MESENTERIC CYST MIMICKING MALROTATION – A CASE REPORT

Gregory J Shepherd¹, Ross Fisher²
¹Department of Pediatric Surgery, Nottingham Children’s Hospital, Queen’s Medical Centre, Nottingham, UK
²Department of Pediatric Surgery, Sheffield Children’s Hospital, West Bank, Sheffield, UK

Abstract

Presented is the case of an eight-year-old girl with an intra-abdominal cyst, symptoms consistent with malrotation and an upper gastro-intestinal (UGI) contrast which confirmed an abnormally placed duodenojejunal (DJ) flexure. At operation the radiological findings were confirmed but after resection of the cyst the DJ flexure position was reassessed and shown to have returned to normal and so an unnecessary Ladd procedure was avoided. Upper gastrointestinal contrast study is the gold standard for diagnosis, but carries a 15% false positive rate. Awareness of the limitations of UGI contrasts is vital when planning the management of suspected malrotation in the presence of mesenteric cysts. This case highlights the importance of always reassessing the position of the DJ flexure after resecting any cyst in patients with suspected malrotation on UGI contrast.

Keywords: mesenteric cyst, malrotation, volvulus, contrast study

Introduction

Intestinal malrotation, defined as a congenital abnormal positioning of the bowel and its mesentery within the peritoneal cavity, may lead to the potentially life-threatening condition of midgut volvulus. The gold standard for diagnosis is an upper gastro-intestinal (UGI) contrast study to assess the position of the duodenojejunal (DJ) flexure. This test carries a 15% false positive rate and surgeons should be aware of the possible causes of this inaccuracy [1]. Cystic mesenteric lymphatic malformations are uncommon abdominal masses, which can cause abdominal signs and symptoms for a wide variety of reasons [2]. These lymphatic malformations have been reported as both a complication of and a cause of volvulus [3].

Case Report

An eight-year-old girl attended our outpatient department having been referred by the general practitioner (GP) with a history of intermittent abdominal pain, non-bilious vomiting and an intrabdominal cyst. She was otherwise fit and well with no other medical problems. Her symptoms had been present for four years, occurring two to three times a month. The pain was described as severe and resulted in marked disability being doubled over in pain. She had a history of hard stools with intermittent diarrhoea consistent with overflow. There was no history of weight loss, and no other gastrointestinal, urological or gynaecological symptoms.

The paediatric medical team had seen the patient the year before for the same symptoms. The only clinical finding was a palpable compressible bowel loop in the left iliac fossa and all blood tests including celiac serology were normal therefore she was discharged with dietary advice.

As her symptoms persisted the GP performed an outpatient ultrasound that showed “a large 8x4x8cm thin walled multiseptate cystic lesion in the left lower mesentery”. The uterus and both ovaries appeared normal. All other viscera were normal in appearance. The GP referred...
the patient to the surgical team for advice on further management. An upper GI contrast was performed which showed the duodenojejunal (DJ) flexure was low and towards the midline. Also noted was a transitional delay at the site of the “superior mesenteric artery” but no proximal dilatation. With this result a malrotation seemed the likely cause of her symptoms with a mesenteric cyst secondary to intermittent volvulus (Fig. 1).

The patient was admitted electively for laparotomy and resection of cyst +/- Ladd procedure. Preoperative full blood count (FBC) and urea & electrolytes (U&E) were normal. A right sided, supraumbilical transverse laparotomy incision was performed.

The cecum was in the normal position, and a large 100 ml cystic mesenteric lymphatic abnormality was delivered. The cyst was 20 cm from the DJ flexure, intimately related to the mesentery, with vessels passing through it. The DJ flexure was confirmed to be in an abnormal position. The cyst was fluctuant and extended up to the jejunal bowel wall. Initial dissection of the cyst was attempted, but its intimate relation to the mesentry and bowel made this impossible.

The cyst was drained, the contents of which appeared to be chyle. Approximately 10 cm of jejunum was resected with mesentery and cyst and primary anastomosis performed. Once the bowel was returned to the abdomen the DJ flexure was assessed again and found to have returned to the normal position, so a Ladd procedure was not performed. The patient made an uneventful recovery and was discharged home well on day 4. She remains asymptomatic at 6 week follow-up. Histology report confirmed normal jejunal mucosa and submucosa. The cyst was formed of lymphatic spaces lined by bland flattened endothelium. The cyst was within the mesentery abutting the muscularis; consistent with a benign lymphatic mesenteric cyst.

It appears that the large cyst in the jejunal mesentery was pulling down on the jejunum and in turn the DJ flexure, mimicking a malrotation. The patient’s symptoms may have been related to this altered positioning of her bowel with or without volvulus, or intermittent volvulus of the mesenteric cyst.

**Discussion**

Congenital anomalies of rotation are well documented. The gold standard for diagnosis is an upper gastrointestinal contrast. The diagnosis is based on the positioning of the DJ flexure being lower and no longer to the left of the midline. This is usually a congenital abnormality. However, there are other recognised causes of this radiological finding. Ultimately, we rely on the positioning of the bowel to be normal in rotated gut. An upper GI contrast outlines the bowel lumen and from this the position of the mesentery is inferred. Familiarity with normal variations that can mimic malrotation is essential. Wandering duodenum, mobile duodenum and duodenum inversum are all important examples of conditions that mimic malrotation on contrast imaging [1].

Infants and young children have relatively lax peritoneal ligaments and this can be an important factor in the displacement of a normal DJ flexure. The DJ flexure can easily be displaced by dilated stomach or bowel, which is why adequate decompression is vital for accurate imaging [4]. Reports have shown renal agenesis, liver transplantation and an enlarged spleen can all displace a normal DJ flexure. Contrast should be introduced carefully, as contrast under pressure can also change the positioning of the DJ flexure as can an incorrectly placed enteric tube or external manual palpation [1].

Overall the false positive rate of an upper GI contrast can be as high as 15% [5]. This should always be taken into consideration when planning management as a Ladd procedure is not without its own risk.

In a 4 year old patient with malrotation, the risk of presentation with volvulus is less than 20% and the risk of mortality if volvulus is present is 7%. If Ladd procedure is performed, the risk of re-laparotomy for adhesive bowel obstruction is 15% with a mortality of 3-6% with a reasonable chance of continued preoperative symptomatology [5]. The decision to operate...
or not is not a clearcut one in the face of an asymptomatic definite malrotation so a surgeon would certainly not want to expose a patient unnecessarily to these risks if malrotation is infact absent.

Several cases are reported in the literature of malrotation associated with mesenteric cyst. It is suggested that intermittent volvulus results in lymphatic congestion and secondary cyst formation [3]. There are also reports of primary mesenteric cysts without malrotation that undergo volvulus, either of the cyst or the involved bowel [6]. However there are none where a contrast study indicated malrotation but the abnormality was corrected by resection of the cyst alone.

The jejunal mesentery is not an uncommon site for mesenteric cysts and so it seems unlikely our patient is the first to have these findings. It is difficult to assess from the literature if the position of the DJ flexure was assessed after resection of mesenteric cyst and before Ladd procedure therefore our concern is that patients have undergone unnecessary Ladd procedure. We advocate always assessing the DJ flexure again after resection of any cyst associated with suspected malrotation, to minimise unnecessary surgery with its associated risk.

REFERENCES