

CASE REPORT

Cannabis intake and intussusception: an accidental association?

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ABSTRACT

Most intussusception cases in adults have an organic cause and their treatment is surgical. In some cases, there is no injury associated with intussusception and we can opt for conservative management. In our clinical practice we have shown the presence of intussusceptions in the absence of structural damage associated with chronic cannabis with a good course after conservative management. We describe three cases of recurrent intussusception in cannabis users, suggesting a relationship between cannabis use and the incidence of intussusception.

Key words: Cannabinoids. Intussusception. Abdominal pain. Intestinal occlusion. Vomiting.

INTRODUCTION

Exogenous administration of cannabinoids has been proposed as a therapeutic use for some processes such as post-chemotherapy vomiting (1). However, paradoxically, there have been also entities described related to the abuse of cannabis such as cannabinoid hyperemesis (2).

The action of cannabinoids in the gastrointestinal tract is not well known but there is sufficient evidence to determine that they have an effect on multiple points of the digestive system either through the proper cannabinoid receptors or through the interaction with receptors of other substances (3).

Until now, the relationship between cannabis use and the presence of intussusception has not been described.

CASE REPORT

We describe three cases of intussusception associated with chronic inhaled cannabis use with different chronologies that propose a causal relationship.

Case 1

A 29-year-old male with history of episodic abdominal pain and vomiting since 2007. As the only personal antecedent, he refers chronic inhaled cannabis intake (10-15 joints a day). He was diagnosed aortomesenteric syndrome both at the third duodenal portion and on the left renal vein by computed tomography scan (CT). He did not improve with weight gain so it was decided to implement surgery (duodeno-jejunostomy in September 2009). Later on, episodes of pain continued despite the radiological resolution of anatomical changes. In the context of a crisis of pain an ultrasound was performed showing several intussusceptions in different locations in the small intestine that were solved conservatively (Fig. 1A). In other multiple scans performed in asymptomatic periods intestinal pathology justifying his pattern was not found. During the follow-up, as the patient achieved to stop smoking cannabis, the episodes of abdominal pain and vomiting disappeared completely. He was discharged after a year completely asymptomatic.

Case 2

A 27-year-old woman with multiple attendances to the emergency room and hospital admissions for episodes of abdominal pain. These episodes ceded spontaneously and multiple complementary examinations (abdominal CT, MRI, upper and low endoscopy, capsule endoscopy) were performed without detecting an organic pathology. In one of these hospitalizations a magnetic resonance was performed, and at least three jejunum-jejunal intussusceptions without evidence of underlying lesion were found (Fig. 1B). All events were resolved conservatively. We insisted on her giving up the cannabis consumption and she

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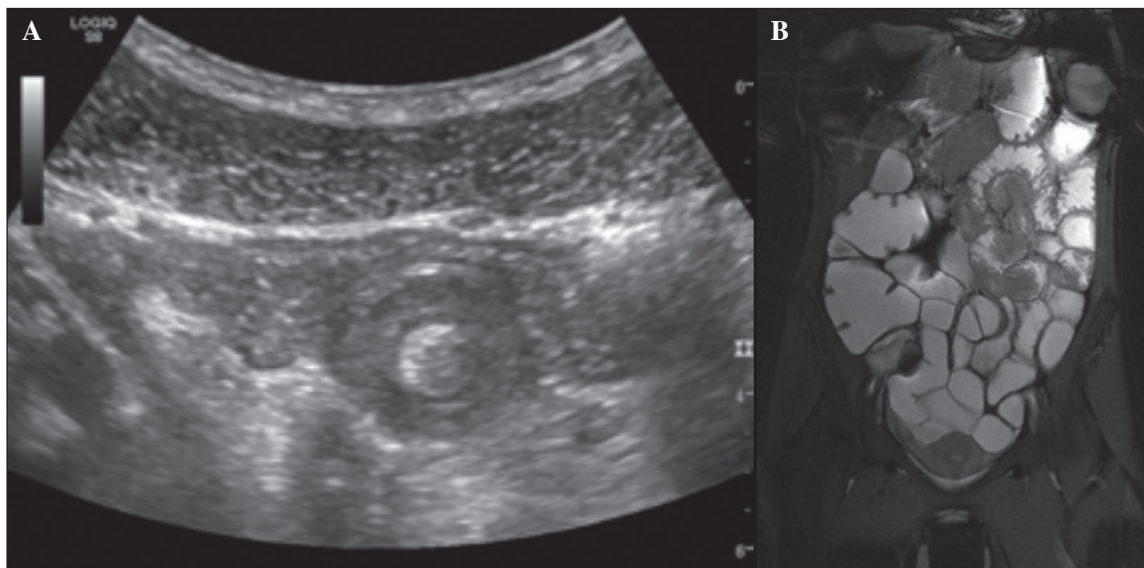


