Case 9065

GIST and intussusception. A cause for severe gastrointestinal bleeding
(ECR 2010 Case of the Day)
Published on 27.12.2010

DOI: 10.1594/EURORAD/CASE.9065
ISSN: 1563-4086
Section: Abdominal imaging
Area of Interest: Abdomen
Imaging Technique: CT-High Resolution
Special Focus: Acute Case Type: Clinical Cases
Authors: Bouzas R, Taboada VCHUVI, University Hospital Vigo; Vigo/ES
Patient: 74 years, female

Clinical History:

A 74-year-old female patient came to the emergency department for sudden massive lower gastrointestinal bleeding and secondary hypovolemic shock. Colonoscopy was not able to detect the underlying cause of gastrointestinal bleeding and a 16 slide MDCT was performed.

Imaging Findings:

A 74-year-old female patient came to the emergency room with anaemia, haemodynamic instability and acute lower gastrointestinal bleeding. Optical colonoscopy (OC) was performed, the patient showed massive active gastrointestinal bleeding during the procedure, a situation that made colon analysis difficult, and etiology of the bleeding was not found. After OC she underwent a 16-slide MDCT study of the abdomen; after 100cc of intravenous contrast media (IVC) injection a biphasic, arterial and venous study was performed, a 4ml/seg rate flow was used. MDCT showed a jejunal intussusception with the classic bowel-within-bowel imagine, sagittal (Fig. 1) and coronal (Fig. 2) MPR reformations showed a length of approximately 3-cm and axial slide showed a one centimetre area of hyperenhancement in the centre of the intussusception both in arterial (Fig. 3) and venous phase (Fig. 4) corresponding with an enhanced small mass of 1cm that served as the lead point. After MDCT the patient was sent to surgery.

During surgery the intussusception was spontaneously resolved, but the location of the previous intussusception bowel segment could be recognised due to congestive wall coloration of a segment of jejunum, where a small submucosal mass of 1.5 cm was found and excision was performed (Fig. 5).

Histopathological examination of the tumour confirmed a gastrointestinal stromal tumour of epithelioid cell pattern (Fig. 6). Immunohistochemical examination showed the tumour cells to be positive for KIT (CD117) confirming this to be a stromal tumour (Fig. 7).

During follow-up the patient did not suffer any other episode of lower gastrointestinal bleeding.

Discussion:

Adult intussusception occurs mainly due to secondary pathology but transient intussusception is a common problem in MDCT studies. Differential diagnosis between secondary and transient intussusception could be difficult. A shorter less than 3 cm and not visible lead point are the clues to indentify a transient intussusception. Our case shows a shorter secondary intussusception related to a small tumour as lead point showed both in arterial and portal phases as the cause of a massive haemorrhage.

Gastrointestinal stromal tumours (GISTs) are the most common mesenchymal neoplasm in the gastrointestinal (GI)
tract. They arise from a precursor of the interstitial cells of Cajal. They are defined by their expression of KIT (CD117), a tyrosine kinase growth factor receptor. Most GISTs also express CD34 protein. Histologically, they manifest in one of three patterns: spindle cell type (70%), epithelioid type (20%) or mixed type. GISTs most frequently occur in the stomach (70% of cases) followed by the small intestine (20-30%), anorectum, colon and oesophagus. Also they may rarely occur primarily in the omentum, mesentery, and retroperitoneum. The symptoms depend on the size and anatomic location of the tumour. Patients may present with pain, dysphagia, weight loss, gastrointestinal bleeding, bowel obstruction, or a palpable abdominal mass. The most common clinical manifestation for symptomatic tumours in the stomach, small intestine, colon, and anorectum is gastrointestinal bleeding from mucosal ulceration, in same series nearly half of the GISTs debut with occult gastrointestinal bleeding. Endoscopes procedures are the first line test to look for the source of acute gastrointestinal bleeding, however, when severe bleeding occurs endoscopies procedures could not find the source due to massive haemorrhage or small bowel source. MDCT is reported to be as sensitive as arteriography to detect the source of gastrointestinal bleeding and is useful to decide medical or surgical treatment. There are few cases described in the literature where GISTs could be the cause of surgical emergencies like massive bleeding, obstruction, intussusception or perforation. Occasionally, small asymptomatic GISTs are discovered incidentally during a radiologic evaluation or surgical procedure. Enhanced-CT scan is the most valuable imaging technique for evaluating GIST, having a sensitivity of 93% and a specificity of 100%.

In this particularly patient arterial and venous phase shows a small hypervascular mass as underlining pathology. This behaviour remarks the importance of arterial studies in gastrointestinal bleeding to show extravasations of IVC, a sign of active bleeding, not showed in this patient but also to detect small gastrointestinal tumours, especially hypervascular tumours as GISTs that could be the origin of a massive haemorrhage. In the other hand, a short intussusception not more than 3 cm is difficult to identify as idiopathic or secondary when a lead point is not clearly visible, but when patient gastrointestinal bleeding is present intussusception could be a sentinel sign of a very small tumour.

Differential Diagnosis List:  GIST: Gastrointestinal stromal tumour of small bowel and secondary intussusception, Idiopathic intussusception, Active jejunal bleeding, Lymphoma Burkitt, GIST, Small bowel carcinoid

Final Diagnosis:  GIST: Gastrointestinal stromal tumour of small bowel and secondary intussusception

References:

Description: Oblique sagittal enhanced CT scan shows a jejunal intussusception of approximately 3 cm. Origin:
**Description:** Coronal enhanced CT scan shows a jejunal intussusception of approximately 3 cm.

**Origin:**
Description: Arterial phase: Axial enhanced CT scan shows a jejunal intussusception and an enhanced small mass that served as the lead point. Origin:
Figure 4

Description: Portal phase: Axial enhanced CT scan shows a jejunal intussusception and an enhanced small mass that served as the lead point. Origin:
Description: Photograph of resected and opened jejenum shows a GIST protruding into the intestinal lumen. Origin:
Description: Photomicrograph haematoxylin-eosin [H-E] stain of epithelioid cell GIST. Origin:
**Figure 7**

*Description:* KIT immunoreactivity. Photomicrograph of GIST shows tumour cell cytoplasm staining brown indicating immunoreactivity. *Origin:*