

Case Report

# A COMPARATIVE STUDY OF X-RAY AND CT IN MEDICO LEGAL TRAUMA

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### BACKGROUND:

*Computed Tomography [CT] is very valuable in visualizing bone fractures and other lesions. It can be used to confirm medico legal cases of controversial nature. The purpose of this study was to compare the findings of CT and X Ray to provide accurate diagnosis, resolve the issues between the concerned parties and help the court to decide in medico legal cases. The diagnosis was more confirmed and extent of the fractures was quantified by 3-dimensional CT scan.*

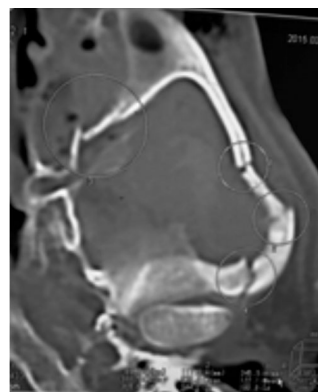
### FEW CASES



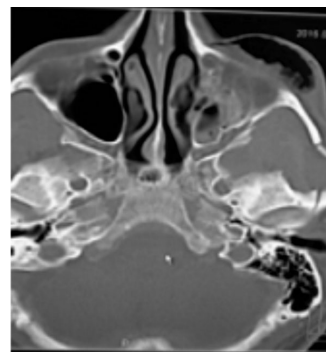
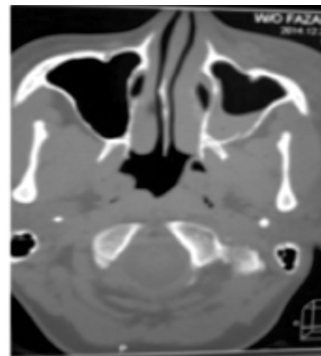
Case 1 Name "S"



X-ray skull normal



CT fracture maxillary bone



CT Fracture and blood collection in left maxillary sinus

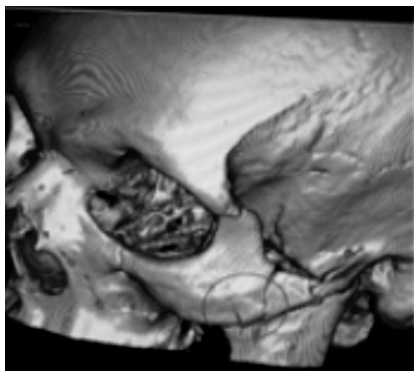
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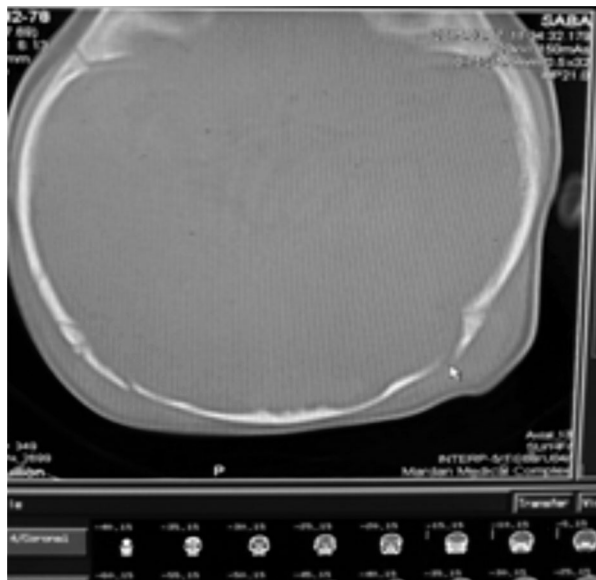
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3D CT confirms fracture

The above mentioned case was a person name “S” age 45 years was referred from RHC Sher Garh Dist. Mardan to Mardan Medical Complex Mardan [MMC]. It was a medico legal case being hit on head and face this morning. He was having X- Ray skull [AP, Lat views] which was reported as normal.

