential diagnosis related to patients with recurrent abdominal pain and occlusive / sub occlusive episodes, in the absence of previous surgeries, abdominal wall hernias or inflammatory bowel disease. When referring to an elective context, the laparoscopic approach is the most appropriate, since it reduces morbidity, postoperative pain and hospitalization time.

## **INTRODUCTION**

Internal hernias are a rare cause of intestinal obstruction (0.2-0.9% of cases of intestinal obstruction and 0.5-4.1% cases of intestinal obstruction caused by hernia).<sup>2,3</sup> They are divided into distinct subgroups, based on location, with Para duodenal being the most common type, with a global incidence of 53%.<sup>4</sup>

Para duodenal hernia, also known as congenital mesenteric-parietal hernia, represents a herniation of the small intestine in a peritoneal sac found in the fourth portion of the duodenum. The most frequently found fossae are: lower than Treitz (60%), upper and lower (30%), upper (5%), Landzert Fossa (2%) and Waldeyer Fossa (1%).<sup>1</sup> On the other hand, there are two types of congenital paraduodenal hernia: left (75%) and right (25%), depending on the anatomical component and embryological involvement. In the right paraduodenal hernia, the hernia contents protrude into the Waldeyer fossa, while in the left paraduodenal hernia, the hernia occurs in the Landzertparaduodenal fossa.<sup>6</sup>

The signs and symptoms associated with left paraduodenal hernia are generally nonspecific, with a clinical presentation that can vary from intermittent abdominal pain, linked to the possibility of spontaneously reducing the hernia content, to an acute abdomen, in situations of incarceration and intestinal necrosis.<sup>5</sup>

## **CASE PRESENTATION**

The case reports to a 30-year-old male patient with complaints of an insidious illness, characterized by several years of evolution and marked by a profound deterioration within the previous 3 months. The patient reported episodes of constipation alternated with diarrhea, the presence of a feeling of bloating and occasional vomiting, in the absence of weight loss or any other complaints. The patient denied the existence of any relevant personal, surgical, or familiar history. He underwent an abdominal and pelvic computerized tomography which

revealed a discontinuous filling of the Jejunal loops after oral administration of a contrast agent, with a hiatus development between the jejunum and the ileum. This finding was compatible with a left internal Para duodenal hernia (Fig.1-2), without an associated disturbance of the gastrointestinal transit or abnormality of the morphology of the intestinal loops. Additionally, the patient was submitted to a colonoscopy and analytical evaluation including measurement of tumor markers. A thorough study of the intestinal transit was also performed, through the administration of an oral contrast agent. These investigations resulted unremarkable.

In this context, a diagnostic laparoscopy was performed, the hernia content was reduced and the hernia hole in topography below the Treitz angle closed with silk (Fig. 3-6).

The immediate postoperative recovery was uneventful, and the patient was discharged on the second postoperative day, with intestinal transit restored. At follow-up, and nineteen months post surgery, he remained asymptomatic.

## **DISCUSSION**

Paraduodenal hernia is a rare cause of intestinal obstruction that should be considered in any patient with recurrent abdominal pain, bowel obstruction, without history of previous surgery, abdominal wall hernias or inflammatory bowel disease.<sup>1,4</sup>

The most likely pathophysiological mechanism for the existence of left paraduodenal hernias is linked to embryological anomalies, particularly related to a poor rotation of the intestine during the first weeks of pregnancy.<sup>5,6</sup>

From a diagnostic point of view, neither simple abdominal radiographs nor abdominal ultrasound examination are useful. Thus, in the presence of a left paraduodenal hernia, the use of abdominal computed tomography is the gold standard for diagnosis, making possible to detect the encapsulation of the bowel loops with intermittent dilation, either at the level of the Treitz ligament or above.<sup>3</sup>

The treatment of Para duodenal hernia is surgical and lies in two main principles - reduction of hernia content, in which excision of the hernia sac is not mandatory, and correction of the hernia orifice, through its closure or enlargement; it may be necessary to distort the involved intestine, in order to avoid lesions in the main mesenteric vessels contiguous to the hernia orifice.<sup>3,4,6</sup>

The laparoscopic approach offers several advantages, since it is safe, results in less morbidity, reduces postoperative pain, promoting earlier enteric diet introduction and a shorter hospital stay with a greater aesthetic satisfaction.<sup>1</sup>

## **CONCLUSION**

Summing it all up, an early diagnosis of Paraduodenal hernia is essential. A relatively high degree of clinical suspicion is important in order to avoid the establishment of an occlusive condition and intestinal strangulation. Abdominal computed tomography is the gold standard for diagnosis. The laparoscopic approach is adequate and frequently elected to achieve surgical resolution of this pathology, once it can be performed safely and is associated with very satisfactory results for the patient.

