

# INTESTINAL INTUSSUSCEPTION IN ADULTS – ULTRASONOGRAPHY DIAGNOSIS

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## ABSTRACT

**INTRODUCTION:** Intussusception is a rare pathology in adults. It can be defined as a telescoping (intussusceptum) of the proximal intestine with its mesenteric fold within the lumen of an adjacent segment (intussusciens).

**CASE REPORT:** A 58-year-old patient with abdominal pain for seven days is reported, referring to constipation and feeling of bloating. Ultrasonography detected intussusception, and computed tomography showed expansive formation at the root of the mesentery. An enterectomy and right colectomy with anastomosis were performed and the patient was discharged three days later.

**DISCUSSION:** Computed tomography and ultrasonography are the most used diagnostic methods, with an accuracy of 77.8% and 49.2%, respectively. Although the "target" image cannot be considered pathognomonic, it is suggestive of the disease on ultrasound which has the advantage of being able to be performed at the patient's bedside and do not use ionizing radiation such as computed tomography.

**CONCLUSION:** Although intussusception is not a routine diagnosis in adults, it is a disease that should be investigated in patients with significant abdominal distention. When characterized in this age group, the investigation of the causes of intussusception is necessary for the cure of the patient.

**KEYWORDS:** INTUSSUSCEPTION; NEOPLASIA; DIAGNOSIS; ULTRASONOGRAPHY

## INTRODUCTION

Intussusception is a rare pathology in adults and, when present, has a defined etiology in about 90% of cases, with benign and malignant tumors being the main cause – 60%.<sup>2</sup>

In the infant population, intestinal intussusception is common and occurs when the proximal segment of the intestine invaginates into the distal segment.<sup>1</sup>

Intussusception can be described as an "introversion" of the proximal bowel with its mesenteric fold into the lumen of the adjacent distal bowel as a result of excessive or impaired peristalsis, further obstructing the free passage of intestinal contents.<sup>3</sup>

## CASE REPORT

A 58-year-old male with abdominal pain for seven days reporting constipation and a feeling of bloating for one day. Physical examination demonstrates only abdominal distention, with no pain on palpation.

Ultrasonography detected thickened thin intestinal loops, with adjacent fluid, with diffuse blurring of the mesenteric fat, with dilatation of the intestinal loops upstream compatible with intussusception (Figure 1).

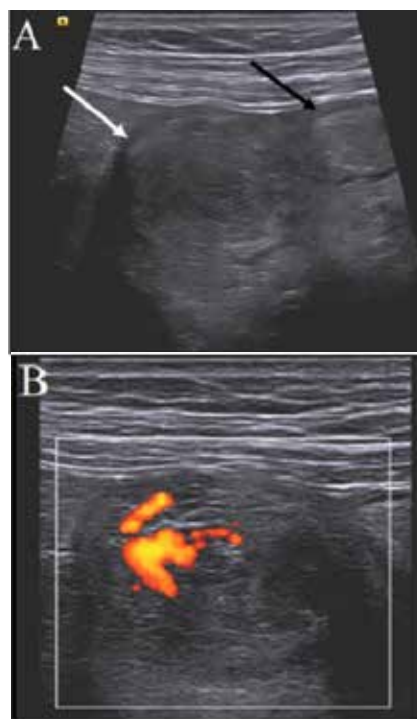


Figure 1: In A, ultrasonography detected a "target" lesion (white arrow) with dilatation of the upstream intestinal loop (black arrow). In B, ultrasound demonstrates Doppler vascularization of the "target" lesion – target sign.

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Computed tomography showed expansive formation in the root of the mesentery (Figure 2).



Figure 2: Computed tomography in the axial section detects an infiltrative formation in the root of the mesentery (black arrows), which determines a reduction in the amplitude of the small bowel loops and promotes upstream distension (white arrows).

This was followed by an enterectomy and right colectomy with anastomosis and the patient was discharged three days later. The anatomopathological study detected grade I neuroendocrine neoplasia and a bone scintigraphy was performed two months later, which was normal. The patient remains under outpatient follow-up.

