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## Case report

# Non-surgical treatment of massive traumatic corpus callosum hematoma after blunt head injury: A case report



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## ABSTRACT

Massive hematoma of the corpus callosum caused by blunt head trauma is an extremely rare lesion. Most frequent traumatic lesions involve the corpus callosum are diffuse axonal injuries. They might be associated with small hemorrhagic foci in the hemispheric and brain stem white matter, intraventricular hemorrhages, subarachnoid hemorrhages, traumatic lesions of the septum pellucidum and fornix. Many cases of corpus callosum injury present with permanent disconnection syndrome. We present a case of a 32-year-old female suffered blunt head trauma resulted in massive corpus callosum hematoma which was managed non-surgically. The patient initially had a reduced conscious level and symptoms of disconnection syndrome, and significant recovery was observed at 6 months follow up.

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## 1. Introduction

Focal corpus callosum (CC) injury is an indicator to severe brain injury. This type of injury is likely due to either disruption of axons at the time of the trauma or due to torsion or shearing strains on the CC and it is a measure of severe brain injury. Clinical outcomes include persistent vegetative state or mutism. Disconnection syndrome associated with cognitive deficits as memory loss can occur if the posterior callosal lesion extends as far forward as the fornix. On the other hand, interhemispheric disconnection syndrome after head trauma have been reported rarely in the literature, probably often overlooked [1].

Hemorrhagic lesion of the corpus callosum is a rare feature in subarachnoid hemorrhage (SAH), which may result from ruptured aneurysms of the anterior communicating artery, pericallosal artery or after ruptured arteriovenous malformation (AVM) or arteriovenous fistula [2].

Magnetic resonance imaging (MRI) often demonstrates small hemorrhagic foci in the CC or surrounding structures in diffuse axonal injury [3].

## 2. Case report

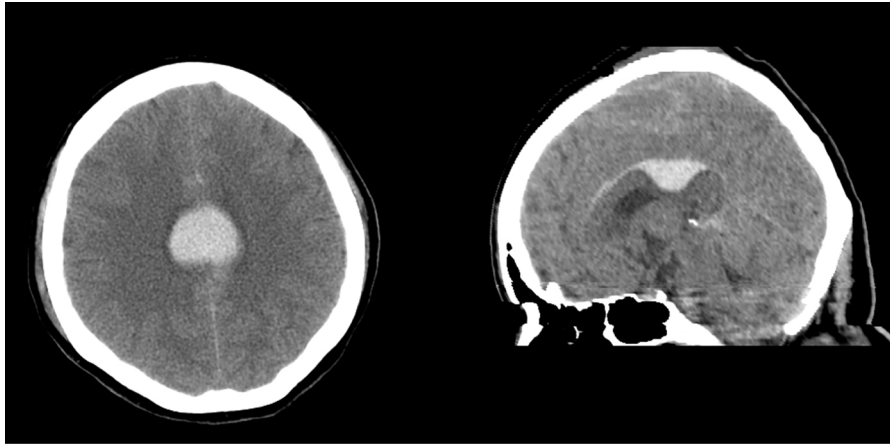
A 32-year-old female was pedestrian hit by a vehicle at high speed. She sustained polytrauma including severe head injury.

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**Fig. 1 – CT of the brain on admission.**

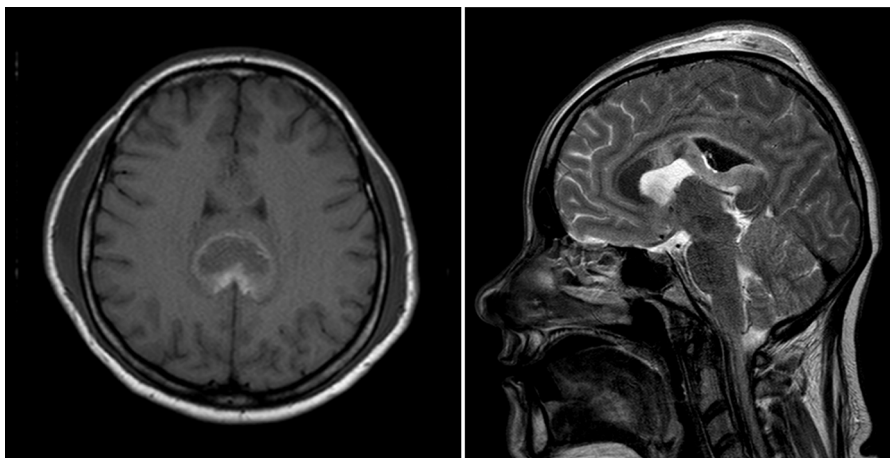
Admission Glasgow Coma Scale (GCS) was (E4, V1, M5), aphasic, with severe right lower limb weakness (MRC Grade 1/5) with an up-going right plantar response. A computer tomography (CT) scan of the brain demonstrated a large hematoma in the CC involving mainly the splenium (Fig. 1). MRI and magnetic resonance angiography (MRA) did not reveal any vascular cause (Fig. 2). Associated injuries included: fractures of the C6, C7 spinous processes, an undisplaced fracture of the left articular facet of C7, fracture of the antero-superior aspect of T3 and T4 vertebral bodies, left 6th rib fracture, fracture of pelvis, fracture of shaft of left tibia (treated by open reduction and internal fixation).

The patient was treated with intensive care, anti-seizure medication, nasogastric feeding and bed rest for the pelvic injury. Her conscious level was improved at 14 days post-injury, and she started to show improvement of the right lower extremity motor power after three weeks post-trauma under influence of condensed physiotherapy sessions. At six month follow up the patient was fully conscious, oriented, could verbally communicate on her mother tongue fluently and also started walking with little assistance (the gait difficulties were due to the pelvic and lower extremity injuries not the

consequences of the head injury), could climb the stairs and she was independent in taking care of herself.

The neuro-psychological and cognitive function assessment of the patient could be performed only partially for several reasons: the patient's mother tongue was unique in this country, she could not speak the local language and she was not able to communicate fluently in English as well. Initially she was obtunded due to the head trauma, later on due to the pain medication for the other injuries. She had also a major emotional trauma for she lost her two years old daughter during the accident. However, obviously the patient was aphasic initially for two weeks and later on she started to communicate verbally. Initially we could find left sided neglect syndrome, impaired visual recognition, alexia and she seemed to be akinetic. At the time of the six months follow up, she mentioned she had some difficulties with understanding what she reads; she had no problems of memory and of communicating on her native language. She demonstrated left sided apraxia.

Regular MRI brain follow ups were done on the 5th day, 1, 3, 6 month after injury, which revealed gradual reduction in size of the hematoma (Figs. 3 and 4).



**Fig. 2 – MRI of the brain done one month after the impact.**

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