

CASE REPORT

Case Report on Increased Size of Head (Macrocephaly) in an Infant due to Bilateral Chronic Subdural HaematomaASM Qamrul Hasan¹, Md. Maniruzzaman Bhuiyan², Durdana Ahmed Bhuiyan³**Introduction:**

An infant presented with gradual increase in circumference of head following trauma (two months back) without history of fever and bleeding disorder.

Brain computed tomography (CT) detected huge bilateral chronic subdural collection. After surgical evacuation further deterioration of increase in head size was halted. Subdural collection sent for culture and sensitivity showed no growth.

There has been no report of increased size of head circumference in infant due to bilateral chronic subdural collection.

The clinical course and characteristic imaging findings of the patient is reported here.

Case report:

The patient was a six-month-old male infant who was born by cesarean section. His birth weight was 3.6 kg. Asphyxia was not noted at birth. The patient lived with his parents. His mental and motor developments were normal. Past medical history of the patient revealed no obvious fever. A history of trauma two

months back followed by gradual increase in the head circumference was noted over last three months. On examination, the infant was irritable, abnormal looking and the head circumference was 50.2 cm without bulging anterior fontanale and brain pulsation was absent over the fontanale. Due to abnormal circumference of the head the patient was referred, and admitted. Just after admission patient developed vomiting.

Neck stiffness and Kernig's sign were absent. No hemorrhage and papilloedema was noted in the retina or vitreous body in either eye.

There were no abnormalities in the thoracic or abdominal region. No injury or bruise suggesting abuse was noted on the external surface skin of any part of the body. Brain CT (Fig.-1A) detected huge bilateral iso-density area. The cerebral ventricles were compressed from both sides.

Upper three (axial, coronal and sagittal) slices of Figure-1 are brain CT images on admission. A chronic subdural collection was noted in both sides of brain. The cerebral cortex from both sides were compressed, and the both lateral ventricles were narrowed. No midline shift was noted (Fig- 1A).

On peripheral blood testing, white blood cell count was 11,500/ μ L, and differential count did not show any inflammatory reactions. No anaemia, hypoglycaemia, liver function disorder, or imbalance in electrolytes were

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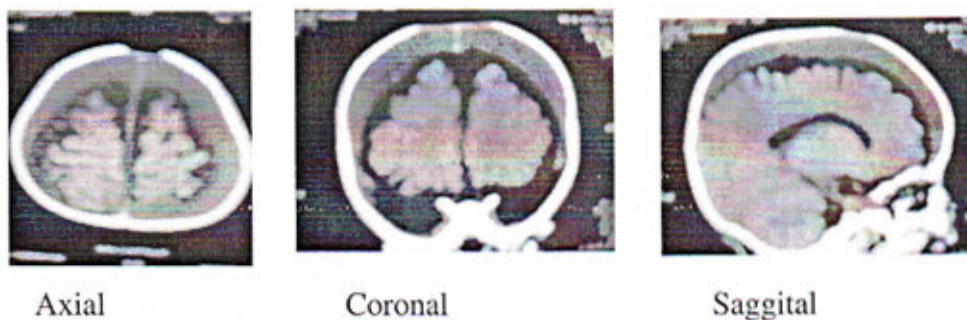


Figure- 1A: Pre-operative CT scan of brain

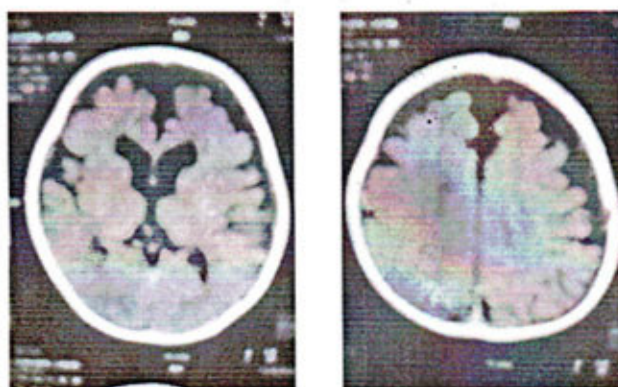


Figure- 1B: Post-operative CT scan of brain

noted. Coagulation tests including vitamin K were normal. On subdural fluid test, the cell count was normal. The subdural fluid protein and glucose levels were normal. Subdural fluid culture was done and showed no growth.

The subdural fluid contained old blood clots, consistent with the finding of chronic subdural haematoma. The symptoms improved just after operation, further increase of head circumference halted and brain pulsation over the anterior fontanale appeared. Depression of the anterior fontanale disappeared.

The patient was followed up for three and half month following surgery. There was no history of vomiting or seizure. Motor and mental development were within normal limit.

Post-operative CT scan of brain showed minimal collection without further deterioration of increase in head circumference. No sequelae was noted in the movement or speech as of nine months of age, nor was there any progression of abnormal expansion of the head circumference. No convulsion occurred during the clinical course.

Discussion:

The cause of subdural haematoma is rupture of the cerebral bridging veins of the skull and brain surface. Since the bridging veins are thin and easily injured in neonates and infants, the incidence of subdural haematoma is high in this developmental period¹. For example, birth trauma causes subdural haematoma in

neonates². However, no abnormality was noted in the birth course of the patient. Occurrence of chronic subdural hematoma after very minor head trauma, despite the absence of an obvious trauma, has been reported in infants³. Since chronic subdural haematoma is easily missed in the infantile period without a past history of trauma, and causes complications of macrocephalia, developmental disorder and consciousness disorder, caution is necessary.

The patient's mother reported that the patient had past history of trauma. In addition, the patient was an infant and could not complain of headaches. Shaken baby syndrome is known to present with subdural haematoma without a history of trauma in infants aged less than two years, particularly at the age of 3-6 months⁴. Shaken baby syndrome is accompanied by eye fundus hemorrhage in 75-90% of cases, and diagnosed in status epilepticus, which is not true in this case.

Symptoms of chronic subdural haematoma in infants include recurrent vomiting, convulsion, bulging of the anterior fontanale and expansion of the head circumference. Though this patient presented without a bulge in the anterior fontanale and there was absence of brain pulsation over the fontanale, the

chronic subdural haematoma might have been the cause of the increased head circumference.

The patient's head circumference was increased due to increased intracranial pressure. The time of development of chronic subdural haematoma was diagnosed on the basis of images. Timely surgical evacuation may halt further abnormal progression of increased head size.

References:

1. Hobbs C, Childs AM, Wynne J, Liningston J, Seal A. Subdural haematoma and effusion in infancy: an epidemiological study. *Arch Dis Child* 2005; 90: 952-955.
2. Minns RA. Subdural haemorrhages, haematomas, and effusions in infancy. *Arch Dis Child* 2005; 90: 883-884.
3. Chamnanvanakij S, Rollins N, Perlman JM. Subdural hematoma in term infants. *Pediatr Neurol* 2002; 26: 301-304.
4. Thiessen ML, Wooridge DP. Pediatric minor closed head injury. *Pediatr Clin North Am* 2006; 53: 1-26.
5. Lowenstein LF. Recent research and views on shaking baby syndrome. *Int J Psychiatry Med* 2004; 34: 131-141.