



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

INTERNATIONAL JOURNAL  
OF CURRENT RESEARCH

International Journal of Current Research  
Vol. 11, Issue, 02, pp.1404-1406, February, 2019

DOI: <https://doi.org/10.24941/ijcr.34449.02.2019>

## RESEARCH ARTICLE

# GASTRIC GASTROINTESTINAL STROMAL TUMOUR CAUSING A GASTRODUODENAL INTUSSUSCEPTION

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### ARTICLE INFO

#### Article History:

Received 11<sup>th</sup> November, 2018

Received in revised form

07<sup>th</sup> December, 2018

Accepted 12<sup>th</sup> January, 2019

Published online 28<sup>th</sup> February, 2019

#### Key Words:

Intussusception, GIST,  
Gastro-intestinal stromal tumour,  
Polyp, gastric outlet obstruction, GOO.

### ABSTRACT

We present the case of a 63 year old woman from Bangladesh, who presented with history suggestive of gastric outlet obstruction for 1 year and melena for 2 weeks. She was previously treated at her hometown for pancreatic pseudocyst. At presentation she was cachexic, anaemic and icteric. She was diagnosed to have a gastric antral polyp causing gastro-duodenal intussusception. This caused gastric outlet obstruction (GOO), obstructive jaundice and pancreatic duct dilatation. In spite of her frail and nutritionally depleted state she needed emergency laparotomy to prevent complications of cholangitis and severe melena. She had relief of symptoms post operatively. The challenges in perioperative management of this rare scenario in a frail, 63 year old woman are described.

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Citation: Aditya Thomas, Swaminathan Ravi, Siddharth Dorairajan, Myla Yacob, Vijay Abraham and Inian Samarasam. 2019. "Gastric gastrointestinal stromal tumour causing a gastroduodenal intussusception", *International Journal of Current Research*, 11, (02), 1404-1406.

## INTRODUCTION

This is a rare presentation of a gastric GIST, causing complications of GOO, melena, obstructive jaundice and pancreatitis in the same patient. All of the above symptoms could be explained by gastro-duodenal intussusception and knowledge of the same can prevent unnecessary investigations. Additionally, this case highlights the need for urgent intervention in selected patients in spite of nutritionally depleted status, with high risk. To our knowledge, this is the first such case described for gastric GIST causing gastroduodenal intussusception with all of the above mentioned symptoms.

### Case Presentation

A 63 year old woman from Bangladesh presented with history of gradually progressive abdominal pain for 1 year. She was evaluated at a local hospital with cross sectional imaging and was diagnosed to have a pancreatic pseudocyst. She further underwent endoscopic cysto-gastrostomy. However, her symptoms progressively worsened. She had significant loss of weight and started developing jaundice. Two weeks prior to presentation she started developing melena and she presented to our service for further management.

She did not have any other diagnosed co-morbidities. At presentation, she was dehydrated and had a BMI of 20 and ECOG 3. She had icterus and severe pallor. On abdominal examination, there was a hard, mobile mass palpable in the right upper quadrant and epigastric regions.

**Investigations:** She had a haemoglobin level of 6.8g%. Bilirubin levels were elevated (Total 2.10mg/dL, Direct 1.20mg/dL) with raised Alkaline Phosphatase (292 U/L) and Albumin level of 2.7g/dL. An ultrasound scan revealed pyloro-duodenal intussusception with a heterogenous mass as a lead point. She subsequently underwent a CT Scan which revealed a large heterogeneously enhancing polypoidal growth about 6.4 x 4.5 x 4.5 cms confirming USG findings of gastro-duodenal intussusception. The gastro-epiploic vessels were seen dragged along the intussusseptum. The Common Bile Duct (CBD) was dilated to 17mm with mild bi-lobar intrahepatic biliary radicle dilatation. There was also smooth dilatation of the pancreatic duct, thus causing double duct sign. There were no features to suggest chronic pancreatitis. Endoscopy done showed a submucosal lesion. An NJ tube was inserted at this time. The endoscopic biopsy report was consistent with hyperplastic polyp.

**Treatment:** She was initially resuscitated and planned for feeding via NJ tube, prior to any surgical intervention. At this time, her condition acutely deteriorated and she developed

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hypotension. She was shifted to the high dependency unit for monitoring and required inotropic supports. Blood culture was positive for E.Coli, Morganella Morgagni and Non fermenting gram negative bacilli. Liver function tests were grossly deranged with Total Bilirubin level of 7.01 (Direct 5.55) and SGOT of 3707 and SGPT of 3466. She also had several episodes of melena requiring multiple blood transfusions. Antibiotics were initiated according to sensitivity. Total Parenteral Nutrition (TPN) was withheld in view of altered liver function tests. After counselling the family, we proceeded with emergency laparotomy and exploration. Intraoperatively, the polyp was situated in the D4 segment of the duodenum. It was possible to manually push the polyp into the stomach, where it was felt to arise from the posterior wall of the antrum. A horizontal gastrotomy was made on the anterior wall of the stomach and the polyp was identified. An open gastro-intestinal stapler (Medtronic DST series GIA 100mm stapler (4.8mm thickness staples) was fired across the base of the polyp, which was oversewn with 3-0 polypropylene continuous sutures. The gastrotomy was closed with 3-0 polypropylene continuous sutures. The nasojejun tube was retained and no feeding jejunostomy was done. On manual exploration, no other polyps were detected in the rest of the GI tract.

