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Splenic Torsion Presenting after Blunt Abdominal Trauma in a Road Traffic Accident – A Case Report

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Abstract **Case Report**

Splenic injury due to blunt trauma abdomen from road traffic accident is not uncommon. But splenic torsion due to abdominal trauma is quiet rare. There are few reports of splenic torsion occurring in wandering spleen. These are usually common under 1st year of life and in the 3rd decade. Operative management is required in such cases. Stablishing a diagnosis of splenic torsion as the cause for acute abdomen is quite challenging clinically. We came by a such case in a 17-year-old boy in April 2022 in our Aichi Medical College Hospital where we performed splenectomy.

Keywords: Splenic torsion, splenectomy for blunt trauma abdomen, splenic torsion due to blunt abdominal trauma, wandering spleen, ectopic spleen.

INTRODUCTION

Blunt abdominal trauma is associated with wide variety of injuries to the intra-abdominal organs, for both the solid organs and viscera. Common injuries form blunt trauma we find are to the liver, spleen, kidneys, pancreas and colon. Splenic injuries are mostly ruptures or avulsions associated with trauma to left upper abdomen and / or left lower chest and present with abdominal pain. Torsion of the spleen due to trauma is unusual unless it is a wandering spleen from the beginning.

Anatomically spleen resides in the left hypochondriac region posteriorly and anchored into the position by various ligaments. When these anchoring ligaments are underdeveloped or absent, the spleen become hyper mobile and wanders in other than its normal position – hence the term Wandering Spleen comes [1,2]. Torsion of the spleen can occur in such cases and may present with acute abdomen. These are rare entity with and incidence rate of 0.2% [3]. There is wide variety of presentation and it is challenging to diagnose [4]. Operative treatment is required in most of the cases [3,5].

We are presenting a case where a young boy suffered from splenic torsion after blunt abdominal trauma where we performed splenectomy.

CASE REPORT

In April 2022, a 17-year-old boy was referred from a local clinic to our Aichi Medical College and Hospital. He suffered from a motorbike accident where he was the pedestrian and there was an impact to his abdomen from the motorbike handle. On arrival his GCS was 15/15, pulse 130 beats per minute, Blood pressure 100/60 mm of Hg with IV fluid support, respiratory rate 25 breaths per minute, SpO_2 98%. There was no visible injury on any part of the body except a few abrasions over the left upper quadrant on anterior abdominal wall. Abdominal examination revealed mildly distended abdomen, tenderness in whole abdomen but more in the left. A firm mobile intra-abdominal lump was found occupying the left hypochondriac and left lumbar region. Shifting dullness was present. Bowel sound was absent. Chest examination revealed only tachypnea.

Among the available reports on admission; Hb% was 12.2 g/dl, WBC 18,000 / cumm (neutrophil 80%), S. amylase 39 U/L, Chest X-ray revealed

excessive fundic gas shadow, no pneumoperitoneum (Figure 1), X-ray of abdomen in erect posture showed gaseous distension of transverse colon with excessive fundic gas. (Figure 2) An USG report of abdomen was also available commenting splenomegaly (19 cm X 8 cm) with abnormally positioned with no vascularity-suggestive of splenic torsion, swollen right kidney with ascites.

