

TITLE

AUTHOR

Abstract

Malrotation with Volvulus is an acute emergency in children more often in infants. Ultrasound is the ideal modality in diagnosing the condition. Malrotation with associated duplication cyst is a rare entity. we report one such case.

Key Words: malrotation, volvulus, duplication cyst.

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I. Introduction

Malrotation in children accounts for 4 % of the population . 1 in 4500 of them have associated duplication cyst ^[1] .90% of Malrotation presents as an acute emergency in infancy ^[2]. In older children malrotation presents as recurrent abdominal pain with or without bilious vomiting. Child is malnourished. They also have constipation. Duplication cyst association with this condition is rarely reported in the literature ^[1] We herewith report a 5 year old child presenting as recurrent abdominal pain, bilious vomiting on and off, Constipation and poor nourishment. A strong clinical suspicion and repeated imaging studies helped in making the diagnosis. Child underwent LADD'S procedure along with resection of the cyst with a segment of Jejunum and primary bowel anastomosis. Child recovered well and discharged. In the post operative follow up child was asymptomatic , tolerating oral feeds and passing stools normally.

II. Case Report

A 5 year old child was referred to our hospital with complaints of recurring abdominal pain associated with bilious vomiting for the past two years. The child was treated symptomatically by local doctors. Two ultrasound examination of the abdomen prior to admission were reported normal .On admission to our hospital the child was seen sick, dehydrated .Child was having on and off colicky abdominal pain. Also a spherical firm mass was felt right side of lower abdomen during the episode. [FIGURE 1].We surmised for two possible diagnosis namely

- 1 Chronic non strangulating intussusception
- 2 Malrotation with chronic volvulus.

Ultrasound examination of abdomen was reported normal at our hospital. Child improved well after passing stool. Child was kept on observation. 24 hours later the child again developed colicky abdominal pain with bilious vomiting and appearance of the mass. The repeat ultrasound and CT scan demonstrated whirlpool sign of the SMV rotating clock wise over SMA^[3] & [FIGURE 2]. Urgent upper GI contrast study was also done. This revealed the DJ flexure over the spine and cork screw pattern of small bowel suggesting malrotation with Volvulus.[FIGURE 3]. Both the CONTRAST STUDY and CT abdomen also showed the duplication cyst [FIGURE 2&3]

Child after resuscitation underwent laparotomy. Small bowel was the presenting part. After rotating anticlockwise 180 degrees IC junction was seen at left upper abdomen. Mesentery was thick and large number of nodes seen. LADD's procedure was performed. During the procedure the proximal Jejunum 10 cm from DJ flexure was dilated with a cyst in mesentery [figure4]. The cyst and adjacent bowel were sharing a common wall. The cyst along with the adjoining bowel was resected and primary anastomosis was done. Child had an uneventful post operative period and discharged after 10 days. Child tolerated oral diet and passing stool normally.

The histopathological examination of the specimen proved to be a duplication cyst with ectopic gastric mucosa.[FIGURE 5]

III. Discussion

Malrotation with volvulus is an emergent situation in pediatric age group. It is diagnosed more than 90% during infancy. The infant presents acutely with abdominal colic and bilious vomiting. Bilious vomiting in infants is a Red signal. It is seen in 97% of infants with malrotation. In contrast the presentation in older children is variable. They present as recurrent abdominal pain with or without bilious vomiting. Visible gastric peristalsis (VGP) may be present. In our child there was no VGP. Therefore a high degree of clinical suspicion and an ultrasonogram is mandatory. Repeated sonography may be necessary to clinch the diagnosis as occurred in our case.^[5] Normally the SMV is to the right of SMA. An altered orientation namely SMV to left of SMA is diagnostic of malrotation.^[4] The observation of Whirlpool sign in a colour Doppler due to rotation of SMV clockwise over SMA is a diagnostic sign of volvulus. Sometimes the SMV/SMA axis may be normal which does not exclude malrotation. The volvulus of small bowel can range from a single twist to three complete twists. When the volvulus is 360 degrees and more the diagnosis is possible by ULTRASONOGRAM.^[6]

Upper GI contrast study also plays a crucial role. There is controversy in choice regarding the approach in diagnosing malrotation. The UGI contrast study is useful in cases where the USG report is inconclusive despite clinical suspicion of malrotation. The upper GI contrast study shows the position of DJ flexure. Normally it crosses to the left and at the level of the gastric outlet. In typical malrotation, the DJ flexure is to the right of spine. In atypical malrotation the DJ flexure may be over the spine or to the left of spine but well below the gastric outlet. CT abdomen is crucial in diagnosing malrotation with volvulus in adult patient who presents with symptoms of acute intestinal obstruction and epigastric pain. Malrotation is a rare cause of colicky abdominal pain in adult population. Therefore a high degree of clinical suspicion is needed.

Malrotation is commonly associated with duodenal obstruction, internal hernias, caecal volvulus. Uncommon associations are HIRSCHSPRUNG'S disease and ANORECTAL MALFORMATION. Malrotation associated with duplicate cyst is very rarely reported. The histopathology in this case shows cyst lined by specialized gastric epithelium. Wall of cyst composed of bundles of smooth muscle which is diagnostic of Duplication cyst. 55% of duplication cyst are seen in small bowel. 17% to 36% contain heterotopic gastric mucosa^[1] The ultrasonogram or CT abdomen findings in enteric duplication cyst are.

1. Anecolic mass in the absence of ulceration and bleeding
2. cyst wall is typically 2 to 3 mm thick
3. Mucosa produces a characteristic echogenic signal inside the cyst.

IV. Conclusion

Malrotation must be kept in mind and ruled out in a child with repeated abdominal pain with or without bilious vomiting. Both upper GI contrast and Ultrasound studies give valuable information in the diagnosis. Repeated Ultrasonogram may be necessary to make the diagnosis sometimes.

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