Imaging appearance of malignancy associated gastrogastic intussusception in an elderly woman

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DESCRIPTION

A 70-year-old woman who was a known case of gastric malignancy under treatment in complementary medicine presented with epigastric pain and multiple episodes of vomiting for 5 days. On examination, her vitals were stable, and she was afebrile. Slight pallor (+/4) and bilateral pedal oedema were seen. Abdominal examination revealed epigastric tenderness and guarding rigidity. Chest radiograph (figure 1A) showed crescentic lucencies under both hemidiaphragms suggestive of pneumoperitoneum. Abdominal ultrasound (figure 1B–D) showed a large lobulated gastric mass having frond-like margins arising from the upper part of the body of the stomach and seen telescoping into its lumen, carrying the omentum and gastric vessels along, suggestive of gastrogastic intussusception. CT of the abdomen (figure 2) confirmed the ultrasound findings and detected one more lesion along the lesser curvature. The site of perforation was detected in the fundus of the stomach, and few necrotic metastatic lymph nodes were seen in the gastrohepatic region. Emergency

laparotomy identified the gastrogastic intussusception, and the patient was surgically treated with total gastrectomy.

Gastrogastic intussusception is a very rare type of foregut intussusception reported to occur commonly due to benign gastric lesions. The malignancy-associated occurrence of the intussusception is even rarer with the present case being the second case reported in the English literature after Eom *et al.* The difference between our case and their case is with respect to the location of the lesion. In the present case, it was located in the proximal body which is a more easily movable and distortable portion of the stomach while in their case it was in the antrum whose mechanism of intussusception is unclear. Four other cases of gastrogastic intussusception reported are secondary to benign lesions like leiomyomas, gastrointestinal stromal tumour and hypertrophic polyps which were located in the proximal stomach as well.^{1,2} All the cases reported are in patients between 65 and 83 years of age probably indicating the age-related redundancy of bowel contributing to its occurrence. Pneumoperitoneum due to perforation adjacent to the intussusception and another focus of enhancing lesion along the

Figure 1 Chest radiograph (A) shows crescent-shaped free air under both hemidiaphragms (blue asterisks) suggestive of pneumoperitoneum. (B) Low-frequency ultrasound image (2–5 Megahertz) showing heterogeneous mass within the stomach (white arrows) in the left hypochondrium. (C) Focused high-frequency ultrasound image (12–15 Megahertz) clearly defines the hypoechoic mass (m) with frond-like surface telescoping into the lumen of the stomach carrying the omentum (o) along and reaching close to the inner surface of the normal stomach wall (yellow arrows). Green arrows indicate the hyperechoic air between the lesion and stomach wall. The echogenic interface of the omentum with the serosal lining of the telescoping lesion is marked with white asterisks. (D) Colour Doppler image showing short gastric artery within the telescoped omentum.

Figure 2 Postcontrast CT study axial (A, B), coronal (C) and sagittal (D) sections of the upper abdomen showing frond-like lobulated mass lesion (m) arising from the posterior wall of the upper part of the body and telescoping into the gastric lumen drawing the adjacent hypertrophied gastric wall, omentum and gastric vessels into the lumen (red arrows). Asterisk in images A, B and C shows the lobulated thickening of the upper portion of the lesser curvature of the stomach. Necrotic gastrohepatic nodes (n) are seen in images A and B. Focal discontinuity of the wall enhancement with adjacent air pocket suggestive of perforation is seen in the fundal region of the stomach (yellow arrow in image D).

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lesser curvature are additional features seen in our case. Perforation in these cases occurs secondary to the chronicity of the condition that results in ischaemia and necrosis of the tissue.³

Apart from highlighting the imaging appearance, our case demonstrates the crucial importance of timely diagnosis and intervention of the gastrogastic intussusception as it may lead to perforation, peritonitis and sepsis which may further complicate the patient's condition. Out of all the imaging modalities shown, CT imaging is indispensable and is the modality of choice in clearly demonstrating the intussusception.^{1 2} Strategies while acquiring CT involves administration of intravenous contrast agent and obtaining multiplanar reconstructions. Intravenous contrast reveals the enhancing gastric wall, short gastric arteries and the omentum being dragged into the lumen by the malignant or benign lesion. Multiplanar

reconstructions in axial, coronal and sagittal planes delineate the complete morphology of the lesion, ensuring a confident diagnosis. CT imaging is also helpful in better demonstration of any complications that occur due to intussusception like perforation as depicted in our case.

Contributors LHK was involved in the conception of the work, drafting the article and final approval of the version be published. KR was involved in the design of the work, revising the draft critically for important intellectual content and final approval of the version be published. PS was involved in the analysis of data, drafting the article and final approval of the version be published. HKD was involved in the acquisition of the data, drafting the article and final approval of the version be published. All authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Learning points

- Gastrogastic intussusception is a very rare type of foregut intussusception reported to occur commonly due to benign gastric lesions. Malignancy-associated intussusception is even rarer in occurrence.
- Perforation in these cases is secondary to the chronicity of the condition that results in ischaemia and necrosis of the tissue.
- CT imaging with contrast is the modality of choice in demonstrating the intussusception, and its multiplanar reconstruction capabilities ensure a confident diagnosis.

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