**Outcome and Follow-up:** In the post-operative period, she developed large volume melena on the 3<sup>rd</sup> post-operative day with haemoglobin levels dropping to 5.8g%, requiring blood transfusion. She was managed conservatively for the same and melena subsided on its own. She was started on oral feeds by the 7<sup>th</sup> post-operative day and the NJ tube was removed. She had persistent hypokalemia and hypomagnesemia in the post-operative period which required IV corrections. At time of discharge total bilirubin had dropped to 1.97 mg/dL (direct 1.53mg/dL) with alkaline phosphatase of 154 U/L. She was tolerating a normal diet.

**Table 1. Determining aggressive behaviour in GIST. From Fletcher et al**

Risk	Size	Mitotic Count
Very low risk	<2 cm	< 5.50HPF
Low risk	2-5cm	<5/50 HPF
Intermediate risk	<5cm	6-10/50 HPF
	5-10cm	<5/50 HPF
High risk	>5cm	>5/50 HPF
	>10cm	Any mitotic rate
	Any size	>10/50 HPF

The final histopathology report was consistent with GIST (low risk category), mixed type (spindle cell and epitheloid), positive for CD-117 and DOG-1 markers. The maximum tumour size was 8.3cm and it had a mitotic activity of 3-4/50HPF. In view of poor but improving nutritional status, Imatinib therapy was decided to be initiated after 2 months.

## DISCUSSION

Intussusception is defined as the invagination of one segment of the intestine to another adjacent segment (Stubenbord, 1970). Gastroduodenal intussusception is relatively rare and accounts for 10% of all intussusception cases (Stubenbord, 1970). To the best of our knowledge, 9 cases are reported in literature with GIST presenting as gastric outlet obstruction, melena or pancreatitis (Yildiz, 2016; Chan, 2009; Adjepong, 2006; Jameel, 2017; PBB, 2015; Rittenhouse, 2013; Gyedu,

2011; Siam, 2008 and The Korean Society of Gastroenterology, 2017). This is the first time a case has been reported of a gastric pedunculated GIST, causing gastroduodenal intussusception, GOO, obstructive jaundice, pancreatitis and melena. GIST is the most common mesenchymal tumour of the GI tract (Hirota, 1998). It considered to originate from the interstitial cells of Cajal, which are thought to play a role in propagation of slow wave gut peristalsis (Hirota, 1998). While it is found throughout the GI tract, the most common location is the stomach (50-60%), followed by the small intestine (20-25%), rectum (5%) and oesophagus (2%) (Corless, 2004; Tran, 2005; Osada, 2007 and Joensuu, 2006). All GISTs are considered to have some ability to metastasize. Fletcher *et al* characterised the malignant potential of GISTs and established primary tumour size and mitotic figures per high power field as the best indicators to determine prognosis (Fletcher, 2002). The treatment of any intussusception involves removal of its lead point, if present. The affected part of the intestine may need to be excised if there are features of unviability or necrosis. The treatment of GIST involves wide local excision to achieve negative margins. This is facilitated by the tumour's propensity to grow outward rather than submucosally (Sokolich, 2009). It is of note that an R0 resection does not necessarily confer a worse prognosis as far as progression free or overall survival is concerned (DeMatteo, 2000). Recurrence in GIST seems to be determined more by tumour size and mitotic index (DeMatteo, 2000). Metastasis is by haematogenous spread, most commonly to the liver and peritoneum. Lymphatic spread is an uncommon feature and lymph node dissection is undertaken in the rare patient that presents with lymphatic metastasis (Corless, 2004). Tyrosine kinase receptor inhibitors Imatinib and the second-line drug Sunitinib are recommended in the adjuvant setting to prevent recurrence, even in R0 resection (Demetri, 2006 and Dematteo, 2009).

**Learning Points:** GIST can have a varied means of presentation, and, as in this case, can have several classical clinical symptoms at the same time. Any mass in the upper GI tract with history of bleeding related complications should raise the suspicion of GIST. The pedunculated nature of some of these tumours can lead to waxing and waning of obstructive symptoms.

## Conflict of Interest

There have been no sources of funding for this project, institutional or otherwise. The authors do not have any conflict of interest through a financial incentive or through a commercial organization with interest in the research reported.

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