

The Limit of CT Scanning in Mesenteric Contusions at the Medical Clinic “Les Etoiles” About a Case

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ABSTRACT

Mesenteric contusion is a lesion of the mesentery during a severe blunt trauma to the abdomen. The mesentery is a two-layered wall of tissue lining the peritoneum. Mesenteric contusion accounts for 10% of blunt abdominal trauma. We report a case of abdominal trauma received in the radiology department of the Medical Clinic “Les Etoiles” in Mali with the aim of elaborating the limits of computed tomography in the diagnosis of mesenteric contusions. This was a 15-year-old female subject with no particular ATCD received for abdominal trauma following a road accident. Computed tomography found low abundance peritoneal effusion with slight infiltration of mesenteric fat. Faced with deglobulization, the patient was operated on, revealing a mesenteric contusion. The normal abdominal CT in a traumatic context does not always eliminate a mesenteric contusion.

Keywords

Abdominal trauma, Mesenteric contusion, Limit and computed tomography and medical clinic “Les Etoiles”.

Introduction

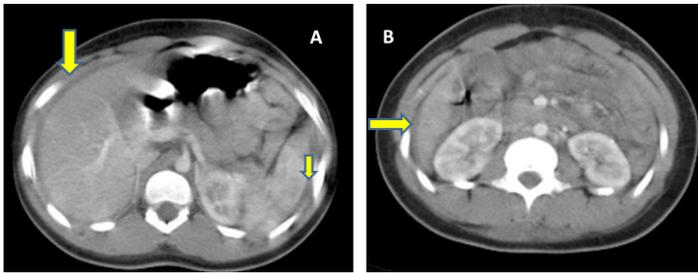
Mesenteric contusion is an injury to the mesentery during severe blunt abdominal trauma. Abdominal trauma is common and potentially serious. They include 80% of contusions and 20% of wounds in civilian practice. These contusions are more frequent in young males [1]. Mesenteric contusion accounts for 10% of blunt abdominal trauma [1]. Computed tomography (CT) provides clarification compared to ultrasound, but this examination is not free of uncertainties [2,3]. We report a rare case of mesenteric

contusion diagnosed after surgery with the aim of describing the limitations of CT in mesenteric contusions.

Observation

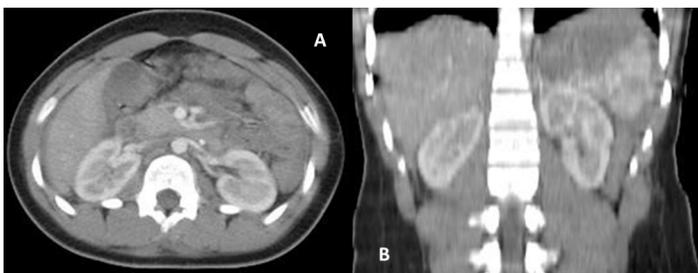
It was a 15-year-old girl with no known medical and surgical history. She comes to consult at the radiology department of the Medical Clinic “Les Etoiles” in Bamako, Mali for abdominal trauma following a public road accident. Clinically the patient had a soft and painful abdomen with no signs of positive flow. We had found an SPO2 at 98%; colored conjunctivae; no cyanosis; no jaundice; no lower limb edema. The tension (TA) was good with Glasgow at 15/15. In addition, scratches at the level of the painful right lumbar fossa and at the level of the thigh. Biological

examinations were unremarkable. The radiological exploration carried out with a GE brand ultrasound scanner (General Electric) of the Voluson 730 PRO type equipped with 3 probes and a 16 bar scanner of the GE brand of the Bright speed type commissioned in 2011. The examination protocol was made by a helix with passage without and with injection of iodine contrast product in 3 states with reconstruction on the 3 planes of space. The abdominopelvic ultrasound showed a peritoneal effusion blade with no other visible anomaly that had motivated the realization of the CT scan. CT scan found low-abundance hypodense peritoneal effusion in the peri-hepatic and peri-splenic regions with slight densification of the mesenteric fat with no visible focus of contusion (Figure 1).

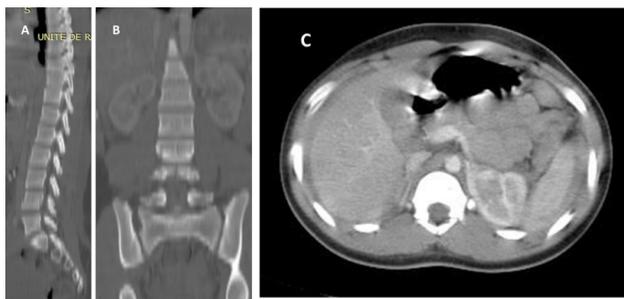


Figures 1 (A and B): CT in axial reconstruction after injection of contrast product showing peri-hepatic and peri-splenic effusion.

