Confused patients and confused doctors: the role of CT brain in patients presenting to ED with confusion

Introduction

Computed Tomography (CT) of the brain is widely utilised within the emergency department for investigation of patients presenting with altered conscious state, delirium and confusion. This is despite the majority of patients having a systemic cause rather than intracranial cause for their symptoms.

Aims

To uncover the diagnostic value of CT Brain in patients presenting to the Emergency Department with acute confusion or an altered conscious states, where trauma or other localising neurological factors are absent.

Methodology

We performed a retrospective study of all 442 patients who had a non- contrast CT brain in Box Hill Emergency Department during November 2018. Patient records were then examined to see if the presentation included words describing an altered conscious state without any evidence of recent head strike or acute localised neurological deficit.

A total of 66 patients were included in the study after this further data characterisation. This accounted for 15% of all CT brains during the audit period.



Figure 1: Word cloud of frequent terms used

Results

Of the 66 non-contrast CT brain scans included, 5 (8%) were abnormal

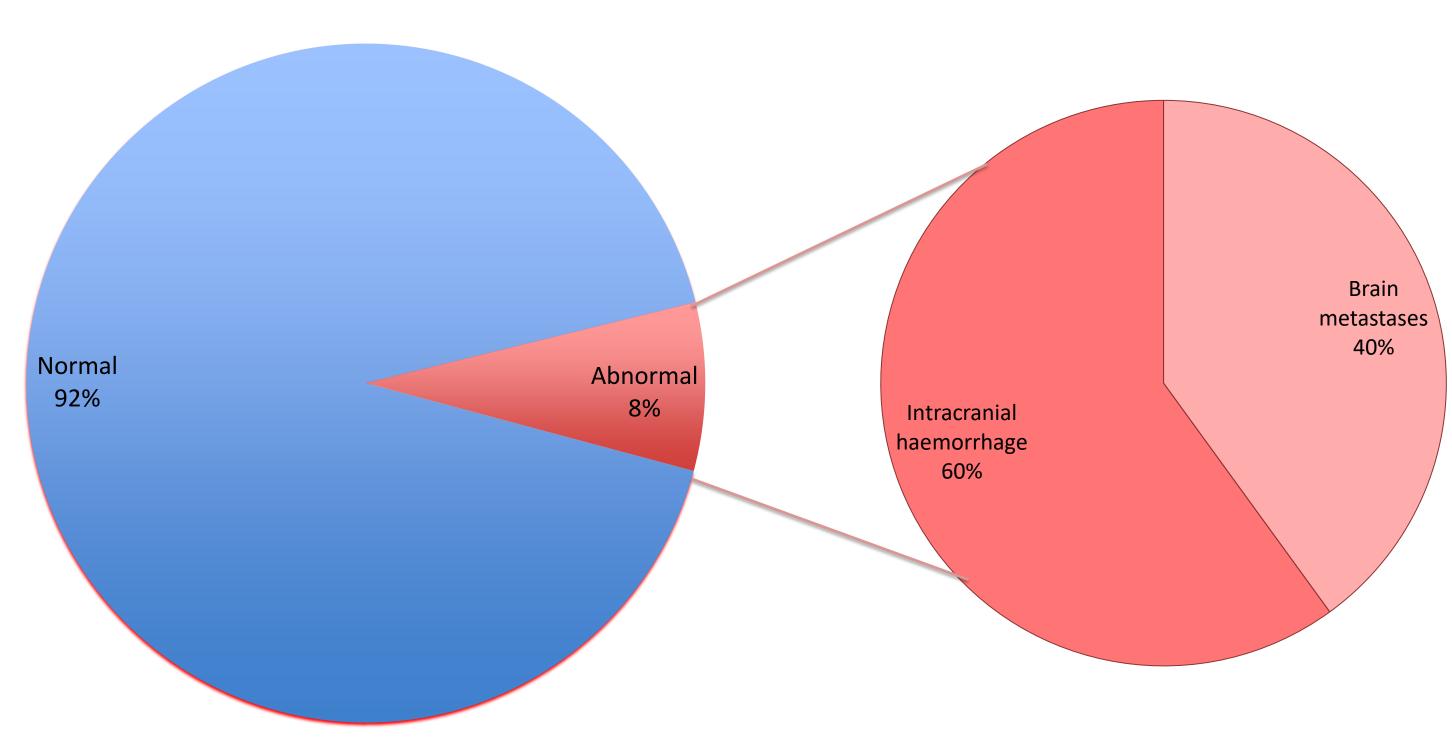


Figure 2: Pie chart of scan results

Further analysis of the 5 abnormal scans showed all to have significant additional red flags for intracranial pathology;

- 2 were undergoing palliative treatment for advanced metastatic cancer.
- 2 presented with repeated vomiting in addition to an altered conscious state. One of these patients was also febrile, which resulted in the initial incorrect assumption that the symptoms were due to an infection.
- 1 was clinically extremely obtunded with a GCS of 4-6 on presentation.

Conclusion

This audit suggests that CT Brain scans in the absence of localising symptoms or trauma has little diagnostic benefit in patients presenting to ED with altered conscious state/ confusion. A more considered approach to brain CT scanning in this population, with an emphasis on the presence of specific red flags, could safely reduce unnecessary scanning.