

ROLE OF MULTI-DETECTOR COMPUTED TOMOGRAPHY IN ASSESSMENT OF BLUNT INTRA ABDOMINAL TRAUMA IN ADULTS PATIENTS

Fouad Serag El-Din Mohamed, Amr Magdy El-Abd, Mai Tarek Mohamed Mohamed Nomier

Department of Radiodiagnosis, Faculty of Medicine, University of Alexandria.

INTRODUCTION

Blunt abdominal trauma is a leading cause of morbidity and mortality among all age groups. Blunt abdominal trauma is one of the most challenging conditions where rapid and accurate investigations are essential for definitive management.

MDCT provides supreme anatomical and physiological information that can differentiate trivial injuries from those requiring intervention. MDCT data frequently increases the diagnostic confidence of the surgeons, influences clinical management decisions, and plays an important role in decreasing the rates of unnecessary exploratory laparotomy.

AIM OF THE WORK

The aim of this study was to assess the role of MDCT in the detection and characterization of different intra-abdominal blunt trauma in adults.

SUBJECTS AND METHODS

The study was carried out on 30 patients with blunt abdominal trauma based on clinical findings referred to the Radiology Department of Alexandria University Hospital.

Inclusion criteria: Patients with blunt intra-abdominal trauma aging from 18 till 65 years old.

Exclusion criteria: Patients with blunt intra-abdominal trauma aging less than 18 years old and more than 65 years old.

The study included the following: - Complete history taking.

- Routine computed tomography abdominal non contrast scan.

- Intra-venous contrast administration with obtaining arterial, venous and delayed phases.

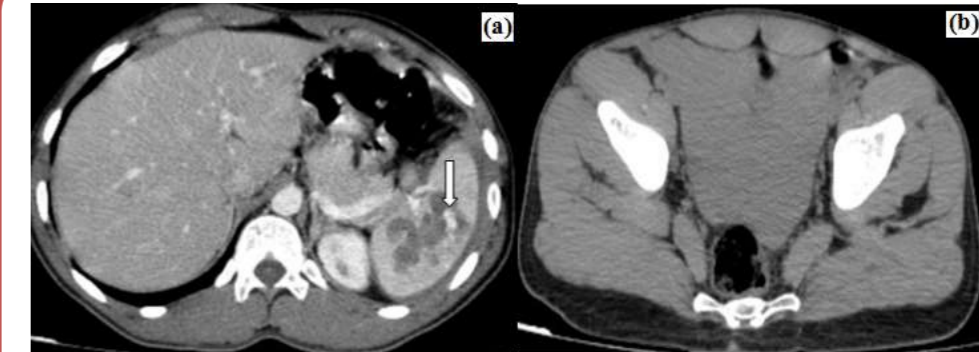
RESULTS

Table 1: Distribution of all studied cases as a regard of organs injury according to the type of management.

| | Non-operative | Operative |
|--|---------------|-----------|
| Splenic lacerations and contusions(n=14): | 9 (64.3%) | 5 (35.7%) |
| Liver lacerations and contusions(n=11): | 7 (63.6%) | 4 (36.3%) |
| Renal lacerations and contusions(n=8): | 5 (62.5%) | 3 (37.5%) |
| Bowel Injury(n=1): | 0 (0.0%) | 1 (100%) |
| Urinary bladder injury(n=3): | 2 (66.6%) | 1 (33.3%) |
| Pancreatic injury(n=1): | 0 (0.0%) | 1 (100%) |
| Supra renal glands(n=2): | 2 (100%) | 0 (0.0%) |
| Diaphragmatic injury(n=1): | 0 (0.0%) | 1 (100%) |
| Vascular injury(n=4): | 0 (0.0%) | 4 (100%) |

Table 2: Distribution of all studied cases according to Multi-detector CT findings

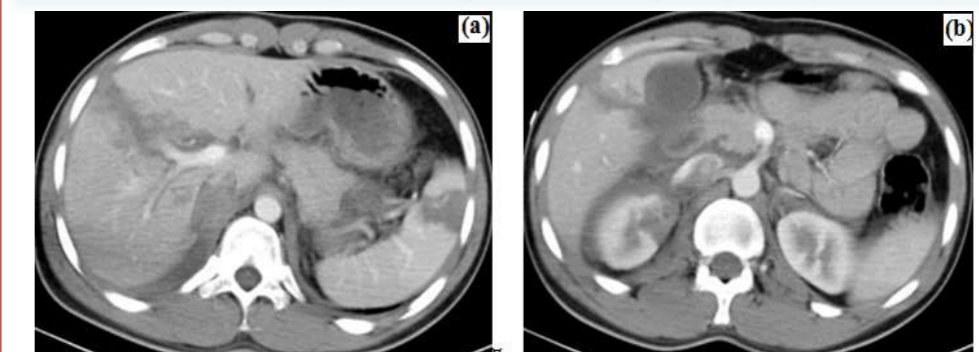
| | |
|---|------------|
| Free intra peritoneal fluid collection: 25 (83.3%) | |
| Mild | 13 (43.3%) |
| Moderate | 10 (33.3%) |
| Marked | 2 (6.7%) |
| Extra peritoneal fluid collection: | |
| Positive | 6 (20.0%) |
| Retro peritoneal fluid collection: | |
| Positive | 8 (26.7%) |
| Sentinel clot sign (Hemoperitoneum): | |
| Positive | 11 (36.7%) |
| Splenic lacerations and contusions: | |
| Positive | 14 (46.7%) |
| Liver lacerations and contusions: | |
| Positive | 11 (36.7%) |
| Renal lacerations and contusions: | |
| Positive | 8 (26.7%) |
| Bowel injury: | |
| Positive | 1 (3.3%) |
| Urinary bladder injury: | |
| Positive | 3 (10%) |
| Urethral tear: | |
| Positive | 1 (3.3%) |
| Pancreatic injury: | |
| Positive | 1 (3.3%) |
| Supra renal glands: | |
| Positive | 2 (6.7%) |
| Diaphragmatic injury: | |
| Positive | 1 (3.3%) |
| Vascular injury and complications: | |
| Positive | 4 (13.3%) |
| Pelvic Fractures: | |
| Positive | 7 (23.3%) |
| Rib fracture: | |
| Positive | 5 (16.7%) |
| Vertebral Fractures: | |
| Positive | 1 (3.3%) |



(a) arterial phase demonstrates multiple non enhancing splenic lacerations involving 30-50% of the parenchyma with a 5 mm focus of active contrast extravasation , grade IV splenic injury complicated with active bleeding (open arrow head). (b) Axial CT revealed moderate intra-peritoneal fluid collection at the pelvic region. Management was surgical by total splenectomy.

Case presentation

A 24 years old male patient who fell from height and underwent multiphase CT abdominal scan.



(a) Portal phase axial CT abdomen cuts demonstrates hypo dense non-enhancing hepatic lacerations denoting grade III liver injury, also noted splenic infarction involving the upper pole of the spleen reaching the splenic hilum with < 30% of the splenic parenchymal affected. (b) portal phase axial CT abdomen revealed mid zonal right kidney laceration affecting its medial aspect with related mild perinephric hematoma. Management was conservative.

Case presentation

A 23 years old male patient who had road traffic accident and underwent multiphase CT abdominal scan.

CONCLUSION

MDCT is an important imaging technique for the diagnosis of organ injuries in patients with abdominal trauma. It helps in grading the type of injury and deciding the suitable management of the patients. Our data showed that MDCT findings were able to limit the need for surgical intervention, where most of the cases were managed conservatively.