**DISCUSSION**

Intussusception is classified according to its location, and may be enteric, ileocolic, ileocecal and colocolic, with the ileocecal region being the most common location. <sup>4</sup> Small bowel intussusceptions in adults are mostly self-limiting, without an underlying etiology. <sup>5</sup> The symptoms of intussusception in adults, unlike in children, are generally nonspecific and chronic, such as pain, nausea and vomiting. <sup>6</sup>

According to the systematic review by Hong et al., computed tomography and ultrasound are the most used diagnostic methods, with an accuracy of 77.8% and 49.2%, respectively. <sup>6</sup> It should be taken into account that ultrasound is dependent on the examiner's experience in diagnosing intussusception and the "target" image cannot be considered pathognomonic but is suggestive of the disease. <sup>1</sup> Computed tomography is the gold standard and reveals the location and cause of the intussusception (underlying pathology), in addition to the diagnosis itself. <sup>1,7</sup> The barium enema has an accuracy of 59.4% and colonoscopy of 52.6% (Table 1). <sup>6</sup>

| Diagnostic Method   | Accuracy |
|---------------------|----------|
| Computed tomography | 77,8%    |
| Ultrasonography     | 49,2%    |
| Barium enema        | 59,4%    |
| Colonoscopy         | 52,6%    |

Table 1: Diagnostic accuracy in intestinal intussusception. <sup>6</sup>

Regarding the etiology of adult intussusception, the proportions of malignant tumor, benign tumor and idiopathic causes are 32.9%, 37.4% and 15.1%, respectively, according to the meta-analysis by Hong et al. <sup>6</sup>

In relation to enteric, ileocolic and local colonic diseases, they are 49.5%, 29.1% and 19.9%, respectively. When dividing the etiologies by location of malignant tumor into enteric, ileocolic and colonic types, they are 22.5%, 36.9% and 46.5%, respectively, and those of benign tumors are 39.4%, 34.4% and 36.8%, respectively (Table 2).

| Etiology        | Enteric | Ileocolic | Colonic |
|-----------------|---------|-----------|---------|
| Malignant tumor | 22.5%   | 36.9%     | 46.5%   |
| Benign tumor    | 3.94%   | 34.4%     | 36.8%   |

Table 2: Percentage of tumor etiologies causing intussusception according to their location. <sup>6</sup>

Metastatic carcinoma is the most common tumor cause in enteric manifestation (48.7%) followed by lymphoma (26.2%), gastrointestinal stromal tumor - GIST (21.3%) and primary adenocarcinoma (26.6%) according to the systematic review by Hong et al. <sup>6</sup> On the other hand, primary adenocarcinoma is the main cause of malignant tumor in the ileum (61.7%), followed by lymphoma (28.1%) and GIST (14.8%), and in the colon (78.8%). <sup>6</sup> followed by lymphoma (28.1%) and GIST (14.8%) (Table 3). This systematic review also verified studies that reported ischemia in the intussuscepted bowel, with an intestinal ischemia rate of 15.0%. <sup>6</sup>

| Etiology               | Enteric | Ileocolic | Colonic |
|------------------------|---------|-----------|---------|
| Metastatic carcinoma   | 48.7%   | 13.4%     | 14.4%   |
| Lymphoma               | 26.2%   | 28.1%     | 16.8%   |
| GIST                   | 21.3%   | 14.8%     | 0.0%    |
| Primary adenocarcinoma | 16.6%   | 61.7%     | 78.8%   |

Table 3: Percentage of malignant tumors causing intussusception according to their location. <sup>6</sup>

Conservative treatment works in only 4.6% of intussusception cases. In surgical cases, its approach varies according to the patient's history, tumor location, intraoperative findings and surgeon preference.<sup>6</sup> However, there is still no consensus on reducing intussusception before resection if there is no ischemic change, or whether to resect the lesion without reduction due to concerns of potential seeding of malignant tumor cells during manipulation.<sup>6</sup> Surgery remains the most reliable intervention in case of consistent and persistent intussusception, as it offers the opportunity to definitively and radically eliminate the cause that caused the intussusception.<sup>8</sup>

Of the 464 patients operated on in the study by Hong et al., 92 had complications.<sup>6</sup> The rate of postoperative complications was 22.1%, with more than half of the complications reported being surgical site infections. Other reported complications were pulmonary atelectasis, pneumonia, pulmonary thromboembolism, deep vein thrombosis, wound dehiscence, gastrointestinal bleeding, acute tubular necrosis, and cardiac arrhythmia. Postoperative mortality is around 5.2% and the recurrence of intussusception in patients with a follow-up of more than one year is 6.5%.<sup>6</sup>

## CONCLUSION

Although intussusception is not a routine diagnosis in adults, it is a condition that should be investigated in patients with significant abdominal distention. When characterized in this age group, the investigation of the causes of intussusception is necessary for the cure of the patient.

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