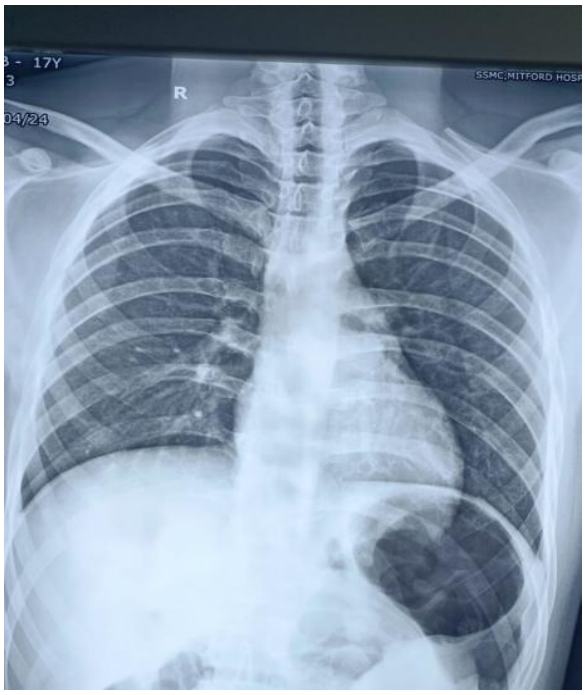

Figure 1: Chest X-ray showing excessive fundic gas shadow

Figure 2: X-ray abdomen showing excessive fundic gas with distended proximal colon

We investigated and his S. creatinine and S. electrolytes were within normal limits. A non-contrast CT was done in our hospital on emergency basis and it revealed spleen was abnormally positioned. Stomach was distended, so was the transverse colon. (Figure 3 and 4)

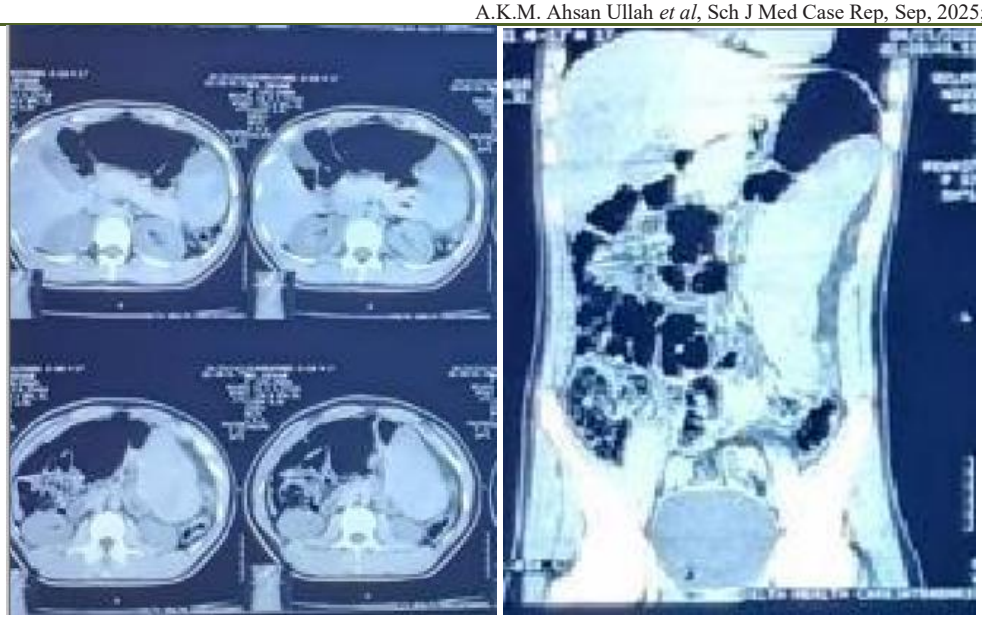

Figure 3 & 4: CT abdomen showing abnormal position of spleen

We opted for emergency laparotomy after preparing him with counseling on the need for splenectomy. After opening the abdomen with midline incision, we found moderate ascites with hemorrhagic tint. The spleen was found in the left mid abdomen, moderately enlarged, flabby and blackish. No other splenic ligaments were found except the long lienorenal ligament, along this ligaments axis the spleen rotated more than 360° clock wise. (Figure 5) Spleen was creating pressure on the splenic flexure and descending colon resulting in distension of the proximal colon. The tip of the appendix was found adherent with its body with a fibrous band indicating previous appendicitis. After de-rotating the spleen there was no change. We did the splenectomy (Figure 6) and the stump was doubly ligated. Appendectomy was also performed with consent. His post-operative period was uneventful and was discharged on 5th POD. We started prophylactic vaccination after splenectomy when he visited us and adequate counselling on the prophylaxis. He was alright on his subsequent visits up to 3 months with us.

