ORIGINAL RESEARCH PAPER

Radio-Diagnosis

"ADEQUACY OF CLINICAL INDICATION IN WARRANTING THE CECT THORAX AND ABDOMEN IN BLUNT TRAUMA INJURY FROM THE EMERGENCY DEPARTMENT."

KEY WORDS: CECT, POLYTRAUMA.

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ABSTRACT

The RCR outlines indications for polytrauma CT imaging in severely injured patients. CT requests in the trauma setting should comply with the Ionising Radiation (Medical Exposure) Regulations justification regulations in the same way as any other request for imaging involving ionizing radiation. This study helps in reducing unjustifiable radiology CT imaging for polytrauma scans without an absolute clinical indication.

INTRODUCTION

CT plays an important role in primary detection of intraabdominal and intrathoracic injury.The RCR outlines indications for polytrauma CT imaging in severely injured patients. CT requests in the trauma setting should comply with the Ionising Radiation (Medical Exposure) justification regulations in the same way as any other request for imaging involving ionizing radiation.This study helps in reducing unjustifiable radiology CT imaging for polytrauma scans without an absolute clinical indication.

Aims & Objectives of the Study

To assess the adequacy of clinical indication in CECT thorax and abdomen in blunt trauma injury.

METHODOLOGY

In our study,249 patients referred to our radiology department GGH, Kurnool for evaluation of traumatic injury were evaluated by CECT Thorax and Abdomen.

Inclusion criteria:

Patients who are positive for any one of the following:

1. Hemodynamically unstable
2. The mechanism of injury suggesting occult severe injuries that cannot be excluded by clinical examination or plain films
3. FAST – positive.
4. Plain radiograph suggesting significant injury
5. Obvious injury on clinical assessment.

Exclusion criteria:

1. Patients with history of reaction to contrast agents.
2. Pregnant women.
3. Patients with chronic renal disease.

Imaging Techniques

- CECT Abdomen and Thorax were performed on 16 slice multidetector computer tomography (GE BRIGHT SPEED).

Study place: GOVERNMENT GENERAL HOSPITAL KURNOOL MEDICAL COLLEGE.

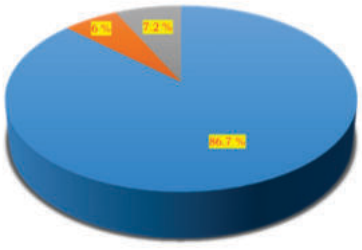
Study period: January 2022 – May 2022.

RESULTS

- In this study total of 249 cases have been analyzed.
- Out of 249 cases; 180 cases were referred to radiology for CT imaging with an appropriate clinical indication from the emergency department and showed contusion or pneumothorax or solid visceral organ injury.
- 36 cases were referred with clinical indication but imaging turned out to be normal.
- 18 cases were referred to radiology by the request of the patient out of which 12 cases showed normal imaging findings and 6 cases showed fractures.
- 15 cases were sent without any indication to radiology and the imaging findings turned out to be normal.

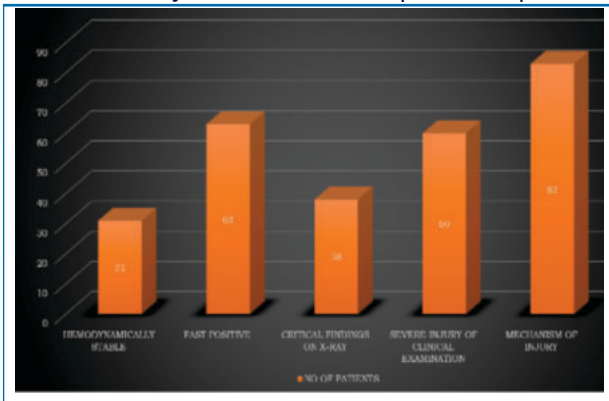
INDICATION	NO OF PATIENTS	PERCENTAGE
PRESENT	216	86.7 %
NO INDICATION	15	6.0 %
ON REQUEST OF PATIENT	18	7.2 %
TOTAL	249	

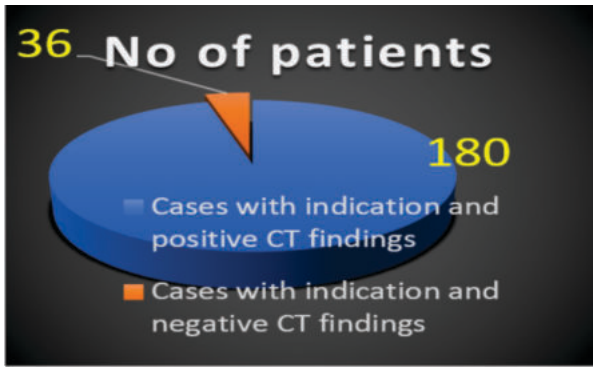
Indication Correlation With Radiological Findings



•Indication present • no indication • on patient request

CRITERIA	NO OF PATIENTS	PERCENTAGE
HEMODYNAMICALY UNSTABLE	93	37.3%
FAST POSTIVE	189	75.9%
CRITICAL FINDINGS ON X-RAY	114	45.7%
SEVERE INJURY ON CLINICAL EXAMINATION	180	72.2%
MECHANISM OF INJURY	249	100%





CONCLUSIONS

- The patients being referred to the radiology department for CT should have an appropriate and justifiable indication.
- The referral request should include details of the mechanism of injury, vitals, visible/suspected injuries and should satisfy at least one criteria for polytrauma CT.
- By following the 'Standards of practice and guidance for trauma radiology in patients unwanted radiation exposure can be reduced.

