



POST-TRAUMATIC DUODENAL OBSTRUCTION BY INTRAMURAL HEMATOMA: A CASE REPORT

General Surgery

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KEYWORDS

INTRODUCTION

Intramural duodenal hematoma is an uncommon cause of high intestinal obstruction in children with a history of blunt abdominal trauma. Such traumas are so trivial that sometimes they may even be forgotten by the child or, in other cases, may be so violent that young patients will not tell about it for fear of being punished by their parents. The present study is aimed at always including the possibility of duodenal intramural hematoma in the differential diagnosis in cases of acute high intestinal obstruction in children, even in the absence of accurate clinical data and pathognomonic imaging findings of parietal hematoma, taking into consideration the appropriate criteria for imaging diagnosis in the paediatric group.

CASE REPORT

A 3-year-old, male patient was brought to the emergency department of SVP hospital, in the city of Ahmedabad, Gujarat, India on 1st January, 2020 with clinical signs of high intestinal obstruction (post-prandial bilious vomiting for four days, signs of mild dehydration and pain in the upper abdominal region). Her caretakers denied previous history of similar symptoms and/or previous known disorders. However, they gave history of fall down from bicycle before 6 days. No history of weight loss or child maltreatment was reported. On examination, per abdomen was soft with mild tenderness in epigastric region; patient also had an abrasion of approximately 2*2 cm in epigastric region.

Patient had come with an outside contrast enhanced computed tomography scan, dated 31st December, 2019 suggestive of grossly dilated stomach with associated dilatation of duodenum up to duodenal-jejunal junction with distally collapsed jejunal loops. It also showed presence of bowel within bowel appearance in 2nd and 3rd part of duodenum suggestive of intussusception. Normal enhancement of bowel loops along with mesentery and no obvious mass was seen. Distal to the level of intussusception there was a short segmental dilatation of loop with abrupt narrowing at duodenal -jejunal junction with p/o band.

On the day of admission, complete blood count, chest x-ray and abdominal x-ray were performed with normal results. The abdominal x-ray showed a normal large bowel shadow which ruled out chances of malrotation. Following which, oesophageal gastroduodenal serigraphy was performed, demonstrating complete obstruction at the junction of first and second part of duodenum, blocking the passage of contrast agent and indicating luminal obstruction caused by due to parietal thickening (Figure 1). Abdominal ultrasonography was subsequently performed, suggestive of bowel within bowel appearance in the duodenoduodenal loops and intussusceptum and intussuscepti being duodenum, in midline epigastric region. The bowel loops appear collapsed with no evidence of ascites.

Figure 1 : Contrast Enhanced Xray Abdomen Standing After 1 Hour



The patient was managed conservatively for two days with nasogastric ryle's tube but did not show any signs of improvement and haemoglobin level dropped from 12.3 to 8.4, so surgery was planned.

Patient underwent exploratory laparotomy with supraumbilical transverse incision on 3rd January, 2020. Intraoperatively, kocherisation of the duodenum was done and entire duodenum with duodeno-jejunal junction was found to be congested with an absolute line of demarcation. Approximately 1.5 cm nick was placed over the serosa in the third part of the duodenum and suction done which contained clotted blood. Duodenal serosa was repaired in single layer. Drain was placed and closure done.



Figure 2 : Intraoperative Duodenal Congestion At D3-d4 Level



Figure 3 : Intraoperative Duodenal Wall Hematoma At D3-d4 Junction

Thereafter, the patient improved clinically and was discharged on ninth postoperative day tolerating all oral diet.



Figure 4 : Post Evacuation Abdominal Xray Standing

DISCUSSION

Post-traumatic intramural duodenal hematomas in children occur in about 2–3% of cases of blunt abdominal trauma^(1,2). Anatomical factors such as the retroperitoneal attachment of the duodenum, positioning in front of the lumbar spine, a wealthy subserous/submucosal vascular plexus and a poor muscle-tone of the anterior abdominal wall contribute to the onset of intramural duodenal hematomas.

Intramural duodenal hematomas may occur at any age and in both men and women, but, in the paediatric group, boys are most frequently affected⁽³⁾. The proximity between the duodenum and the pancreas explains why traumatic pancreatitis is the comorbidity most frequently associated with intramural duodenal hematomas.⁽¹⁾ have reported association with pancreatitis in 21% of their cases in a review article on 182 cases of parietal duodenal hematoma in children. However, the trauma is sometimes trivial, and some children simply forget to report their occurrence⁽⁴⁾. Traumas caused by bicycle handlebars, traffic accidents and violent sports constitute the main etiological factors in these cases^(4,5). Child maltreatment must always be considered as a causative factor, particularly in children under the age of five^(6,7).

In patients with coagulopathies - a special subgroup -, such coagulopathies represent an etiological factor in cases of minimum trauma and endoscopic procedures⁽⁸⁾. Such a fact suggests the indication of endoscopic procedures in children only when platelets count is above 50,000/mm³, with normal prothrombin time and partial thromboplastin time⁽⁹⁾.

The physiopathology of post-trauma intramural duodenal hematomas is related to the shock of the loop against the lumbar spine caused by a trauma agent, resulting in contusion and parietal bleeding which generates the hematoma. Such hematoma may grow and gradually cause luminal obstruction of the organ.

The diagnosis of intramural duodenal hematoma is based on signs and symptoms of high intestinal obstruction after a trauma, supported by radiological evidences of the condition⁽¹⁰⁾. Contrast-enhanced computed tomography is the method of choice for the diagnosis of intramural duodenal hematoma, but ultrasonography is a valuable and non-invasive method, which provides important data on the intramural nature of the lesion. Endoscopic study and magnetic resonance imaging may be performed in isolated cases where clinical data and conventional imaging methods are inconclusive.

The conservative treatment consists in gastric decompression (nasogastric tube) and parenteral nutrition. Coagulation disorders must be ruled out or treated. If pancreatitis is present, it must be duly treated. The clinical follow-up may be performed by means of ultrasonography. After few days, usually one week, the nasogastric tube may be periodically closed for testing and stimulation of the duodenal transit. Clear liquids are introduced and the diet is gradually re-established (restricted liquid → pureed → bland → general). In most cases, hematomas resolve in two weeks. If neither clinical improvement nor resolution is observed in two weeks, surgery is indicated. The conservative treatment of intramural duodenal hematomas is very successful, particularly in early diagnosed cases.

As regards the present case, one situation should be taken into consideration to avoid misdiagnosis that refers to the fact that a brutal trauma abruptly inflicted with extreme violence/velocity may injure an organ or internal structure without injuring the skin on the structure where trauma was inflicted. Martial arts students are specifically instructed to do so. Thus, the medical community must be aware of these factors, and include this diagnostic possibility (intramural duodenal hematoma), even if it is very improbable, in the presence of signs of high intestinal obstruction.

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