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General Surgery

TRAUMATIC ISOLATED DUODENAL INJURY -AN UNCOMMON ABDOMINAL EMERGENCY

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ABSTRACT Isolated Duodenal injuries are rare and are associated with significant morbidity and mortality due to delayed diagnosis .Early diagnosis is imperative to avoid all complications of delayed diagnosis. Early contrast enhanced computed tomography is the most sensitive investigation to confirm the clinical suspicion. Here we present a 20 year young male presented with traumatic isolated 3rd part duodenal perforation and highlights the difficulties in diagnosis and management.

KEYWORDS : Duodenal injury, CECT scan , triple stomy

INTRODUCTION

Duodenal injuries are quite uncommon and difficult to diagnose due to its peculiar retro peritoneal location. Clinical features are subtle making diagnostic confusion and overall delayed treatment. Most of the duodenal injuries are associated with other abdominal injury making isolated duodenal injury still a rarity [1]. Duodenal injury reported as 0.2% of bunt trauma injuries [2].Diagnosis is a challenge to the surgeon because of rarity and nonspecific presentation of isolated duodenal injury .

CASE REPORT

A 20 year young male presented 6hrs after hit by bus to our emergency department with complains of progressive pain abdomen and one episode of vomiting .On admission patient was conscious, oriented with normal vital parameters. On evaluation there was tenderness all over the abdomen with rigidity and absent bowel sound. Hematological parameters were within normal limit. X-ray Chest and abdomen were normal .[Fig.1].Ultrasound abdomen showed right perinephric region and hepatorenal pouch collections with echogenic debris. Because of unclear clinical features with signs of peritonitis, further evaluation with contrast enhanced CT scan (CECT) was done .CECT Abdomen revealed thickened & edematous 3rd part of Duodenum (D3), narrow mural breach in inferior wall and mild fluid in the hepatorenal pouch[Fig.2]. Based on the above findings emergency Surgery was done which showed 1.5cm x 1.5cm perforation on the lateral border of 3rd part of duodenum [Fig.3] with retroperitoneal hematoma with moderate peritoneal contamination. There was no other abdominal organ injury. The duodenum was completely kocherized upto DJ flexure, primary duodenorraphy was done in 2 layers with interrupted 3,0 vicryl with proximal T-tube duodenostomy and feeding jejunostomy. Postoperative period was uneventful, started on feeding jejunostomy on 3rd postoperative day [Fig.4].Patient was discharged on 30th post operative day and was doing well on follow up after 3 months .

DISCUSSION

Blunt trauma abdomen is less common than penetrating injury and mechanism is complex .Injury is due to crushing or compression force when impact on the abdominal wall is transmitted to duodenum and compressed on spinal column. Acceleration and deceleration force on the mobile and fixed portion of duodenum also contributes. Duodenal injury is usually found in association with other multiple abdominal injury because of its anatomical position and proximity to other organs. Liver, colon, pancreas and small intestine are other commonly associated organ and in a review analysis of published data, the most common site of injury in duodenum is second part 36%, third part 18%, fourth part 15%, first part 13% and multiple sites 18%[3].

Diagnosis of duodenal injury is usually late and a high index of suspicion is the the key to arrive at an early diagnosis. A good clinical history of the nature of injury is of immense value in blunt trauma abdomen as abdominal signs are masked by its retroperitoneal position. Progressive pain abdomen and abdominal rigidity are good clinical indicator of intra abdominal injury and indication for emergency surgery as observed in our case. Laboratory test is not of much value, although in some instances persistently high serum amylase carry some significance of injury. The most characteristic radiographic finding is presence of air bubbles in retro peritoneum and intra peritoneal free air[4].Ultrasound abdomen usually indicates intra-peritoneal fluid collection and solid viscera injury, but not sensitive for delineating retro peritoneal structure[5].The investigation of choice is CECT Abdomen with both oral & IV contrast in delineating the retroperitoneal duodenum injury ,collections and free air[6].But in the other hand, CECT done immediately and in early hours after the injury might miss the findings of duodenal injury. So adequately planned CECT abdomen with proper history of mechanism of injury with a sense of suspicion are suggestive of a duodenal injury.

The management of duodenal injury is first focused to rule out associated vascular injury for immediate attention and to control of GI contamination. Complete mobilization of whole duodenum is achieved through Kocher manoeuvre and cattell Braasch manoevre to know the nature and extent of injury. Several options of repair are available, but most of the injuries are managed by primary repair in one or two layers or resection anastomosis [7].Our case was managed by primary repair in two layers with proximal T-Tube duodenostomy and Feeding Jejunostomy. In a complex duodenal injury or in a late presentation as a part of damage control method, triple stomy (Gastrostomy, retrograde Duodenostomy, feeding Jejunostomy)is an alternative as suggested by Stone & Fabian[8].Routine use of triple stomy is controversial and should be selectively used. Feeding jejunostomy has the advantage of early enteral nutrition and cost effective.

Mortality in duodenal injury due to blunt trauma is high, around 18-19% and primarily related to bleeding hemorrhagic shock in the early part and sepsis, multi organ failure later.

CONCLUSION

Isolated duodenal injury is rare and most are associated with other abdominal organ injury. Diagnosis is difficult and late due to its retroperitoneal location with subtle abdominal signs. Oral and IV contrast CT Scan CECT is the investigation of choice and added with high degree of clinical suspicion helps in early diagnosis. Simple duodenorraphy is the most widely adopted surgical procedure and usually added with retrograde duodenostomy and feeding jejunostomy

for better safety. Mortality is high because of its complex nature, associated vascular injury and late diagnosis.

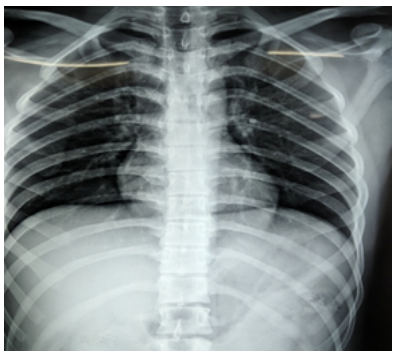

Fig.1 X-ray Chest -Normal

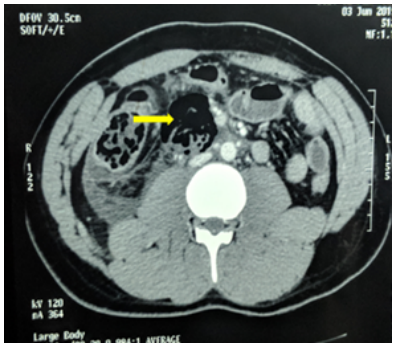

Fig.2.CECT Abdomen showing breach in duodenal wall with air pockets & debris collections

Fig.3: 1.5cm x 1.5 cm perforation on 3rd part of duodenum

Fig.4 : T-tube duodenostomy & Feeding Jejunostomy

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