Imaging

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The choice of imaging depends on the mechanism of injury and the findings on examination. Cross-sectional imaging can be invaluable, but a head-to-toe computed tomography (CT) scan should only be performed with good reason to limit exposure to ionising radiation. Plain radiograph A chest radiograph is mandated in major trauma. The cervical spine is rarely injured, but if the injury mechanism leads to suspicion of cervical damage, then a cervical spine series is requested. Lateral and anteroposterior images must include the base of the skull and the C7–T1 junction. The odontoid or ‘peg’ projection can be di ffi cult to obtain as the mouth needs to be open for the anteroposterior projection to see C1 (atlas) and C2 (axis). A pelvic radiograph is requested if a pelvic fracture is suspected. Suspected limb fractures initially undergo anteroposterior and lateral radiographs with CT reserved for those that are complex. CT scans A head CT scan should be performed within 1 /uni00A0 hour if the GCS is <14 at the initial assessment or within 2 /uni00A0 hours if the GCS is <15 after the injury . Other indications include a tense fontanelle, suspicion of an open or depressed skull fracture or a basal skull fracture, abnormal pupillary response, abnormal posturing, a focal neurological defect or concern about a non-accidental injury . A head CT scan should also be performed if there are three or more vomiting episodes, a witnessed loss of consciousness for >5 /uni00A0 minutes or amnesia >5 /uni00A0 minutes. A CT scan of the chest, abdomen and pelvis is performed if there is abdominal wall bruising (Figure 19.2), tenderness, - - distension, peritonitis, blood per rectum or blood in the naso - gastric tube. Some relative indications include an aspartate aminotransferase >200 /uni00A0 U/L, amylase >100 /uni00A0 U/L or micro - haematuria >5 erythrocytes/high-power field. Abdominal and pelvic CT should be single-volume dual-contrast to minimise radiation exposure using the Camp Bastion or Afghan proto - col. A CT scan of the chest should be performed after a pen - etrating chest injury or a significant deceleration. How ever, most blunt chest injuries are detected on a chest radiograph; if the mediastinal silhouette is normal, a chest CT is not usually required. A focused abdominal sonography trauma (FAST) scan is not helpful in children as the findings can be di ffi cult to inter - pret.

Figure 19.2 Traumatic diaphragmatic rupture found in a child with abdominal wall bruising.

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