A spontaneous chronic subdural hematoma in a boy after lifting a heavy object: a case report

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ABSTRACT

Background: Subdural hematoma (SDH) is the accumulation of blood below the inner layer of the dura but external to the brain and arachnoid membrane. Chronic SDHs (cSDHs) are well documented in infants where it is frequently observed as a single entity but rare beyond infancy. Variable clinical manifestations may result, including headache, nausea or vomiting, mental status change, seizure, weakness, sensory disturbance, gait abnormality, and coma.

Case Presentation: The current report presents a case of a 10-year-old boy, medically free, who presented to the emergency department complaining of bilateral generalized lower limb pain, headache, nausea, and vomiting. The patient reported that symptoms started following lifting a heavy object 2 days ago at school. All labs were normal. Physical examination was normal. Urgent head computed tomography showed a left-sided subdural collection. Urgent surgical evacuation was done, and the patient had a full recovery. The patient was discharged after 2 days and followed up within 1 month.

Conclusion: Subdural bleeding can be triggered by a sudden rise in intravenous pressure. Early diagnosis and treatment with craniotomy and drainage revealed an excellent prognosis.

Keywords: Chronic subdural hematoma, children, pediatrics, case report.

Background

Subdural hematoma (SDH) is the most common type of traumatic intracranial mass lesion. SDH occurs not only in patients with severe head injuries but also in patients with less severe head injuries, particularly those who are elderly or who are receiving anticoagulants. SDHs are usually characterized on the basis of their size and location and the amount of time elapsed since the inciting event age [1]. Chronic subdural fluid collection is a group of conditions called extra axial fluid collection. Chronic SDH (cSDH) is generally a disease affecting the elderly and infants. Little is known about SDH in the young population. Spontaneous cSDH in the absence of predisposing conditions is rarely observed beyond infancy. Our case report is about a child presented with spontaneous cSDH without a history of trauma [2].

Case Presentation

A 10-year-old male was admitted to the emergency department with complaints of lower limb pain, headache, and nausea over the last 2 weeks, which started after he lifted a heavy object at school. Initially, he developed generalized lower limb pain which increased with walking, responded to paracetamol, complained of on and off headache, and generalized with no photophobia or phonophobia. After 2 days, he developed abdominal pain (generalized and moderate in severity) associated with vomiting twice the food content, and also was still complaining of headache and lower limb pain. There was no history of any trivial head injury. There was no history of loss of consciousness, change in behavior, or seizure. There was no history of decreased oral intake or activity. He had a known case of sickle cell trait and G6PD deficiency, no history of...
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bleeding tendency, unremarkable family history. On physical examination, his weight was 27 kg and Glasgow coma scale score was 15/15. Pupils were equal and did react to light. There were no signs of meningeal irritation and a motor examination illustrated limited lower limb extension with normal power and reflexes. Examination of upper limbs was normal, and there was no evidence of child abuse or bleeding tendency. Lab report: complete cell count showed hemoglobin 12.9 g/dl, platelet count $224 \times 10^3$, white blood cells $6.7 \times 10^3$, prothrombin time 16.1, partial thromboplastin time 28, international normalized ratio 1.2, sodium 135 mmol/l, potassium 4.4 mmol/l, factor VIII level 53 IU/dl, and Von Willebrand factor 93 IU/dl. An urgent brain computed tomography (CT) scan (Figure 1) revealed a left-sided subdural collection measuring $2.8 \times 11 \times 2$ cm causing midline shift and compression on the ventricular system. At this stage, surgery under general anesthesia was proposed. He was managed by single bur hole trepanation parietal left side drainage and evacuation of cSDH. Subsequently, his clinical condition improved immediately. CT repeated after 2 days showed an interval regression in the size of the previously noted left-sided subdural collection (Figure 2). An interval improvement in midline shift and ventricular effacement. The patient was discharged from the hospital after 2 days with full clinical improvement. A follow-up assessment after 1 week and after 1 month showed that the patient was neurologically intact with a general well-being.

Discussion

cSDH, one of the most commonly encountered neurosurgical diseases, is characterized by a pathological collection of blood in the subdural space with an insidious onset and progression. Given the increased occurrence of the elderly, incidence rates have been rising with the demographic shift toward an aging population. It is uncommon in infants but rare in older children. The process of cSDH formation and progression remains poorly understood, and possible explanatory hypotheses include subclinical brain injury causing bridging vein trauma, inflammatory responses, transformation of an acute SDH, osmotic pressure gaps, and neovascularization of leaky vessels in the subdural membrane [3]. In the infant brain, SDH is caused by tearing of the bridging veins in the subdural space as a result of rotational and deceleration forces, or by other pathological processes [4]. Spontaneous SDH is reported in patients with abrupt rises in intraventricular pressure during coughing, defecation, trumpet blowing, and heavy weight lifting [5]. As the hematoma expands, raises intracranial pressure, and compresses nearby brain parenchyma, variable clinical manifestations may result, including headache, nausea or vomiting, mental status change, seizure, weakness, sensory disturbance, gait abnormality, and coma [6].
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A retrospective study of a total of 30 cases of cSDH was found in a period of 10 years (2008-2018). The patient age range (2 months-17 years), with 20 males (66.67%) and 10 females (33.33%). Raised intracranial pressure was the commonest presenting symptom followed by seizures. The previous shunt was the commonest predisposing factor. Burr hole craniostomy was done in 90% of cases, and conservative management was done in 10% of cases [7].

The standard therapy of cSDH is a surgical evacuation, which usually improves the neurological picture. This is carried out by various surgical procedures such as burr hole evacuation, the most popular technique worldwide, twist-drill craniostomy, craniotomy, endoscopic removal, and subdural-peritoneal shunt, although all these procedures are associated with various complications [8].

Conclusion

A few cases are reported in the literature. A lower incidence of cSDH in children compared to adults caused these patients to be missed. In the absence of trauma and any predisposing conditions, subdural bleeding can be triggered by a sudden rise in intraventricular pressure. Early diagnosis and treatment with craniotomy and drainage revealed an excellent prognosis.

List of Abbreviations

cSDH Chronic subdural hematoma
CT Computed tomography
SDH Subdural hematoma
VWF Von Willebrand factor

Conflict of interest
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Ethical approval
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References

Author Queries

AQ1 Please note that the running title has been updated. Kindly check.

AQ2 Please check and confirm whether the edits made in the sentence “Initially, he developed generalized lower limb pain…” retain the intended meaning.

AQ3 Note since some abbreviations occur once in the text, they have been expanded in text and same have been removed from the abbreviation list.