The authors were able to understand the need and importance of an early diagnosis in cases of intestinal occlusion due to rare causes, such as internal Para duodenal hernias, and to establish the advantages of a laparoscopic approach to achieve surgical treatment of the condition. This particular case highlighted and corroborated the excellent results that had already been obtained in other hospitals using this technique.

#### **CONFLICTS OF INTEREST**

We have no conflict of interest to declare.

#### **FUNDING SOURCES**

The authors have no funding source to disclose for this work.

#### **ETHICAL APPROVAL**

The submitted article is a case report, ethical approval has beenexempted by our institution.

#### **CONSENT**

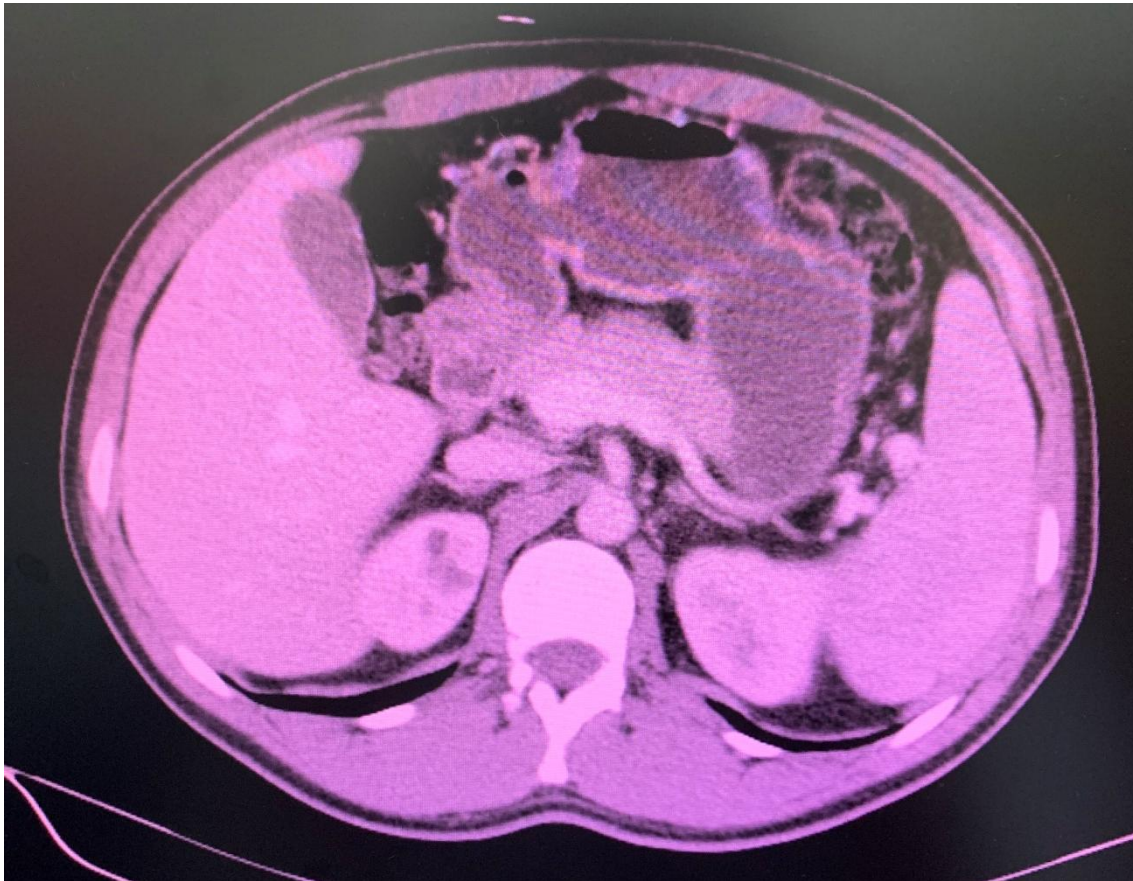
Written informed consent was obtained from the patient forpublication of this case report and accompanying images.

