Small bowel obstruction secondary to appendiceal mucocele intussusception
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Patient: 32 years, female

Clinical History:

32 year old female patient presenting with generalized colicky abdominal pain who had small bowel obstruction on her abdominal radiography.

Imaging Findings:

A 32 year-old female was admitted with a six day history of generalized colicky abdominal pain, nausea, vomiting and diarrhoea. On examination her abdomen was soft with tenderness and guarding in the right lower quadrant. No masses were felt. The bowel sounds were initially high pitched and hyperactive but later were not audible. Examination of the hernial orifices were normal. A full blood count was normal except for a raised white cell count of 13.8x10^9/l (normal range 4.0-11.0x10^9/l) and the C-reactive protein was 218mg/litre (normal range 0-10mg/l). Liver function tests, urea and electrolytes, blood glucose and amylase were within normal limits and a pregnancy test was negative.

An abdominal radiography showed dilated small bowel loops consistent with small bowel obstruction. She had a CT of her abdomen which showed a thick walled mass lesion in the right iliac fossa measuring 8 x 5 cm and bowel within bowel appearance. The lesion was in the position of the caecum and highly suspicious of an intussusception. Several dilated small bowel loops were present in keeping with small bowel obstruction and free fluid was seen in the pelvis. The appendix was not visualised.

The patient was taken to theatre for a laparotomy which revealed a large appendix mass with intussusception into the ascending colon. Small bowel loops were dilated and there was distal collapse of the colon. A right hemicolecetomy was performed. Histology of the surgical specimen confirmed intussusception of an appendix mucocele into the caecum.

Discussion:

Small bowel obstruction can be secondary to extrinsic or intrinsic causes, the latter which can be further divided into intra-luminal and bowel wall lesions. Extrinsic causes include adhesions, hernias and volvulus. Intra-luminal causes include gallstone ileus, intussusception and tumours. Neoplastic lesions and inflammatory strictures are the most common examples for intrinsic bowel wall lesions.

Intussusception is telescoping of a segment of bowel into a more distal segment. The donor loop is called the intussusceptum and the receiving loop is called the intussuscipiens. It is mostly located in the small bowel (55%)
Intussusception is most commonly seen in children under the age of 2 years who present classically with red currant jelly stools. More than 90% are due to lymphoid hyperplasia following viral gastroenteritis. The remainder of the cases have a lead point which may be due to Meckel diverticulum, duplication cysts, lymphoma, polyps in Peutz-Jeghers syndrome or Henoch-Schonlein purpura.

In adults there is usually a lead point and is nearly always secondary to a neoplastic lesion. Neoplastic lesions which may lead to intussusception usually arise in the submucosa such as lipomas, lymphoma and melanoma metastases [2]. Other causes include adhesions, appendicitis, Meckel diverticulum, foreign bodies and chronic ulcers.

Intussusception of the appendix is a rare occurrence and most reported cases are due to endometriosis, mucinous cystadenomas, villous adenomas and mucoceles [3].

In our case there was a mucocele of the appendix which is distension of the appendix with sterile mucus. An underlying obstruction of the lumen of the appendix by a faecolith, foreign body, carcinoid may be present in some of the cases.

Plain abdominal X-ray may show a soft tissue mass which may be partly outlined by gas (Figure 1), small bowel obstruction (Figure 2) or perforation. If it is oriented end-on then a “target sign” may be seen which is two concentric circles of soft tissue density alternating with fat[2]. In children, ultrasound is frequently used to diagnose intussusception and assess the viability of the bowel. However CT is the investigation of choice in adults as there is usually an underlying pathology which has led to the intussusception. The characteristic features of intussusception on CT are a bowel within bowel appearance and the intussusceptum bringing the mesenteric fat into the lumen of the intussuscipiens (Figure 3). CT is invaluable in demonstrating the cause of the intussusception and any associated pathology.

**Differential Diagnosis List:** Appendiceal mucocele leading to an intussusception and small bowel obstruction

**Final Diagnosis:** Appendiceal mucocele leading to an intussusception and small bowel obstruction

**References:**


Description: Soft tissue mass in the right midflank Origin:
Figure 2

Description: Dilated small bowel loops

Origin:
Figure 3

Description: Bowel within bowel appearance. Origin:
Description: Dilated small bowel loops and mesenteric fat within the intussusception. Origin: