

## A case report: Cluster headache in childhood

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### Abstract

*Cluster headache (CH) is one of the most severe types of headache, characterized by periods of recurrent attacks of sudden and intense pain, localized in the orbital or temporal region, and associated with ipsilateral autonomic symptoms and signs. The mean age of onset of CH is in the late third decade. Only few cases of childhood-onset (<14 years) CH have been reported in the literature. In this article, clinical manifestation and treatment options are discussed especially concerning the rationale of use of prednisolone in childhood with cluster headache.*

**Key Words:** Cluster headache, child, prednisolone

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## **Introduction**

Cluster headache (CH) is one of the most severe types of headache, characterized by periods of recurrent attacks of sudden and intense pain, localized in the orbital or temporal region, and associated with ipsilateral autonomic symptoms and signs [1].

CH has been considered to have the same clinical features as in adulthood. CH in childhood is rare, the estimated prevalence being 0.09–0.1% of the population. The mean age of cluster headache onset was 10 years (range: 5-16) [2]. According to different studies the sex ratio is approximately the same (M:F 1.4:1) [3]. In this article we present a female child with cluster headache.

## **Case**

A 12-year-old female was referred to our department due to recurrent severe, short-lasting and unilateral sidelocked headache. The patient reported that the headache occurred around the times of sleep onset and waking, and lasted for 2-3 hours. Unilateral autonomic symptoms including lacrimation and rhinorrhea appeared on the same side as the headache focus. However, symptoms of nausea, vomiting, photophobia, and phonophobia were absent. The first bout lasted a year and this cluster was the second attack. No provocative factor for the attacks could be identified. There was no suggestive family history, incidences of head trauma, recent change in character of headache, or any evidence of raised intracranial pressure. The child's history revealed no illness. Systemic blood tension was normal. Neurologic examinations and magnetic resonance imaging did not suggest any association with head trauma or vascular disorders. Blood examinations, including coagulation and inflammatory variables, showed no significant alterations. Brain magnetic resonance imaging (MRI) and electroencephalograph were normal. Ophthalmological examination showed normal fundus. The symptomatic treatments she was given paracetamol, ibuprofen, oxygen (7–8 l/min, 10–15 min duration, administered through a non-rebreathing mask while sitting on bed) had no clearcut effect, with the exception of oxygen, which showed partial efficacy on pain duration. The patient underwent also consecutive trials of cyproheptadine hydrochloride (4 mg/day), flunarizine (5mg/day), verapamil (80mg/day), without efficacy.

We began with a daily oral prednisolone 2mg/kg (48 mg), reducing the dose every fourth day. The attacks terminated on the second week of the treatment. Unfortunately, the second episode occurred 2 months later. Oral prednisolone 1mg/kg (24mg) was prescribed again to reduce the severity and frequency of head-ache, and this proved to be effective. Follow-up at one year: She did not have an episode of headache or au-tonomic symptoms.

## **Discussion**

Epidemiologic studies performed on a wide range of young people 11-18 years of age have demonstrated a prevalence for childhood-onset of cluster headache of approximately 0.1%. There is no unifying pathophysiologic background underlying cluster headache. Because of the localization of pain it is hypothesized that the ipsilateral trigeminal nociceptive pathways are involved. The autonomic signs suggest activation of the parasympathetic cranial system and the ipsilateral parasympathetic nerves (3). Cluster headache is characterized by clusters of severe pain lasting 15 minutes to 3 hours. The pain is unilateral, limited to the orbital, supraorbital or temporal regions, and accompanied by ipsilateral autonomic features such as conjunctival injection, rhinorrhea, eyelid edema, forehead and facial sweating, restlessness and agitation [4]. The frequency and duration of the attacks were similar to those that have been reported in adults [5]. Our case reported that the headache occurred around the times of sleep onset and waking, and lasted for 2-3 hours. Unilateral au-tonomic symptoms including lacrimation and rhinorrhea appeared on the same side as the headache focus. Unfortunately, the use of medication to treat cluster headache in children is not well substantiated by appropriate studies. The tendency toward long intercluster intervals in young patients makes continuous therapy undesirable until repeated clusters develop. Several treatment alternatives have been tried in the different case reports. In all of them the first or secondline medication always turn out to be effective. According to these data, the most effective symptomatic treatments are oxygen and sumatriptan [6]. Prophylactic treatments tried in literature are methysergide, prednisone/prednisolone, verapamil, and flunarizine [7]. No controlled study has been reported. Interestingly, a study in which a 12-year-old female was treated with antihistamine prophylaxis, first with astemizole and then with loratadine for 2 years, demonstrated this regimen to be effective [8]. Our case underwent also consecutive trials of, antihistamine prophylaxis (cyproheptadine hydrochloride 4 mg/day), flunarizine (5 mg/day), verapamil (80 mg/day), without efficacy. We began with a daily oral prednisolone (48 mg),

reducing the dose every fourth day. The attacks terminated on the second week of the treatment. Unfortunately, the second episode occurred 2 months later. Oral prednisolone 1mg/kg (24mg) was prescribed again to reduce the severity and frequency of headache, and this proved to be effective. Although the reason for steroid efficacy is unknown, the use of cortisone in the acute period can stop the attack and may help to prevent further attacks. Corticosteroid therapy, with dosage adjustment depending on age, should be administered for approximately 10 days, and then the medication should be gradually withdrawn over the following week [9]. Finally, cluster headache should be considered in patients with autonomic symptoms and prednisolone appears to be an efficient preventive agent for cluster headache in childhood.

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