

A COMPARATIVE EVALUATION OF CT SCAN FINDINGS AND POST MORTEM EXAMINATION FINDINGS IN HEAD INJURIES

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ABSTRACT:

The study pertains to comparative evaluation of CT scan finding and post mortem examination findings in fifty cases of head injury victims. It was observed that although CT scan is a useful tool for the diagnosis of various kinds of lesions of head injury, autopsy was found to be more effective in detecting them.

KEYWORDS: Head injury, CT scan findings, Autopsy

INTRODUCTION

Head injuries are a very common cause of death all over the world. As a part of clinical investigations, nowadays CT scan is done in most of the cases of head injuries. The patients who do not survive are subjected to further investigations in the form of post mortem examination. In most of the cases a correlation can be established between the reported CT scan findings and post mortem examinations findings. However, in a few cases the lesion may be misdiagnosed or may remain undiagnosed by CT scan examination.

AIMS & OBJECTIVES:

1. To correlate post mortem examination findings with CT scan findings in head injury cases.
2. To identify the lesions caused by head injuries, which may be misdiagnosed or may remain undiagnosed by CT scan examination and can be diagnosed by post mortem examination and vice versa.

MATERIALS AND METHOD:

Materials:

1. Inquest papers and other relevant police documents
2. Magnifying glass
3. Autopsy table and instruments for dissection
4. Fifty cases of head injury
5. CT scan record of each case

Method:

All cases of head injuries with a definite history of trauma were taken for the study. Decomposed bodies and bodies with no specific history were not included in the study. A detailed dissection and examination of the head as per standard forensic autopsy procedure was carried out and the injuries found were noted. A comparative evaluation of the post mortem examination findings and CT scan was done.

OBSERVATIONS & RESULTS:

The following are the results of the comparative analysis of CT examination and postmortem examination findings:

Comparative analysis of injuries on CT scan examination and post-mortem examination in 50 cases of Head Injury

1.	Skull Fracture	20	26	76.3%	23.7%
2.	EDH	8	12	66.6%	33.3%
3.	SDH	50	50	100%	0%
4.	SAH	9	14	64.3%	35.7%
5.	ICH	7	10	70%	30%
6.	Contusion	8	10	80%	20%
7.	Laceration	5	6	83.3%	16.7%
8.	Cerebral Edema	25	30	83.3%	16.7%

- In skull fractures, 76.3% of them were diagnosed in both CT Scan and Autopsy; whereas 23.7% of them remained undiagnosed by CT Scan.
- In Extradural haemorrhages (EDH), 66.7% were diagnosed in both CT Scan and Autopsy; whereas 33.3% of them remained undiagnosed by CT Scan.
- The Subdural haemorrhages (SDH), were diagnosed in both CT Scan and Autopsy and no mismatch was diagnosed.
- In Subarachnoid haemorrhages (SAH), 64.3% were diagnosed in both CT Scan and Autopsy; whereas 35.7% of them remained undiagnosed by CT Scan.
- In Intracerebral haemorrhages (ICH), 70% were diagnosed in both CT Scan and Autopsy; whereas 30% remained undiagnosed by CT Scan.
- In Contusions, 80% were diagnosed in both CT Scan and Autopsy whereas; 20% remained undiagnosed by CT Scan.
- In Laceration, 83.3% were diagnosed in both CT Scan and Autopsy; whereas 16.7% remained undiagnosed by CT Scan.
- In Cerebral edema, 83.3% were diagnosed in both CT Scan and Autopsy; whereas 16.7% remained undiagnosed by CT Scan.

DISCUSSION:

Few reported similar studies are available for comparison. As new technologies enhance our abilities to visualize smaller objects and to detect smaller quantities of various substances, we must be careful in our interpretation of the data. There have been case reports where lesions have been misdiagnosed in CT scan examination but were found to be artifacts on autopsy. Such cases highlight potential pitfalls of new technology with enhanced resolution with the continued value of the autopsy in serving as a gold standard for validating new and emerging technology¹.

Donchin et al have in a study compared the findings of complete body Postmortem CT Scan (PMCT) and autopsy finding in trauma cases. According to them conventional autopsy missed 25.2% of bone injuries compared to PMCT, while the former was superior to PMCT in discovering soft tissue pathology. In all, PMCT revealed 70.5%, and autopsy 74.8% of the pathology².

In our study we found that autopsy was more effective in detecting bony injuries, meningeal haemorrhages, and parenchymal lesions as compared to PMCT as mentioned the table, above.

CONCLUSIONS:

Autopsy being a direct visual examination of the lesions can detect more pathological findings compared to CT scan, which is essentially an interpretation of images.

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