

The imaging findings for intra-abdominal handle bar injuries in paediatric patients.

P Patel, R Hubbard, J Green, G Bhatnagar, R Barker.
Frimley Park Hospital

Learning objectives

Exploring the imaging appearances of intra-abdominal pathology of blunt trauma from handle-bar injuries in paediatric patients on computed tomography (CT).

Background

Bicycle handle-bar injuries are a common type of low-velocity blunt trauma in children which can result in significant morbidity and mortality.

Contrast enhanced CT is invaluable in evaluating abdominal organs at risk from this mechanism of injury leading to early diagnosis and expedited management.
(1,2,3)

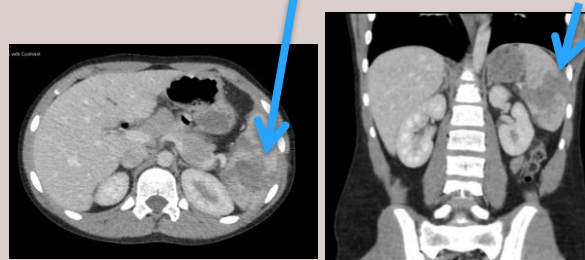
Imaging findings

We illustrate a number of cases of paediatric trauma patients presenting to the Emergency Department with severe abdominal pain following handle-bar related trauma.

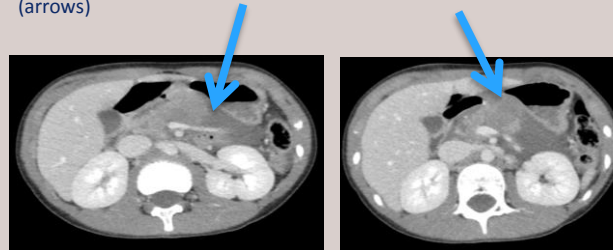
All patients underwent acute portal venous phase or Camp Bastion dual phase CT imaging of the abdomen and pelvis and demonstrated multiple injuries including pancreatic parenchymal transection, splenic laceration and intra-peritoneal bladder rupture from this particular mechanism of injury.

We aim to highlight the key imaging findings of such pathologies to facilitate prompt diagnosis.

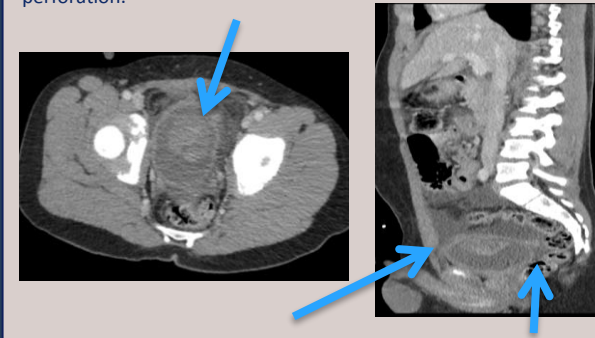
Case 1 : Child presented with severe abdominal pain and guarding following blunt trauma. Portal venous phase imaging demonstrated hypo-attenuating regions through the spleen consistent with splenic lacerations. A follow up ultrasound 3 months later measured the spleen at 12.5cm with normal echogenicity and no focal lesions



Case 2 : Child presented with epigastric and left upper quadrant tenderness following blunt trauma. The CT revealed a large intraparenchymal pancreatic haematoma with discountinuation of the pancreatic tissue in keeping with pancreatic transection which involved the pancreatic duct and can be seen on these axial images (arrows)



Case 3 : Child presented with severe suprapubic and pelvic pain. The CT demonstrated an intraperitoneal bladder rupture (see arrows) with hyperdense free fluid in keeping with haemoperitoneum which was confirmed intra-operatively where the bladder was repaired. Postoperative imaging demonstrated small bowel dilatation with mural thickening and the patient was started on TPN. Subsequently the patient became peritonitic and had a second laparotomy for repair of a delayed jejunal perforation.



Conclusion:

Handle bar related injury is a common type of acute trauma and can result in a myriad of abdominal pathology. An understanding of the imaging appearances of less common injuries on acute contrast enhanced CT is vital in early diagnosis and can aid effective management.

References:

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3. J PH Lam, G J Eunson, F D Munro, J D Orr (2001) 'Delayed presentation of handlebar injuries in children. *BMJ*. 322:1288.