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## FIGURES

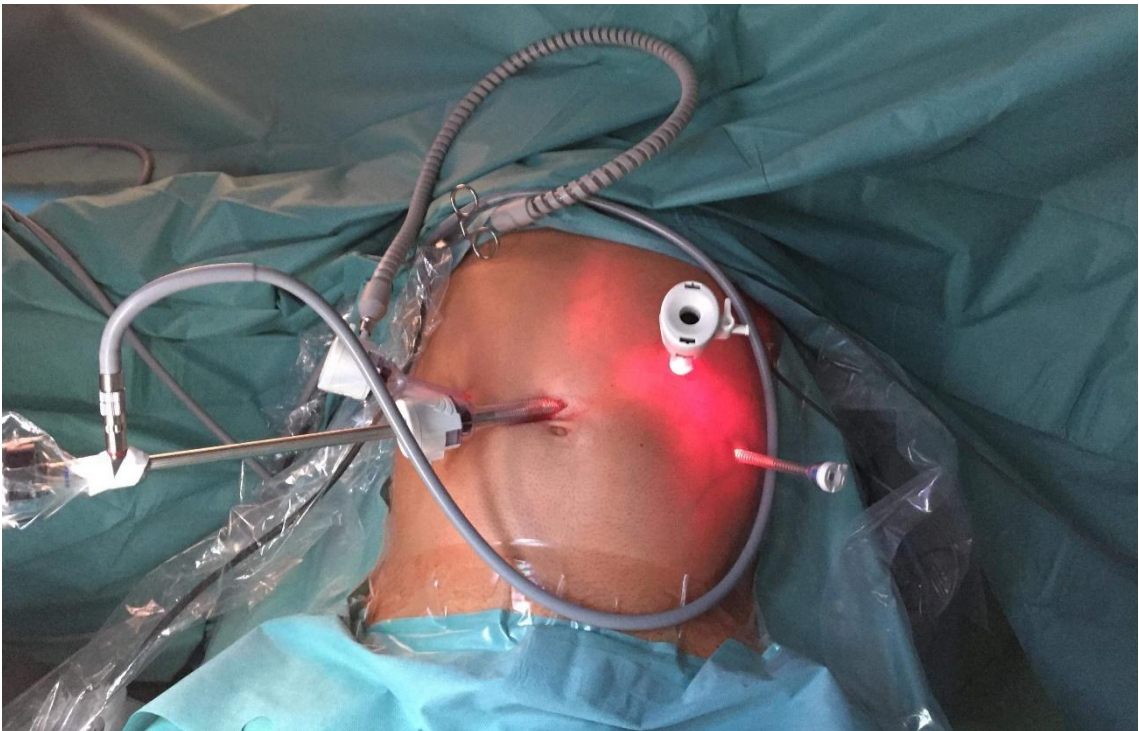


**Figure 1**





**Figure 2**



**Figure 3**