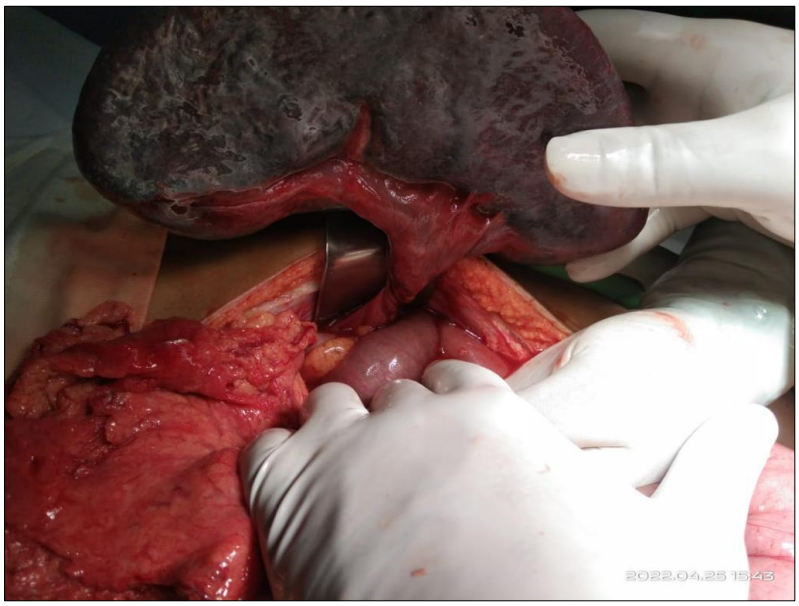

Figure 5: Twisted pedicle of the spleen

Figure 6: Resected Spleen

DISCUSSION

Abnormal or ectopic positioning of the spleen in the abdominal cavity is known as wandering spleen and the incidence is 0.2%, some literatures say <0.5% [6]. This happens when there is underdeveloped or absence of supporting ligaments for the spleen to anchor in its anatomical position [1,2,7]. It can be congenital or acquired. Congenitally occurs when there is anomaly in the development of dorsal mesogastrium, which forms the splenic suspensory ligaments. Acquired conditions include abdominal wall weakness, multiple pregnancies, hormonal changes and splenomegaly [8-10]. These anomalies result in a long splenic pedicle which is prone to torsion. This torsion may present with a wide variety of symptoms from vague abdominal discomfort to acute abdomen. Our patient most probably had underdeveloped or absent supporting ligaments for the spleen. The motorbike accident acted as a provocative factor for the torsion and presented with acute emergency.

Sudden torsion of the spleen may produce serious complications like splenic abscess, infarction, gangrene and even rupture [11]. Splenic torsions may be intermittent with incomplete vascular obstruction resulting in congestion and splenomegaly and produce mass effect [12].

Plain X-ray of the abdomen, Scintigraphy, ultrasonography, Doppler ultrasonography, CT scan, CT angiography are the various imaging modalities that can help with the diagnosis [13]. CT scan of the abdomen can reveal some features which can point to splenic torsion such as splenomegaly, absent or poor enhancement of splenic parenchyma with contrast, hyper-dense splenic pedicle in non-contrast film, pseudocapsule sign or whirl appearance in the splenic pedicle, and abnormal splenic position [7,14].

Conservative treatment of the asymptomatic wandering spleen results in complications in 65% of the cases [1,7]. So, surgical treatment is the best option. Both laparoscopy and laparotomy can be done. Surgical options are splenopexy and splenectomy which is guided by the vascularity of the spleen [3,5]. After de-torsion and in the absence of infraction, thrombosis or hypersplenism, splenopexy is the suitable option. Otherwise splenectomy is preferred. In our patient the spleen was infarcted and we performed splenectomy [3,7].

Prophylactic antibiotic therapy and vaccination for splenectomy is necessary. if preoperatively not possible, they should be started after surgery to prevent post-splenectomy sepsis [5].

CONCLUSION

Splenic torsion is difficult to diagnose clinically alone. CT scan is of great help the diagnosis process. Trauma may trigger the splenic torsion in early stages of life. For wandering spleen or splenic torsion, surgical intervention produces the best results.

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