

# Jejunogastric Intussusception – A Rare Case Detected On CT

D Saxena, R Hoisala, D P

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## Abstract

Jejunogastric intussusception is a rare surgical emergency, mostly seen after gastrojejunostomy. A rapid CT examination can speed the diagnosis and subsequent management. We used table water as neutral enteral contrast agent to visualize the intussuscepted segment of bowel. Multiplanar capability of CT affords an unambiguous diagnosis. CT with a neutral enteral contrast agent such as water should be a preferred imaging modality, over positive enteral contrast agent such as barium, or an inconvenient endoscopy.

## INTRODUCTION

Jejunogastric intussusception is a rare surgical emergency. It's a complication commonly seen after gastrojejunostomy . With the advent of imaging we find a rapid CT is a more effective way of diagnosing this condition.

## CLINICAL CASE

A 35 year old male presented to the emergency with abdominal pain and vomiting since 20 days, with constipation since four days. The patient had undergone gastrojejunostomy for duodenal ulcer a year and a half before.

A CT abdomen (plain) with water as neutral enteral contrast revealed post gastrojejunostomy status with intragastric

invagination of jejunal loops and mesentery into a dilated stomach [Fig. 1,2,3]. A diagnosis of post gastro-jejunostomy jejunogastric intussusception was entertained. Emergency laparotomy was performed. Per-op there was a 100cms intussuscepted segment with 15 cms of gangrenous segment involving the efferent loop of gastro-jejunostomy. Reduction of the intussusceptum, with primary resection of the gangrenous segment and end-to-end anastomosis of the jejunal segment was performed. The gastro-jejunostomy was reinforced.

Pathology of the resected segment showed villous tip necrosis in the mucosa and submucosa (ischemic enteritis) [Fig 4b] with intestinal wall ulceration and necrosis (gangrene) [Fig 4a]. Markedly congested mesenteric vessels were noted.

**Figure 1**

Fig 1. Scout film. Dilated stomach with soft tissue lesion within.



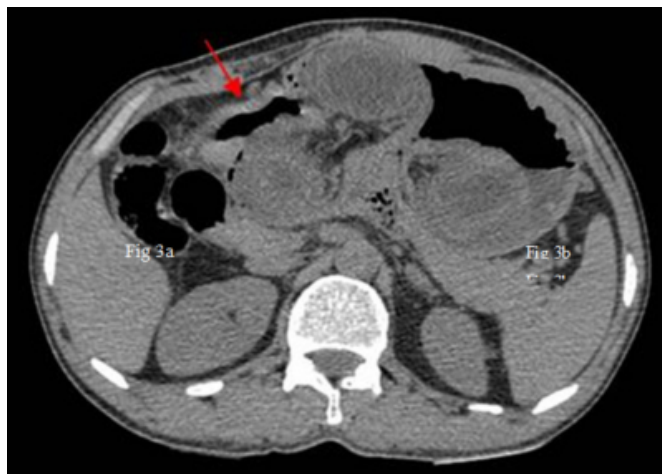
**Figure 2**

Fig 2. Plain CT abdomen with water as enteral contrast. Coronal reformatted image reveals retrograde invagination of mesentery and jejunal loops through the gastrojejunostomy stoma into a dilated stomach.



**Figure 3**

Fig 3a,b. Axial CT images with water as enteral contrast. Dilated stomach with intragastric filling by the intussuscepted jejunal loops. The mesenteric fat and vessels can be seen tracing the jejunal loops. The pylorus and duodenum are seen laterally (red arrowhead).