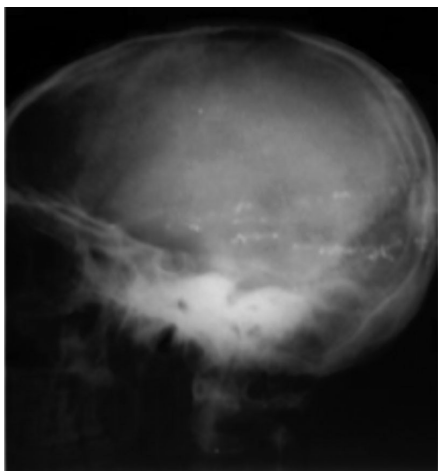
The injured person was bleeding from nose. His left eye was red and swollen. The CMO on duty agreed with X Ray report of the referring MO RHC as SIMPLE because there was no visible fracture in the X Ray. CMO provided first aid treatment and sent the patient home. The pain of the patient increased and still had epistaxis. He was brought on the next morning to OPD of MMC. The consultant examined and advised CT skull. The CT findings in bone window were three fractures of Lt. Maxillary bone and collection [blood, hematoma] in the Lt. Maxillary sinus. It was more evident in 3 D CT. The patient was admitted in ENT unit for proper treatment. The review of the X Ray films by the radiologist indicated even the same findings as was reported by the CMO but CT scan confirmed the fracture. The MLC report was changed from SIMPLE to GREVIOUS.



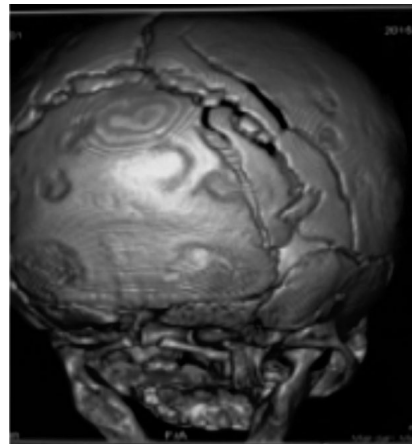
CT- Fractureoccipital bone



CT- Fracture and haemorrhage



X-ray normal



3D CT-- Fractureoccipital bone

A mother and a child name Saba of three years had trauma to their different parts of body were brought to OPD. The mother was having some bruises on back while the child was semi unconscious. The case was medico legal. The X ray of mother Lumbar spine and skull of the child were reported normal. They were advised treatment and sent home. The mother pain subsided with treatment however condition of the child deteriorated gradually.

The child brought to MMC to consult pediatrician. CT brain was advised. There was a tiny fracture of occipital bone with extradural hemorrhage. The MLC report was corrected accordingly.

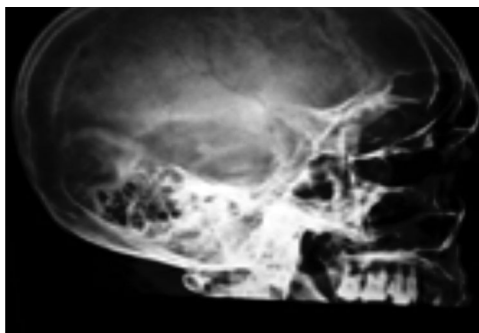
**CASE 3**



Hasan



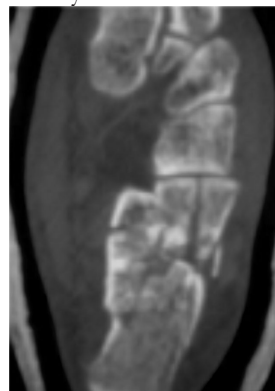
X Ray doubtful fracture



X ray, reported as depressed fracture



CT- skull normal



CT confirmed fracture of calcaneum and other metatarsals



Nasal bone seen normal in X Ray but CT confirms hairline fracture

### 50 SUCH CASES

A study of 50 medico legal cases having both X Ray and CT scan revealed the following.

- |                    |   |
|--------------------|---|
| 1, Number of cases | 50  |
| 2, Sex             | 35 male, 15 female                                  |
| 3, Age             | From 3 years to 45 years.                           |
| 4,                 | Region of trauma different regions but mostly skull |

Comparison of Reports of X Ray and CT divided in three groups.

#### GROUP A

X Ray report normal but CT confirmed fracture 8 cases, 16 %

#### GROUP B

X Ray report fracture but CT excluded the lesion 12 cases, 24 %

#### GROUP C

X Ray report and CT reports were the same 30 cases, 60 %

#### RESULTS

Computerized Tomography [CT] is the best confirmation in bone fracture. In medicolegal cases apart from treatment point of view even a minor bone fracture has great importance. CT is helpful to confirm X-Ray reports in doubtful hair line fracture specially in organs with overlapping bones e.g., skull and also in old cases where union has started.

#### CONCLUSION

X Ray should be the first tool of diagnosis in all bone trauma including MLC cases. However suspected cases to be confirmed on CT images and if available on 3D CT reconstruction.