Fig. 1. A. Ultrasound image as a *donut* or *target* compatible with intussusception in cross section. B. Presence of several points of jejunum-jejunal intussusception without head injury in the MRI.

did, presenting these episodes for about 9 months when she did not consume cannabis (the subocclusive crisis showed approximately a fortnightly frequency while she maintained regular intake). Coinciding with a relapse into cannabis she came back to the emergency room because of a new subocclusive episode, even though she requested voluntary discharge after spontaneous resolution of the pain and further tests to prove intussusceptions were not performed.

Case 3

A 23-year-old male with chronic daily cannabis consumption since the age of 21 presented with abdominal pain and vomiting with episodic character. Throughout 10 years of follow-up he had been hospitalized 7 times in the Department of Gastroenterology, once in Internal Medicine and 4 times in the Surgery Department, and he had been attended at the Emergency Room about 30 times. In 2007, during one of these admissions, an ultrasound and an abdominal CT were performed, and intestinal intussusception was observed in both of them. Due to these findings, emergency surgery was performed. During surgery, the referred intussusception on imaging tests was not visible so it was deduced that the intussusception was transitory. A year later, in a new assistance to the Emergency Room, another intussusception, which resolved spontaneously during scanning, was proved by ultrasound. The patient maintained the consumption of cannabis uninterrupted and continued showing clinical symptoms suggestive of intestinal subocclusions with spontaneous resolution at least until 2012, when he changed address and the follow-up was lost.

DISCUSSION

The incidence of intussusception in adults is low, representing < 5% of the causes of intestinal obstruction. Most times a causative organic lesion is found, of which more than a half are malignant, and for this reason intussusception in adults has been usually considered as an indication of surgery and intestinal resection (4,5). However, some cases have been described where the conservative approach in the absence of warning signs has been considered as an optimal alternative treatment (6). Some clinical and analytical variables that can be related to the presence of malignancy prior to surgery have been described, and they can help to decide when to opt for conservative management (7). In the scientific literature, the association between cannabis intake and intussusception has not been explicitly described. Even though we have found reference to cannabis consumption in two reported cases of intussusception in which no responsible lesion for intussusception was found, a relationship has not been attributed (8,9).

The influence of the cannabinoid system on intestinal motility has been assumed for decades. The presence of endogenous cannabinoid receptors throughout the gastrointestinal tract is known and, although it is not known exactly how, it is suspected that the cannabinoid system has a large weight in the regulation of intestinal motility. In *in vitro* studies in pig intestine, stimulation of CB1 cannabinoid receptors decreased longitudinal smooth muscle reflex contraction and increased the threshold pressure and volume required to elicit peristalsis during the preparatory phases of peristalsis, reducing the maximal ejection pressure during the emptying phase of peristalsis. In *in vivo* studies in rats and in human clinical studies, activation of the CB1 receptor apparently has a globally inhibitor

effect on the peristalsis, and the cannabinoid antagonist administration is able to activate it (10).

This influence of cannabinoids on intestinal motility will be the pathophysiological basis for raising the hypothesis that cannabis use in the described patients could have a relationship with the disease, and their clinical course and chronology support this possibility.

In conclusion, we propose the hypothesis that cannabis intake may play a role in the onset of intussusception in the absence of evidential organic pathology in imaging techniques and we advocate a conservative management in these cases, insisting in the recommendation of abandoning the consumption of cannabis.

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