

## Gastroduodenal Intussusception of a Gastrointestinal Stromal Tumour

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### Abstract

Gastroduodenal Intussusception is a very rare clinical entity reported in the literature. This is a rare case in a 8 year old boy who presented with features of recurrent fever, vomiting and Jaundice. A gastroduodenal intussusception of a large gastric stromal tumour, which presented with intermittent abdominal pain and gastric outlet obstruction. Pre-operative diagnosis was made on abdominal ultrasound and confirmed at laparotomy and histopathological examination.

**Keywords:** Intussusception, Laparotomy, Gastrointestinal stromal tumour (GIST).

### Introduction

An intussusception occurs when one portion of the gut invaginates into an immediately adjacent segment; almost invariably, it is the proximal into the distal. The condition is encountered most commonly in children, with a peak incidence between 5 and 10 months of age. Children with intussusception associated with a pathological lead point such as Meckel's diverticulum, polyp, duplication, Henoch-Schönlein purpura. After the age of 2 years, a pathological lead point is found in at least one-third of affected children. Adult cases are invariably associated with a lead point, which is usually a polyp, a submucosal lipoma or other tumour<sup>1</sup>.

In most children, the intussusception is ileocolic. In adults, colocolic intussusception is more common. The degree of ischaemia is dependent on the tightness of the invagination, which is usually greatest as it passes through the ileocaecal valve<sup>1</sup>.

Anterograde gastroduodenal intussusception is the rarest form of adult intussusception accounting for less than 10% of all intussusception cases in adults<sup>2</sup>. This rare presentation has been documented to be caused by pedunculated polyps<sup>3</sup>, Menetrier's disease<sup>4</sup>, hamartomas<sup>5</sup>, gastrointestinal stromal tumors<sup>6</sup>, and other gastric tumors. It is thought that luminal lesions act as a lead point for the anterograde prolapse of the gastric wall into the proximal duodenum<sup>7</sup>.

### Clinical presentation of the case

A male patient of 8 years old admitted into Prime Medical College Hospital, Rangpur on 05.05.2015 with the history of intermittent fever for 1 year, recurrent upper abdominal pain for 8 months, vomiting and jaundice for 8 months. Fever was 101-102° F and stay for 4-5 days, then reduced spontaneously and also by medication. Patients attendance give the history of upper abdominal pain with vomiting. Pain was colicky in nature increase after taking meal associated with vomiting. Vomiting projectile in nature, vomitus contain undigested food materials, copious amount, nonbilious and not mixed with blood. The patient also had jaundice which gradually increasing, associated with pale stool and weight loss. Clinical examination patient mildly anaemic, deep jaundiced, malnourished, upper abdomen distended an ill-defined mass present in epigastric region which is non tender and slightly moves with respiration, mild ascitis present, and normal bowel sound.

On investigation- CBC: WBC 23000/cumm, neutrophil 88%, Hb% 8.2gm/dl, serum bilirubin 3.7mg/dl, alkaline phosphatase 344 IU/l, USG show elongated bowel mass in upper and mid part of abdomen, most likely intussusceptions of small gut. Biliary tree dilated most likely due to kinking or narrowing of distal Common Bile Duct (CBD) of intussusceptions (Fig 1). The patient was managed as intussusceptions of small gut.

### Management approach

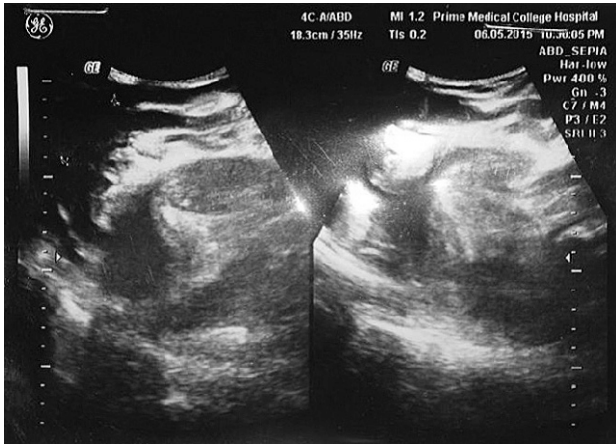
The patient attendance was counseled about the disease condition and was decided for laparotomy. Laparotomy done through upper right paramedian incision. Clear serous fluid comes on opening the abdomen. Duodenum and