There was no hepatic or splenic contusion, or post-traumatic anomaly in the pancreas. After injection of iodine there was also no vascular rupture. Bone reconstruction did not find any rib or thoracolumbar spine fracture lines. The kidneys were well explored without post traumatic anomaly (Figure 2 and 3).



Figures 2 (A and B): CT in axial (A) and coronal (B) reconstruction after injection of iodine contrast product in arterial phase showing the kidneys without post traumatic abnormality.



Figures 3 (A, B and C): CT in reconstruction sagittal (A) coronal (B) bone and axial window (C) in parenchymal window not revealing post traumatic lesion in particular at the level of the liver, spleen and pancreas and spine.

Faced with the deglobulization, the persistence with worsening abdominal pain and an alteration of her condition, a surgical intervention was decided and relayed with exploratory laparotomy. She found a contusion of the mesentery with a hemoperitoneum of great abundance. The mesenteric repair made with aspiration of the hemoperitoneum, the patient is doing well with a favorable evolution.

Discussion

Clinical characteristics

The diagnosis of contusion is evoked in the presence of abdominal pain or abrasion with the notion of trauma at the point of abdominal, basi-thoracic or pelvic impact [4]. Abdominal pain on physical examination is present in most patients. Our patient had a soft and painful abdomen on palpation. In addition, scratches at the level of the painful right lumbar fossa and at the level of the thigh.

Imaging means

The sensitivity of ultrasound varies between 60 and 100% and its specificity between 86 and 100% for the diagnosis of haemoperitoneum, which is the first sign to be sought before any abdominal trauma with mesenteric contusion [2,5]. In our patient, the ultrasound showed just a blade of peritoneal effusion in the peri-hepatic. Ultrasound can help clarify which organ is affected. A fracture of the hepatic or splenic parenchyma appears on ultrasound as a solution of continuity; a parenchymal attrition gives an inhomogeneity of the intra parenchymal echoes, while a hematoma results in a hypodense image. The performance of ultrasound in these areas is often lower than expected, largely due to the difficult conditions in which it is performed [5]. She did not find any post-traumatic organ damage in our case. The performance of ultrasound in an emergency context is limited to the search for effusion, thus guiding the performance of a CT scan, and it remains operator-dependent only when looking for organ lesions [6]. CT provides clarification compared to ultrasound [2]. It is carried out after ingestion of contrast product then in a second step, after intravenous injection of contrast product (PDC), the duration of the examination varies between 30' and 60'. The cost-effectiveness of PDC is however discussed, its omission being able to save time in the procedure [7,8]. CT has high sensitivity and specificity for detecting blood in the peritoneal cavity [5]. In our case, the CT then revealed a reliable abundance of peri-hepatic and peri-splenic effusion at the very beginning. Computed tomography provides details compared to ultrasound, but this examination is not free of uncertainties [3]. The diagnosis of mesenteric contusion can be made after a CT scan result without damage to the noble organs such as the liver, kidneys, pancreas and spleen. Hemoperitoneum is reflected on CT by the presence of a dense image before injection of contrast product and a clear image after injection of contrast product. The intravenous injection of contrast product makes it possible to assess whether the lesions are the site of active bleeding. According to the studies, the sensitivity figures vary between 74% and 96%, the specificity figures between 98% and 99% [7-10]. The CT scan of our patient did not find any organ contusion apart from a slight infiltration of the mesenteric fat and a low-abundance peritoneal effusion with no visible fracture line.

Treatment and Course

The management of abdominal contusions is medical and surgical. Medical management concerns hemodynamically stable patients, which is done by rehydration, analgesics and monitoring [5]. All patients with blunt abdominal trauma who show signs of peritonitis, frank bleeding for clinical signs should undergo a laparotomy [5]. Faced with the worsening of the clinical condition of our patient, an exploratory laparotomy was performed, thus confirming the mesenteric contusion. In general, the prognosis of patients with abdominal trauma is good. The evolution of our case was favorable.

Conclusion

Mesenteric contusion is rare. Abdominal CT has limits for the diagnosis of mesenteric contusion, in addition it allows seeing the state of the noble organs and the presence of intraperitoneal effusion with precision compared to ultrasound. The exploratory laparotomy confirmed the mesenteric contusion in our case. We must always think of a mesenteric contusion in front of a CT scan without organ abnormality with effusion layer and the worsening of the clinical condition.

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