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Case study

Migraine and nosebleed in children case series and literature review

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ABSTRACT

The presence of nose bleeding during a migraine attack as a single occurrence is so far rarely reported. Therefore, we have decided to report such occurrences we have noticed to further improve and build upon possible existing knowledge of such incidences.

Method: 728 children with an average age of 11.5 years, suffering from migraine were examined for nose bleeding. All structural, trauma, coagulation and medical causes were excluded. A computer-based literature search was also conducted to identify other cases of such sort.

Results: Eight cases (1.1%) of nose bleeding during attacks of migraine with no other known causes were identified. An additional 3 cases were identified in literature, though the presenting age was 25 years or above.

Conclusion: In our case series, nose bleeding exclusively occurred during the attacks of headaches, although it was not considerably related to aura, frequency, location or intensity of migraine attacks. The presence of nose bleeding associated with migraine is an uncommon phenomenon and its mechanism is still unknown.

1. Introduction

Migraine is a common neurovascular phenomena in children and is estimated to account for 4–11% of those aged 7–11 years[1] with chronic migraine having a prevalence rate of about 0.79%[2] affecting females more than males.[3] The pathophysiology of migraine still remains elusive and many studies have previously attempted to provide explanations regarding the neurovascular changes during migraine headaches.[4,5]

Nosebleeds are common in children and the majority are mild and recurrent. A study found that 8% of people under 20 had at least three nosebleeds a year with 70% of them having no apparent cause.[6] Another controlled study found that the "prevalence of recurrent nosebleed is significantly higher in children with migraine than in control subjects" and that "recurrent nosebleed in childhood increased the odds of migraine more than fourfold".[7] In an attempt to search for relevant evidence, a recent study has showed the presence of such phenomenon,[7] however relevant case reports were almost all within the adult population.[8–10]

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2. Method

In our clinical practice, we have observed nosebleeds in association with migraines in children. We have carried a detailed literature search in English, using keywords 'migraine' and 'epistaxis' in databases such as PubMed and finding results covering publications over the last 20 years.

We were able to examine the possible presence of nosebleed among 728 children with migraine. There were 388 females and 340 males and their average age on referral was 11.5 years. All patients presented to our paediatric headache clinics at Queen's University Hospital between April 2009 and September 2013. Diagnosis of migraine was based on the International Classification of Headache Disorders (ICHD 3 BETA).[11] Detailed descriptions of nosebleeds including duration, temporal relationship to headache and mode of recovery was obtained from each patient. Of the 728 patients, there were 458 patients with migraine without aura and 270 with migraine with aura. During the study period, we were able to identify the following eight cases of nosebleed among migraineurs. Of these, there were five patients with migraine without aura and three patients with migraine with aura with no specific triggers found. There was no history of coagulation disorders and none of the patients were on any form of medication that is known to cause bleeding. Patients denied any history of local injury to the site (e.g. finger picking of the nose during headache attacks). Systemic blood pressure was checked in each patient and was normal. In between headache attacks and nosebleeds, patients were assessed by an Ear, Nose and Throat (ENT) specialist, where no abnormality was found. All patients had normal full blood count, coagulation screen, and basic biochemical tests. Brain MRI was normal in all patients except for one with a small left arachnoid cyst.

3. Case report

3.1. *Case 1*

A 10 year old boy was referred with a one year history of recurrent bi-frontal headaches, which were consistent with migraine without aura. Nosebleeds occurred within an hour after headache onset, lasted from 20 to 30 min and spontaneously stopped within 10–20 min. He never experienced any nose bleeding between headache attacks. There was no family history of migraine or nosebleeds.

3.2. *Case 2*

A 13 year and 7 month old girl was referred with a six month history of severe alternating unilateral frontal headaches. She suffered at least fifteen headache days a month, which were consistent with chronic migraine without aura. Further questions revealed that she also suffered recurrent profuse nose bleeding either from the right or left nostril. The bleeding usually occurred within an hour after headache onset and resolved spontaneously within 15 min. Her nosebleeds occurred only during the attacks of migraine. There was no family history of migraine in association with nosebleeds.

3.3. *Case 3*

A 10 year and 9 months old boy was referred with a four month history of bi-frontal moderate headaches. Headaches occurred with an average monthly frequency of about twenty attacks and were aggravated with forward bending or praying. Headaches were consistent with chronic migraine without aura. He reported sudden profuse nose bleeding either bilaterally or from the left nostril. Bleeding occurred only during headache attacks, usually within 5 min from the onset of the headache and resolved unexpectedly within 10 min. There was no family history of migraine or nosebleeds.

3.4. *Case 4*

An 11 year and 4 months old boy was referred with a twelve month history of moderate bi-frontal headaches. His assessment revealed monthly headache frequency of twelve attacks aggravated by normal daily physical activities, consistent with migraine without aura. During headache attacks, he suffered from sudden onset, profuse bilateral nose bleeding that occurred within 10 min after headache attacks and ceases spontaneously within 5–20 min. There was no history of nose bleeding in between headache attacks and there was no family history of migraine or nosebleeds. Examination revealed excessive body fatness of central distribution.

3.5. *Case 5*

A 13 year and 8 months old boy was referred with a four year history of recurrent bi-frontal severe throbbing headaches. Headaches occurred at least twice a month, lasting 4–6 h, which were consistent with migraine without aura. During most headache attacks, he suffered copious bilateral nosebleeds occurring within 15 min after headache onset, lasting for about half an hour, with spontaneous remission. On many occasions, the nose bleeding was so severe that the patient had to manually remove blood clots from his nostrils. His 25 years old mother is known to suffer recurrent attacks of migraine without aura in association with bilateral profuse nose bleeding.

3.6. *Case 6*

A 14 year and 10 months old girl was referred with a two year history of severe bilateral frontal headaches. Her assessment revealed an average monthly headache frequency of about twelve attacks consistent with migraine with aura. During most headache attacks, she suffered profuse bilateral nosebleeds that took place within a few minutes after headache onset, lasting for about 10 min. Father is known to suffer migraine but with no history of nosebleeds.

3.7. *Case 7*

A 9 year and 10 months old girl was referred with a one year history of recurrent alternating unilateral temporal headaches. Headaches were severe in intensity and occurred with an average monthly frequency of four attacks. Headaches were consistent with migraine with aura. During most headache attacks, she suffered from recurrent mild to profuse nose bleeding