Letters to the Editor

Patterned abdominal wall bruise: An indicator of severe intra-abdominal injury

Sir,

“Pediatric trauma: Management and lessons learned” published in volume 25 and issue 3 helps the readers understand the various mechanisms of abdominal injuries as well as its outcomes in pediatric patients. Pediatric trauma can vary from subtle clinical presentation to grave outcome.

Sometimes, abdominal wall may show the impression of the object causing the impact such as bicycle handle, pattern of the clothing, and seat belt in a blunt trauma. Patterned abrasions or bruising over the abdominal wall in blunt trauma indicates that the impact was severe enough to cause visceral injuries. This is known as London sign. The sign is named after Dr. Peter London (1922–2015). He described that patterned bruising of the abdomen is associated with serious internal injuries.

Most of these patients present initially with minimal clinical signs, in spite of severe underlying injury. I would like to share two cases caused due to handle bar collision, which is one among the common causes of severe visceral injuries in adolescence boys.

A 13-year-old male child presented to the emergency department a day after sustaining blunt bicycle handlebar injury to the abdomen, symptoms being abdominal pain and vomiting which appeared after 24 h.

Clinical examination revealed an imprint abrasion of the bicycle handlebar over the epigastric region and mild tenderness. Ultrasonography (USG) revealed mild free peritoneal fluid in the pelvis. Computed tomography (CT) scan (done in view of London sign) was suggestive of transection of the body of pancreas with duct disruption [Figure 1a and b]. The child was managed conservatively.

Another patient is a 10-year-old boy presented to the emergency department 2 days after sustaining blunt abdominal trauma by bicycle handlebar impact. He complained of vomiting and abdominal pain for the past 2 days. Clinical examination revealed signs of minimal tenderness and an imprint abrasion over the abdomen near the left costal margin. X-ray revealed no signs of pneumoperitoneum. USG of the abdomen was suggestive of mild free fluid in the peritoneum. Again abrasion on abdomen was the indication of abdominal CT scan, which revealed features suggestive of hollow viscus perforation with mild hemoperitoneum [Figure 1c and d]. Exploratory laparotomy showed perforation in the mesenteric border of proximal jejunum. Primary closure was done.

Patterned abrasion or bruising over the abdominal wall suggests that the small cross-sectional area of the object in contact with the abdominal wall might be the major factor, contributing to intra-abdominal organ injuries. The injury is most often too trivial to be noticed or given importance by parents and occasionally by the clinicians too. Injury to the abdominal organs is due to compression between the object of impact and the vertebral column. Presence of abdominal wall ecchymosis is associated with increased risk of intra-abdominal injury in as high as 65% of the cases, compared to 8% in the absence of ecchymosis.

Boys suffer nine times more such injuries than girls. Spleen, liver, and kidneys are commonly affected in blunt abdominal trauma. Injury to these organs is evident due to massive blood loss which results in signs of peritonism and shock. Injury to intestines and pancreas occasionally has delayed presentation. Studies suggest that only 38%–54% present with signs of peritonism.

Although there are advances in medical imaging, London sign has not lost its importance. Plain radiograph is unreliable in diagnosis. USG of the abdomen done initially in many of the cases with delayed presentation was only suggestive of mild peritoneal fluid and has remained inconclusive about the intra-abdominal injury.

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Figure 1: Case 1 with pancreatic trauma - clinical photograph (a) and contrast-enhanced computed tomography abdomen image (b). Case 2 with jejunal perforation - clinical photograph (c) and intra-operative photograph (d)
Conflicts of interest
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