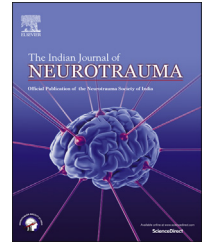


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Case Report

Bilateral temporal contusions causing third ventricular compression and acute hydrocephalus

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ABSTRACT

Post-traumatic hydrocephalus (PTH) is rare but potentially treatable sequel of head injury. We report an uncommon cause of PTH in a 54-year patient who had bilateral temporal contusions causing compression of the third ventricle. We discuss the underlying pathology of the hydrocephalus; discuss the imaging finding and management of the patient.

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1. Introduction

Post-traumatic hydrocephalus (PTH) is rare but potentially treatable sequel of head injury^{1–10} and was recognized as early in 1914 by Dandy.³ It is more common in patients with moderate or severe traumatic brain injury.^{2,4,5} We report an uncommon cause of PTH in a patient with bilateral temporal contusions and discuss the mechanism of the hydrocephalus in this case.

2. Case report

A 54-year gentleman presented 6 h after he met a road traffic accident hit by car while he was going on the road. He was in altered sensorium since the time of injury. There was history

of right ear bleed and three episodes of vomiting. At the time of examination in the emergency room he had difficulty in breathing and decreased movements of chest on left side. There was decreased air entry over left side of the chest. Glasgow coma scale was E2V2M5. Pupils were bilateral equal and reacting to light. An X-ray chest showed multiple rib fractures on left side with hemothorax. Endotracheal intubation was performed and a chest tube was placed on left side (about 100 cc blood came out in the chest tube collection bag). After stabilizing the vitals, the patient was shifted for a CT scan brain and in showed bilateral temporal contusions with obliteration of the third ventricle, dilated lateral ventricles and effacement of both sylvian cisterns (Fig. 1A and B). Fourth ventricle was normally seen and there was blood in the ventricles. The CT scan findings suggested symmetrical mass effect because of bilateral contusions and compression of the third ventricle and obstructive hydrocephalus. The patient

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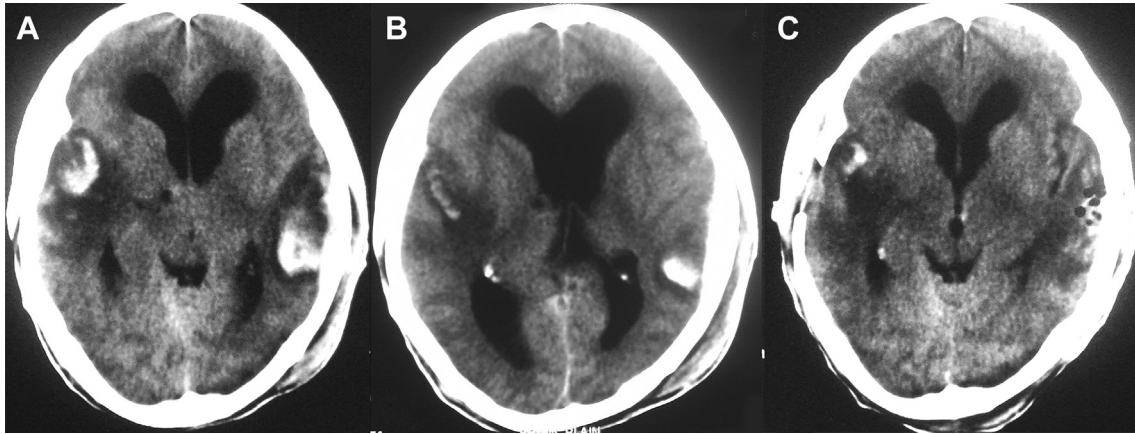


Fig. 1 – (A and B) CT scan brain plain showing bilateral temporal contusions with peri-lesional edema and mass effect with obliteration of the third ventricle, (C) Follow up scan after 12 h of surgery showing adequate decompression of the contusions, opening up of the third ventricle and visualization of the sylvian cisterns (compare with A).

was taken for emergency decompression of the bilateral contusions. Both the contusions were removed by bilateral temporal craniectomy to avoid any asymmetrical mass effect and midline shift. However, a decision was made not to place ventricular drainage but to repeat an early CT scan. The patient was kept on elective ventilation. CT scan after 12 h of surgery showed good decompression of the contusions and significant reduction in the size of the ventricles (Figs. 1C and 2A and B). The patient improved in his neurological status and made a good recovery.

3. Discussion

Post-traumatic hydrocephalus (PTH) is rare but important sequel of traumatic brain injury and the reported incidence of symptomatic PTH ranges from 0.7% to 29%.^{3,4,6-10} In most of the cases PTH develops in post-acute phase of rehabilitation and the duration ranging from days to months.^{2,7,11} However, the presentation of PTH may be acute,^{2,11-13} especially in the presence of subarachnoid hemorrhage.¹³ The development of

PTH in a sub-acute manner has been attributed to the presence subarachnoid hemorrhage (with subsequent aseptic inflammation and occlusion of basal cisterns) or infection.^{2,6,9,14-16} In acute stage there may be blockage of CSF outflow by blood clots,² or may be the compression of CSF pathways (as was seen in present case). In contrast to the clinical presentation of PTH in sub-acute phase (plateauing of recovery or neurological deterioration)^{2,8} in acute stage it is the imaging findings that will clue to the diagnosis. The management of PTH will depend on the underlying etiology and clinical presentation. In symptomatic patients CSF diversion procedure either internal shunt or external drainage may be needed.^{2,3,6,7,10,11,17}

4. Conclusion

In our patient, as the underlying pathology was bilateral compression of the CSF pathway at the level of third ventricle we opted for the removal of the underlying pathology and close observation of the patient. A follow up CT scan

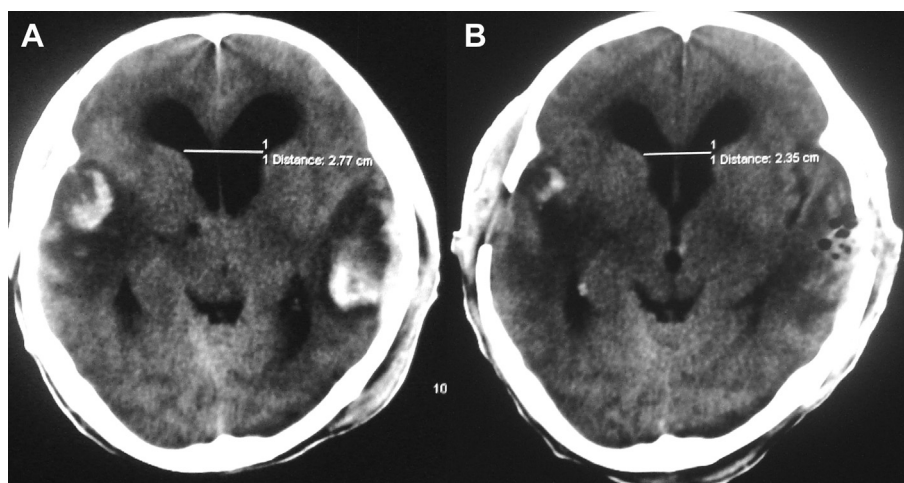


Fig. 2 – There is decrease in the size of ventricles (pre-surgery – 2.77 cm, post-surgery – 2.35 cm).

confirmed that the compression of the third ventricle was due to symmetrical mass effect.

Conflicts of interest

All authors have none to declare.

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