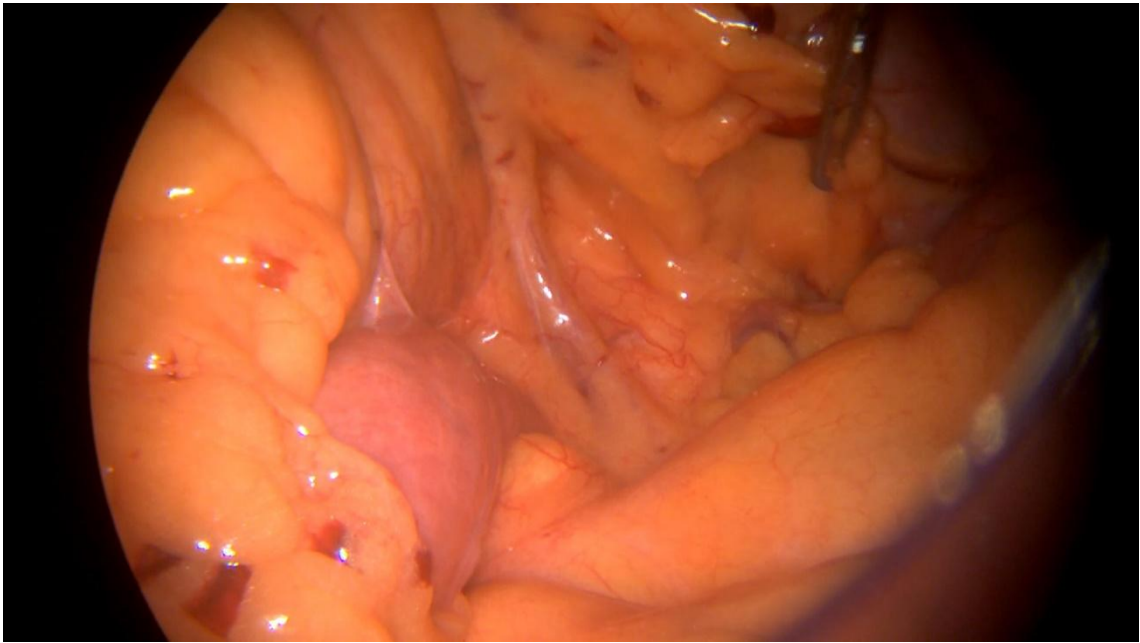


Figure 4

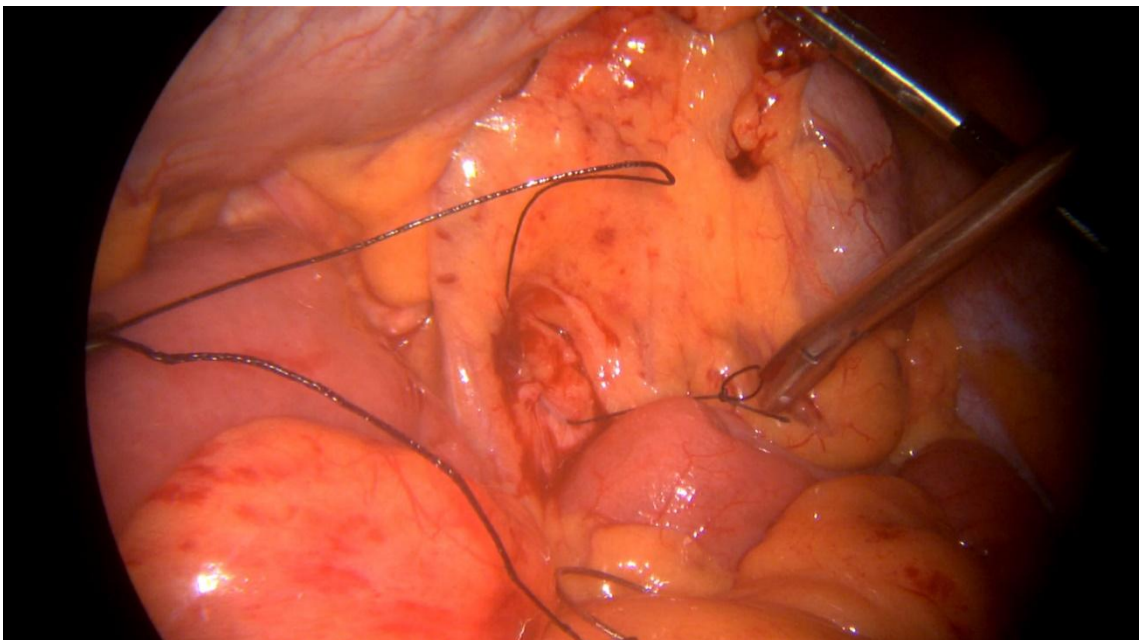


Figure 5

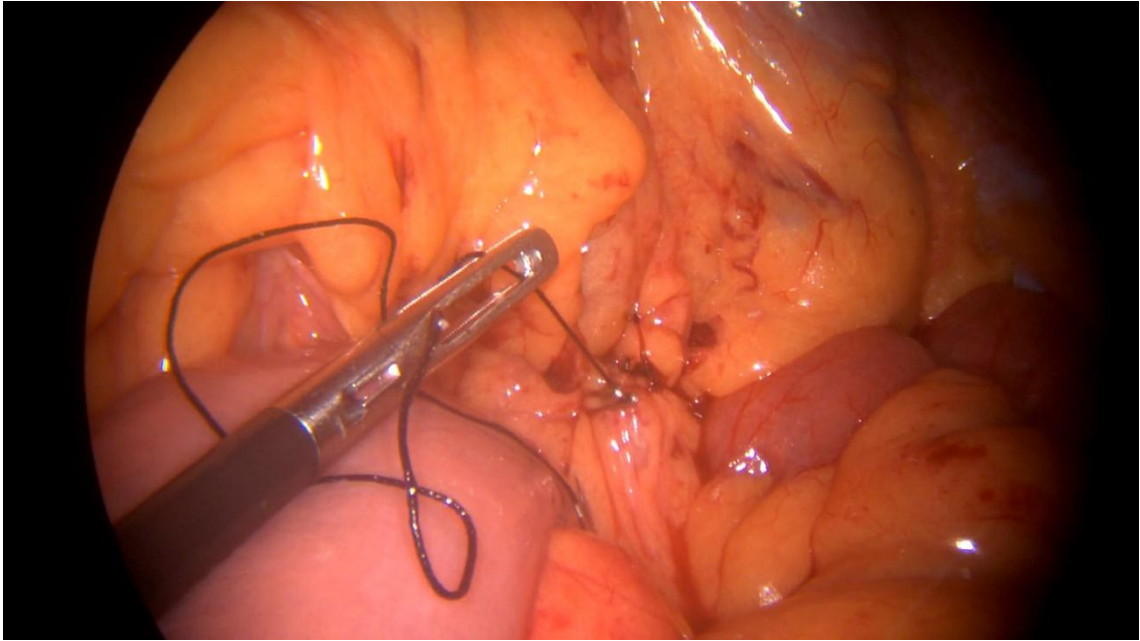


Figure 6