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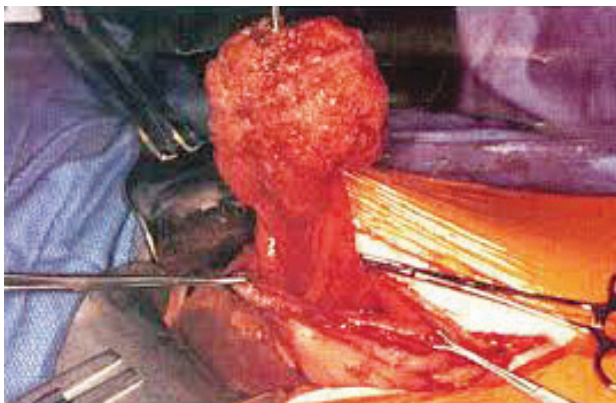
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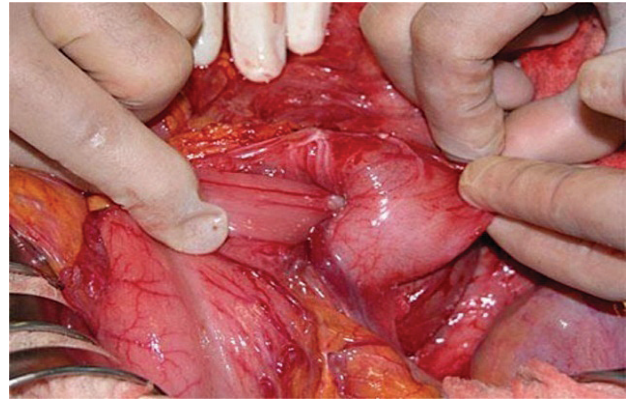
proximal jejunum found hugely distended but distal jejunum and ileum found collapsed. Firm mobile mass feel within the duodenum and jejunum (Fig 2). On pressure from distal to proximal the mass was reduced and the mass then feel within the stomach. The stomach was open through anterior wall. A pedunculated mass found which was arised from the body of stomach along the greater curvature (Fig 3) with a base of about 6.5 cm. No gastric or celiac lymph nodes were enlarged. Wedge resection of the mass along with anterior & posterior wall of stomach and primary anastomosis made, specimen sent for histopathological examination. The postoperative course was uneventful and the patient was able to resume oral intake after 5<sup>th</sup> post operative day. Histologically, the resected tumor was composed of smooth muscle cells and fibroblast, arranged in interlacing bundles and fascicles i. e. benign gastrointestinal stromal tumour (GIST).



**Fig 1:** Ultrasonography finding of narrowing of distal Common Bile Duct (CBD) of intussusceptions



**Fig 2:** Mobile mass in abdomen



**Fig 3:** Pedunculated mass arise from body of the stomach

## Discussion

In gastroduodenal intussusception, a pedunculated benign gastric tumor is usually known to become the lead point<sup>8</sup>. Polyps constitute 40% and intramural smooth muscle tumors 40%<sup>9</sup>. In Japan, 143 cases of gastroduodenal intussusception caused by gastric tumors were reviewed<sup>10</sup>. About 67% of the tumors were epithelial tumors, such as an early gastric cancer and benign polyp. Intramural tumors, which were less common than epithelial tumors, comprised 25% of tumors. The tumors included 97 in the gastric antrum (68%), 36 in the gastric body (25%), and 10 in the gastric fundus (7%). While gastroduodenal intussusception is a rare clinical entity, tumors in the gastric body are less commonly associated with intussusception.

There were eight patients reported with ball valve syndrome secondary to a GIST in the gastric fundus and body. Seven patients were Japanese. The average age was 77 years (44–93), and 7/8 was women. The average maximum diameter of the tumors was 57 mm (32–87). Endoscopic reduction succeeded preoperatively in three tumors. Three tumors were resected laparoscopically, and the remaining five were resected at open surgery<sup>11</sup>.

GIST is a non-epithelial, mesenchymal tumor first described in 1983, and the majorities are gastric in origin<sup>12</sup>.<sup>13</sup>. The presentation of a GIST is usually nonspecific and depends on the size and location of the tumor. Small GISTs, 2 cm or less, are usually incidentally found during workup for other unrelated conditions because they are often asymptomatic. A gastric GIST causing duodenal obstruction is not common<sup>14</sup>. As described above, tumors located in the gastric fundus or body need to be submucosal and large to cause gastroduodenal intussusception. GISTs, which are not resected for any reason, often meet this condition. Therefore, we should pay attention to a possibility of this complication.

Surgical resection of GIST should be optimized to achieve a negative pathologic surgical margin while limiting the extent of gastric volume loss. A specific operative approach is selected based on the tumor size, location, and configuration. Since tumors in the gastric body which

cause gastroduodenal intussusception are usually large and show endophytic growth, an “exogastric resection” could significantly reduce the volume in the stomach. These tumors should be treated using an “intra-gastric” approach, with a gastrotomy in the anterior wall of the stomach and eversion of the mass, followed by a full thickness resection with a linear stapler or resection & anastomosis through the gastrotomy<sup>15,16</sup>. The present patient was treated using open resection & anastomosis because of limitation of stapler use. In contrast, tumors reduced preoperatively can often be resected laparoscopically. The indications for laparoscopic resection should be considered carefully since these tumors are often larger than 5 cm. Current guidelines and consensus favor recommendations to maintain the principles for surgical resection without strictly limiting the indications for laparoscopic surgery based on size<sup>17,18,19</sup>. However, five centimeters seem to be a practical reference.

## Conclusion

Gastroduodenal intussusception caused by GIST in the gastric body is a rare clinical entity. All patients previously reported presented with ball valve syndrome. Transgastric resection and anastomosis is possible. Many tumors were resected with an intra-gastric approach. The indications for laparoscopic surgery depend on the tumor size and whether endoscopic reduction is successful.

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