Adult duodeno-duodenal intussusception
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Section: Abdominal imaging
Case Type: Clinical Cases
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Patient: 50 years, female

Clinical History:
A 50 year old woman presented with a 9 month history of intermittent abdominal pain.

Imaging Findings:
A 50 year old woman without important pathologic clinical history, presented with a 9 month history of episodes of abdominal pain that remitted spontaneously. Her physician indicated a CT examination with intravenous contrast administration. CT scanning revealed intussusception involving the full-thickness duodenal wall shown as a complex soft tissue mass, consisting of the outer ring, intussuscipiens, a central ring of mesentery and an outer ring of intussusceptum (“target sign”). The appearance of a bowel-within-bowel configuration with or without contained fat and mesenteric vessels is pathognomonic for intussusception. The lead point was a heterogeneously enhancing polypoid mass adjacent to a dorsal wall of horizontal part of the duodenum.

The patient underwent surgery - after laparotomy, mobilization of the duodenum, and duodenotomy, polypectomy was performed. The polyp was histologically proven to be a hamartoma of Brunner’s gland of the duodenum.

Discussion:
Enteroenteric intussusception is a condition in which full-thickness bowel wall becomes telescoped into the lumen of distal bowel [1]. Intussusception arises in the small bowel in two-thirds of cases [5]. In adults, there is usually an abnormality acting as a lead point, usually a benign lesion: Meckel diverticulum, hamartoma or a tumour [1,5]. Intussusceptions in adult patients are uncommon, accounting for only 5% of all cases [6]. We present a case of duodeno-duodenal intussusception with polypoid hamartoma of Brunner’s gland of the duodenum as a lead point. Duodeno-duodenal intussusception is very rare because the retroperitoneal situation fixes the duodenal wall [1]. Most common clinical presentation is small bowel obstruction, which may be acute, chronic, or intermittent; it only accounts for 1% of all small bowel obstructions. Other symptoms may include weight loss, fever, hemopositive stools, or palpable mass [6].

Intussusception is usually diagnosed on CT, as CT is often the first modality for the investigation of prolonged abdominal pain from which these patients suffer [2]. Intussusception has pathognomonic CT appearance: the bowel-within-bowel configuration with or without contained fat and mesenteric vessels is pathognomonic [3]. It appears as a complex soft tissue mass with a three-ring configuration (“target sign”), consisting of the outer intussuscipiens, the inner intussusceptum and a central area of fat density representing the intussuscepted mesenteric fat; the mesenteric vessels are often visible within it [5]. The intussusception appears as a sausage-shaped mass, as a “target” mass and as a kidney shaped mass, depending on the angle of the CT beam vs. the intussusception. The curvilinear areas of low attenuation between the bowel walls represent the fat outside the duodenal muscle wall. This is a key feature to distinguish the intussusception from mucosal prolapse into the distal bowel [1]. This differential diagnosis is important because intussusception carries a higher risk of complications of bowel ischemia,
intraluminal bleeding and bowel obstruction compared to mucosal prolapse [1]. Abdominal CT also allowed identification of the lead point, heterogeneously enhancing polypoid mass adjacent to a dorsal wall of horizontal part of the duodenum, which was histologically proven Brunner's gland hamartoma. Other imaging modalities used to diagnose the intussusception are US and fluoroscopy. US may also demonstrate a form of the "target sign", but is usually more effective in paediatric patients. Fluoroscopy may be used also to treat intussusceptions, but more commonly in paediatric patients [4]. Intussusception can be complicated by bowel obstruction, ischaemia or bleeding, and therefore the underlying cause should be treated as soon as possible [1]. Treatment of intussusceptions in adults is typically surgical, unlike in paediatric patients [6].

Differential Diagnosis List: Adult duodeno-duodenal intussusception

Final Diagnosis: Adult duodeno-duodenal intussusception

References:

Description: Soft tissue mass with a three-ring configuration ("target sign"), consisting of the outer intussusciens, the inner intussusceptum and a central area of fat density representing the intussuscepted mesenteric fat. Origin:
Description: Soft tissue mass with alternating concentric rings of soft tissue and fat, which represent the intususceptum wall, the mesenteric fat and the intususcipiens wall. Origin:
Description: The intussusception appears as a sausage-shaped mass, as a "target" mass and as a kidney shaped mass, depending on the angle of the CT beam vs. the intussusception. Origin:
**Description:** Lead point mass: heterogeneously enhancing polypoid mass adjacent to a dorsal wall of horizontal part of the duodenum - Brunner's gland hamartoma

**Origin:**