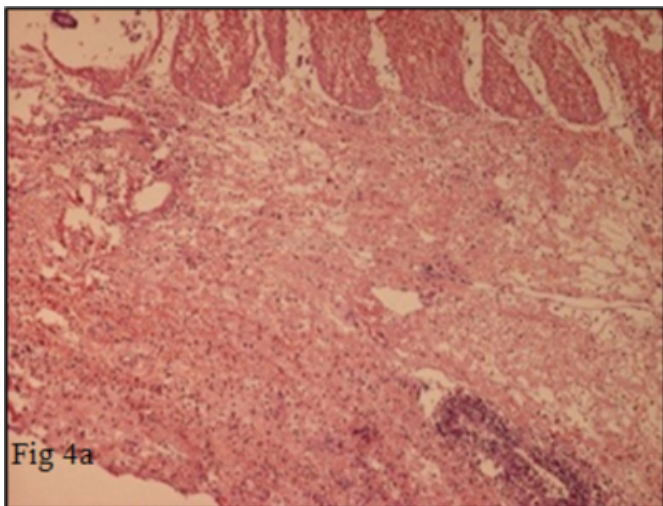


**Figure 4**

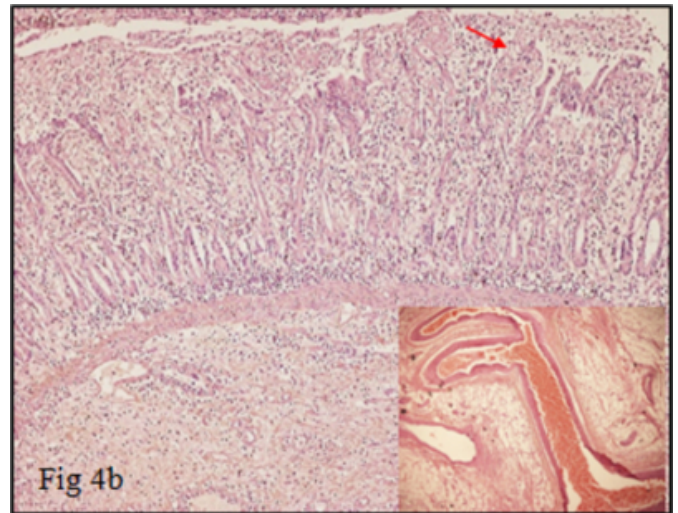


**Figure 5**

Fig 4a,b. (H&E stain, x100). Fig 4a shows intestinal wall ulceration and transmural necrosis. Fig 4b shows intestinal mucosa and submucosa. Arrow points to villous tip necrosis. Inset shows markedly congested mesenteric vessels.



**Figure 6**



## DISCUSSION

Jejunogastric intussusception is a rare complication seen after gastrojejunostomy or Billroth II reconstruction, but also after total gastrectomy, Roux-en-Y-gastric bypass and a pancreatico-jejunostomy.<sup>[1]</sup> It was first described by Bozzi in 1914. Only about 200 cases have been reported since.<sup>[2]</sup> The incidence has been estimated to be three in 2000 gastroenterostomies (.0015%). It has been a reported complication of virtually every type of gastroenterostomy from 5 days to 35 years.<sup>[3]</sup>

In 1957, Hertzberg and Vestby summarized the conclusion of earlier authors as follows : since no pathologic change could be found in the intussusceptum, the causative mechanism was believed to be functional, probably related to spasm and peristalsis. Hyperperistalsis in the small bowel after gastric surgery, in addition to excessive mobility of the jejunum, could promote intussusception. Antecolic anastomosis also contributes to this excessive mobility and thereby favours intussusception.<sup>[3]</sup>

The duration of this complication may vary from acute to chronic.

In its acute fulminating form: This sequela may occur many years (upto 26 years ) after the initial operation and may have fatal results unless diagnosed early.<sup>[4]</sup> It presents with paroxysms of vomiting, often coffee ground in color, which then progresses to bright red bleeding. Severe abdominal pain may be present. The diagnostic triad consists of a:

However, there is no peritoneal irritation and ileus is a late sign due to its intraluminal location.<sup>[5]</sup>

The chronic recurrent form: is more common than the acute type, though frequently unrecognized. Patients have maintained a state of chronic invalidism following gastric surgery. The characteristic symptoms are epigastric recurrent discomfort or pain, frequently associated with ingestion of food, and usually subsiding within an hour.<sup>[4]</sup>

In the acute form, incarceration and strangulation of the intussuscepted loop generally occur whilst spontaneous reduction is usual in the chronic type.<sup>[6]</sup>

There are three types of jejuno-gastric intussusception:<sup>[7]</sup>

Our case was type II efferent loop retrograde intussusception.

Most previous reports have described water soluble upper GI study or emergency endoscopy in diagnosing this entity. In this article we attempt to highlight the value of CT as a rapid, effective means of diagnosing without having the sick patient undergo the inconvenience of endoscopy or the doubtful findings after a barium or a gastrograffin study, in which often one has to rely on the secondary signs of intussusception.

In most cases US shows intragastric tubular images with peristalsis and CT a dilated stomach with intragastric filling by bowel loops.<sup>[1]</sup> CT will show intussusception of the jejunal loops into the stomach with invagination of the mesentery and vessels.<sup>[6]</sup> An important role of CT is to define the type of intussusception and assess the viability of the invaginated bowel loop.<sup>[8]</sup>

In our case, the patient underwent a plain abdominal CT scan. Table dose of water was given, which served as a neutral enteral contrast. The advantages of CT being its multiplanar capability, and ability to view a marked point on an image in multiple projections. This eliminates any dilemmas in case of overlapping, thickened loops. Besides the advantage of cross-sectional imaging, the jejunum could be traced in serial images going retrograde into the stomach.

Although spontaneous reduction was noted, in most cases surgical management should be performed as soon as possible to avoid the risk of additional severe complications. Surgical options include reduction, resection of the compromised bowel, revision of the anastomosis and the takedown of the anastomosis, depending on the conditions found during the operation. When there is ischemic change of invaginated loop, resection is the only treatment option.

<sup>[1]</sup> Mortality rates rise with delay in operation – 10 percent within 48 hours and more than 50 percent thereafter.<sup>[5]</sup>

## CONCLUSION

Jejunogastric intussusception is a rare surgical emergency seen after gastric surgeries usually gastrojejunostomies, usually after a variable period. Its diagnosis has traditionally been made with conventional barium studies. With evolving imaging modalities endoscopy, ultrasound and CT scans are being used. The importance of CT lies in its ease of performance on a sick patient, and using water as neutral enteral contrast, affording a rapid unambiguous diagnosis.

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**Author Information**

**Deepali Saxena, DNB**

Senior Resident, Department of Radiology, St. John's Medical College Hospital

**Ravi Hoisala, MD, DMRD, DNB**

Professor, Department of Radiology, St. John's Medical College Hospital

**Divya P, MD**

Assistant Professor, Department of Pathology, St. John's Medical College Hospital