DOI: 10.7860/JCDR/2014/7034.4047

Case Report

Paediatrics Section

Post-traumatic Headache: An Uncommon but Treatable Entity

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ABSTRACT

Post-traumatic headache is a recognized sequel of all types of head injuries and reported in up to 6.8% of children with head–injuries. Two varieties, acute (resolving within 3 months) and persistent have been described. We report three cases and discuss pertinent issues for the clinicians.

Keywords: Head-injury, Trauma, Photophobia, Phonophobia

CASE REPORTS

We herein report three of five cases of Post-traumatic headache (PTH) seen over an 8-month period (April 2011 to November 2011) and followed till December 2012, and discuss pertinent issues.

Case 1

A 5-½-year-old girl presented with a history of recurrent severe headache for past 16 months. She had fallen from a height of 7-8 feet while playing, two months prior to the onset of headache. There was loss of consciousness for <30 minutes and her Glasgow Coma Scale (GCS) score was 15 (about 30 minutes post-injury), NCCT head at that time revealed diastasis of lambdoid suture with normal intracranial study. To begin with, she used to have episodic bifrontal headache once in a month or two lasting four-five hours with associated nausea and vomiting (at least one), photophobia, phonophobia and limitation of activity, no aura, and relieved with pain medication or sleep. Gradually her headache frequency increased to once every week lasting 10-12 hours and sometimes not even responding to previously effective pain-medication. She had a positive family history of migraine-like headache in her maternal grandmother. A diagnosis of Persistent PTH (Migraine without aura) was made.

Case 2

An 8-year-old girl presented with severere recurrent headache for past one year. She had a history of severe head trauma one year back (loss of consciousness for 30 minutes; NCCT head: extradural bleed with overlying scalp hematoma). She had headache in the immediate post-traumatic period which subsided in 8-10 days. Over next two months, she started having episodes of severe headache that limited her activities.These were diffuse in location and of constricting nature, lasted for 3-4 hours, and were relieved only after sleep. There was no associated nausea,vomiting,photophobia, or phonophobia. Initially she used to have headache once or twice per week which had gradually decreased to once per month. There was no family history. A diagnosis of Persistent PTH (tension-type) was made, which resolved over the next 8-9 months.

Case 3

An 11-year-old boy presented with the history of recurrent headache for past three years. He had history of mild head injury (fall from eight feet height, no loss of consciousness or seizures, no imaging done) four years back. About three months after that, he started having infrequent episodic tension type headache (mild episodic headache lasting about 30 minutes to 1 hour, not limiting activities, no associated nausea, vomiting, photophobia, or phonophobia) that gradually evolved to migraine-like headache over the next one year. At presentation, he used to have severe, episodic, bilateral fronto-temporal, shooting headache, limiting his routine activities, once every fortnight and lasting around two-three hours with associated nausea, occasional vomiting and photophobia. No family history of headache revealed. A diagnosis of migraine without aura was made, and a possibility of PTH entertained.

DISCUSSION

Post-traumatic headache (PTH), a headache attributed to head and/or neck trauma, is the commonest Secondary headache with the prevalence of chronic PTH varying from 3.2% to 6.8% in children with head injury [1,2]. With head injuries constituting up to 47.5% of all injuries among Indian children [3], there is a likelihood that a large number of children suffer from PTH. There are no Indian studies on the condition, and the available community-based or hospital-based pediatric studies have not reported any cases of PTH [4,5]. International Classification of Headache Disorders-3 criteria for diagnosis of PTH (ICHD code 5.1 and 5.2) include; headache developing within seven days after head trauma or after regaining consciousness following head trauma and resolving within three months or persisting beyond that time for being labeled as Acute and Persistent PTH, respectively. Causative head trauma may be mild (loss of consciousness for <30 minutes, GCS ≥13) or moderate/severe (loss of consciousness for > 30 minutes, GCS <13) [6]. A cut-off of seven days has been set as it is easy to establish relationship between a headache and trauma when they occur in close temporal relationship. Though it is difficult to establish such a relationship when headache develops weeks or months after trauma, as was seen in Case 3; late onset PTH has also been described [7]. Some authors have hypothesized that head injury just serves as a trigger for the onset of CPTH in children who are predisposed to headache, and the timeline for onset of headache is meaningless [8].

Kirk et al., [2] reported PTH in 6.8% of 117 children with head injury followed up prospectively for up to three years, with a good long-term prognosis. Interestingly, premorbid headache of three children in their study transformed in severity and type following head injury [2]. In another study, PTH was diagnosed in 17.1% of 105 children (<6 years)with recurrent headaches [9]. In another multi-centric study, PTH was diagnosed in only 3.2% [1]. Pain characteristics

developing after head injury vary and closely resemble primary headache disorders. The most common headache types recognized are episodic tension type headache and migraine without aura. Severity of head injury has not been found to correlate with severity or duration of CPTH. Although no long term studies exist, prognosis of CPTH in pediatric population has been shown to be good with headache resolving over a variable period of time in majority [7].

The pathophysiology of CPTH is not well elucidated, with a variety of mechanisms proposed including anatomical and physiological changes (degeneration of nerve fibres, reduced regional cerebral blood flow, diffuse axonal injury at grey white matter interface); abnormalities in calcium and magnesium homeostasis, cerebral metabolic activities, endogenous opiates and serotonin; neurochemical changes (excessive release of excitatory neurotransmitters glutamate, aspartate, acetylcholine leading to secondary neuronal damage and delayed onset neurological lesion) [2,10].

Even though 30-70% of children develop PTH after a head injury, in the majority headache is probably a part of post traumatic or post-concussion syndrome. The natural course of PTH is to resolve spontaneously in a matter of weeks along with resolution of other symptoms [10]. However, when headache becomes chronic and causes concern and anxiety to family and physicians regarding possibility of significant brain pathology due to association with head injury, it may lead to unnecessary investigative workup [11].

CONCLUSION

Although PTH is a recognized complication of head injuries in children, it is infrequently diagnosed in Indian children. These cases have been reported to increase the awareness about the existence of the condition, and its good prognosis with standard management of the primary headache subtype.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Jul 20, 2013**
Date of Peer Review: **Nov 30, 2013**
Date of Acceptance: **Dec 09, 2013**
Date of Publishing: **Feb 03, 2014**