SUMMARY

- The "pan scan" (computed tomographic [CT] examination of the head, neck, chest, abdomen, and pelvis) has become an essential element in the decision-making algorithm for hemodynamically stable patients who sustained abdominal trauma.
- CT has virtually replaced diagnostic modality for the detection of important injuries.
- But few patients are being referred from the emergency department without appropriate indication making the patient exposed to radiation. According to Royal College of radiologists 'Standards of practice and guidance for trauma radiology in severely injured patients, 2nd edition' the request for CT should fulfill at least one criteria for polytrauma CT :
- The acceptable criteria are as follows:
- Hemodynamically unstable
- The mechanism of injury suggesting occult severe injuries that cannot be excluded by clinical examination or plain films
- FAST – intrabdominal fluid.
- Plain radiograph suggesting significant injury (pneumothorax or pelvic fractures)
- Obvious injury on clinical assessment.
- Details of the mechanism of injury and visible or suspected injuries have to be mentioned in the request.

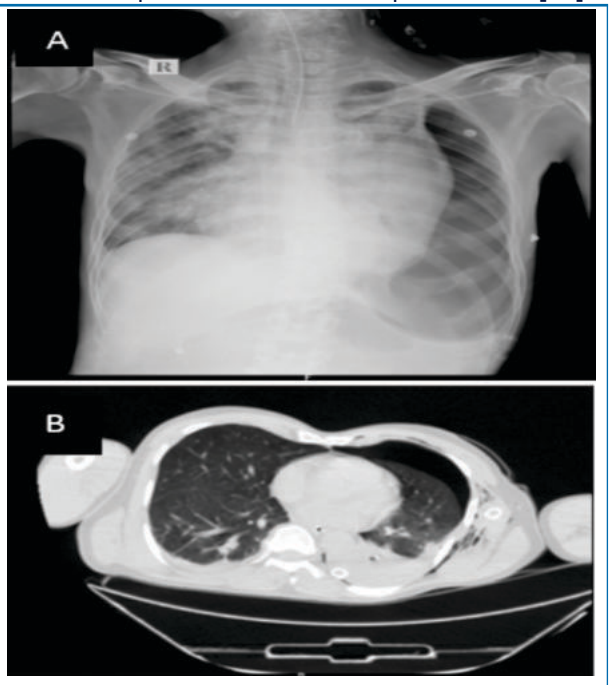


Fig1: A Frontal chest radiograph shows left side pneumothorax.B:Axial plain CT shows left side pneumothorax

Fig2: USG Shows a thin sliver of fluid in the perinephric region

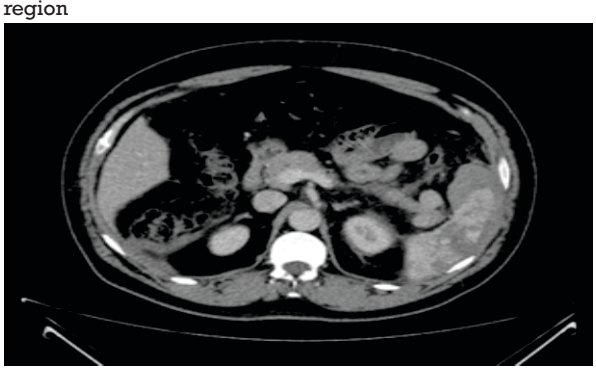


Fig3: Axial CT shows splenic laceration

Fig 4: Axial CT shows right laceration

REFERENCES:

1. https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr155_traumaradiol.pdf
2. Soto JA, Anderson SW. Multidetector CT of blunt abdominal trauma. Radiology. 2012 Dec;265(3):678-93
3. Radhiana Hassan AA. Computed tomography (CT) imaging of injuries from blunt abdominal trauma: A pictorial essay. The Malaysian journal of medical sciences: MJMS. 2010 Apr;17(2):29.
4. Hoff WS, Holevar M, Nagy KK, Patterson L, Young JS, Arrillaga A, et al. Practice management guidelines for the evaluation of blunt abdominal trauma: the EAST practice management guidelines work group. J Trauma. 2002; 53:602–615.
5. Liu M, Lee CH, P'eng FK. Prospective comparison of diagnostic peritoneal lavage, computed tomographic scanning, and ul- trasonography for the diagnosis of blunt abdominal trauma. J Trauma 1993;35(2): 267–270