

Intrathecal Baclofen Pump in a Bilateral Craniectomy Patient with Severe Brain Injury: A Case Report

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Objective

Intrathecal Baclofen pump (ITB) has been widely used for controlling spasticity in patients with a variety of upper motor neuron lesions. Here we present a case where ITB pump was successfully utilized in the management of a bilateral craniectomy patient with severe traumatic brain injury.

Methods

An 18-year old female patient was admitted to the emergency trauma center of our medical center on August 28, 2017 after a motorcycle accident. She was in a vegetative state upon arrival, and her initial GCS score was E1 V(T) M1. Initial brain CT revealed traumatic subdural hemorrhage on both fronto-temporo-parietal convexity and multiple skull fracture. The patient underwent an emergent bilateral craniectomy and was referred to the rehabilitation department on September 21, 2017. Initial BBS, MBI, MMSE were 0, 0, 0 respectively, and Ranchos Los Amigos cognitive scale was level 1. Spasticity of MAS grade 3 to 4 was observed in both upper and lower extremities, and Disability Assessment Score (DAS) was checked to be 3 (severe disability) in hygiene, dressing limb position, and pain. Carer Burden Scale (CBS) taken from the patient's mother who was the main caregiver was 'very difficult' in all categories. The patient suffered from episodes of high spiking fever and excessive sweating without evidence of infection, and serum myoglobin was elevated up to 128ng/ml (normal range: 14~106ng/ml), which were thought to be caused by severe spasticity.

Results

After oral anti-spastic medication showed no effect on the patient, she underwent ITB pump insertion upon successful trials. A dose of 100ug/day of Baclofen was continuously injected. Follow up MAS grade was 1+ in the upper extremities and 1 in the lower extremities. DAS showed improvement to 1 (mild disability) and CBS was also improved to 'slightly difficult' in all categories. Her follow up GCS was E2 V(T) M3, and there was no change in mental status, BBS, MBI, MMSE, or Ranchos Los Amigos cognitive scale.

Discussion To our knowledge, this is the first case reported where ITB pump was successfully utilized in a severe traumatic brain injury patient after bilateral craniectomy. ITB may be an effective treatment even in patients with severe brain damage. Rehabilitation should be personalized for each patient regardless of severity, and spasticity control, contracture prevention, and pressure sore prevention may be some factors that are especially important when caring for bed-ridden patients. As shown in

this case where ITB was meaningful in a patient in vegetative state for more than 6 months, ITB may be a useful treatment for severely injured patients with poor recovery pattern. Improvement in spasticity led to improvement in the caregiver's burden, which ultimately Resulted in higher satisfaction of the caregiver. When possible, ITB should be considered for treatment of uncontrolled spasticity regardless of the patient's recovery pattern.

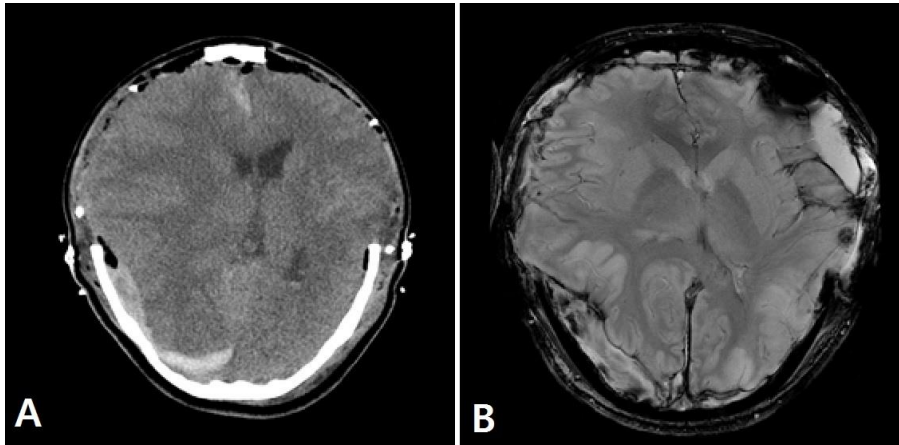


Fig 1. Brain imaging after bilateral craniectomy revealed severe traumatic brain injury. Brain CT showed traumatic subdural hemorrhage on both fronto-temporo-parietal convexity and severe brain edema (A). A GRE image on brain MRI showed diffuse axonal injury (B).

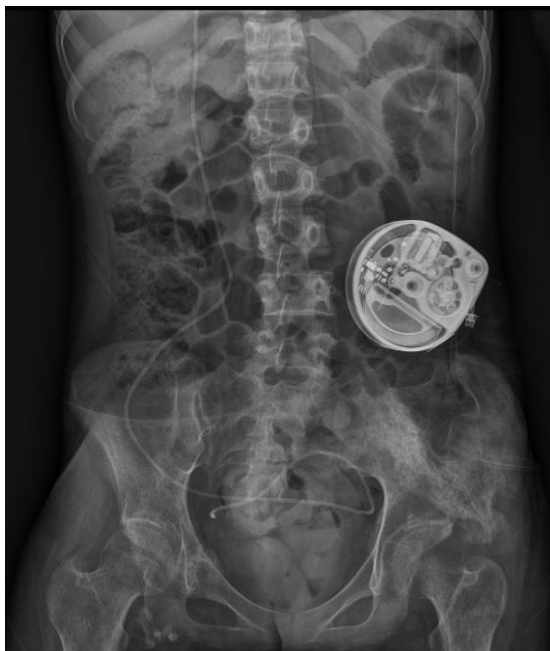


Fig 2. Simple Abdomen x-ray after intrathecal Baclofen pump insertion showed proper positioning of the device. A dose of 100ug/day of Baclofen was continuously injected.