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Periorbital ecchymosis can be a symptom of migraine: A case report

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Abstract

Ecchymosis during headache can occur due to hypocoagulopathy, vasodilatation, extravasation and distension of the vessels. There are very few cases in literature of migraine with ecchymosis without an associated vascular disorders. A 25-year-old female was admitted to our hospital with the complaint of unilateral, moderate to severe throbbing headache which was accompanying by nausea, vomiting, sound and light sensitivity. In physical examination, she had ecchymotic areas in bilateral upper cheeks. Findings on laboratory investigations, Magnetic Resonance Imaging (MRI) and MRI Angiography were normal. She had 2-3 migraine attacks per month and all attacks were associated with ipsilateral ecchymosis. If headache was widespread and severe, the ecchymosis extended to the periorbital regions bilaterally. It should be kept in mind that although it is a very rare condition, ecchymotic lesions may be associated with migraine. Our patient had no vascular disorder. It is important to be familiar with these cases to prevent unnecessary investigations and to reduce health expenses.

Keywords: Migraine, ecchymosis; hypocoagulopathy, vascular disorders

INTRODUCTION

Cranial autonomic symptoms are known as descriptive findings of trigeminal autonomic headaches, however they can be observed in 49% of migraine.[1] These symptoms are thought to be due to activation in the trigemino-autonomic reflex system.[2,3] Spontaneous extracranial hemorrhages are rare in primary headaches, particularly migraine.

We report a 25-year old female who noticed ecchymotic lesions in periorbital region at the time of her migraine attacks. The appearance of these ecchymotic lesions had a temporal relationship to the headache.

CASE REPORT

A 25-year-old female was admitted to the emergency department of our hospital with unilateral, moderate to severe throbbing headache which was accompanied by nausea, vomiting as well as sound and light sensitivity. On physical examination, ecchymotic areas were detected bilaterally in upper cheeks (Figure 1).

Her complaints started in adolescence and had been persisting for approximately 7 years. The headache usually starts from occipital lobe and spreads to the frontal lobe. Some attacks were accompanied by a visual aura that developed as a central scotoma lasting for 10-20 minutes before the onset of headache. The severity of migraine pain was increasing during menstruation. She reported a sense of swelling under her eye on the side of headache at the beginning of each attack, with ecchymosis developing in that area 1-2 hours after every attack and disappearing in 3 or 4 days. Ecchymosis started to be seen 2 years after the beginning of her migraine attacks. In addition, the ecchymosis usually appeared at the upper cheeks. However if the headache was widespread and severe, it could also be present in the lower periorbital region. Attack frequency (AF) was 1 per month at the beginning of the disease, increasing to 2-3 per month in the last 2 years. The attack period (AP) was approximately 48-72 hours. She had used triptans before pregnancy but had been using only non-steroidal anti-inflammatory drugs since pregnancy. She had no other systemic disease, no history of alcohol or cigarette consumption. Her sister and cousin also had migraine.

Neurological examination was normal. Blood pressure, laboratory analysis (total blood count, prothrombin time, aPTT, CRP, sedimentation,

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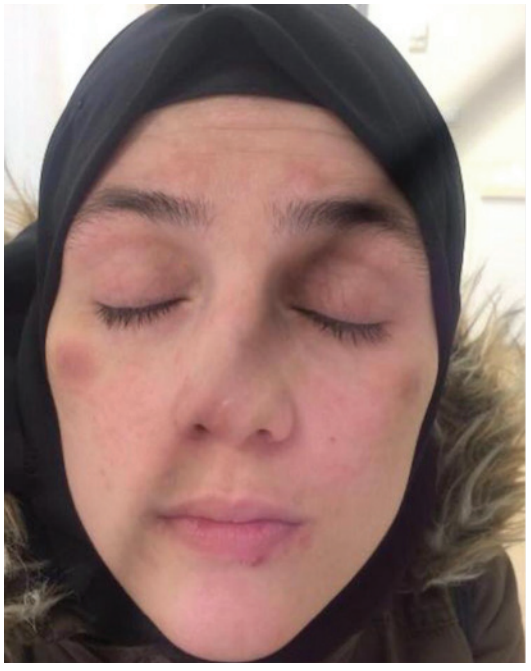

Figure 1. Bilateral ecchymosis upper cheeks post migrane

vitamin B12, vitamin D, anti-nuclear antibody, anti-ds DNA, protein C, protein S, anti-ENA, anticardiolipin IgM and IgG, Factor 5 Leiden, complement factors 3 and 4, hepatitis B and C virus, thyroid function tests and liver function tests), magnetic resonance imaging (MRI) and MRI Angiography were normal. No pathology was found in dermatology and rheumatology consultations. Atenolol 25 mg/day was started as prophylactic treatment. She had a severe migraine attack in 15th day of the treatment in which periorbital ecchymosis occurred (Figure 2). AF and AP were significantly reduced 2 months after the onset of prophylactic treatment.

DISCUSSION

A 25-year-old patient had a throbbing headache that was associated with nausea, vomiting, and sensitivity to light and sound. It was present for approximately 7 years. AF was 2-3 times per month and AP was 48-72 hours. Some migraine attacks were accompanied by a visual aura. The patient was diagnosed with "migraine with aura" according to the The International Classification of Headache Disorders, 3rd edition (ICHD-3beta). Appearance of ecchymotic lesions had a temporal relationship to her headaches with its appearance at the onset and disappearance at the termination of an attack.

Figure 2. Periorbital ecchymosis after a severe migrane

Ecchymosis is rarely seen during migraine attacks. When similar cases in literature were sorted chronologically, the first case reported by Brasch and Levinsohn in 1898 was a 23-year-old male with ecchymotic lesions in the ipsilateral periorbital region during some migraine attacks.[4] Wolf *et al*. reported case series of 11 patients in whom ecchymotic lesions were localized in the temporal and periauricular regions, which appeared 10 to 60 hours after the onset of pain which sometimes continued for weeks.[5] In 1990, a 21-year-old patient with ecchymosis in the periorbital area during migraine attacks was reported by De Broff.[6] This patient was previously followed up with a diagnosis of discoid lupus erythematous, however she was subsequently diagnosed with erythema multiform with positive antinuclear antibody. In 2004, a 55-year-old patient with facial ecchymosis during headache was reported, however she had comorbid diseases including hypertension, hypothyroidism, hyperlipidemia and hyperuricemia.[7] In 2007, a 16-year-old patient with red forehead dot during migraine attack was reported.[8] In 2016, a 32-year-old patient with red forehead dot and eyelid ecchymosis was reported.[9]

In our case, migraine headache was accompanied by ecchymotic lesions after 1-2 hours the beginning of headache. She also reported a feeling of swelling under the eye at the beginning of attack. It is a rare condition that the ecchymosis starts in 1-2 hours after the pain and changes sides according to the pain localization.

One of the two most accepted hypotheses for ecchymotic lesions with headache is hypocoagulability which refers to irregular and slow clotting. Hypocoagulability is caused by mast cells and heparin released from basophilic

leucocytes during the migraine attack according to this hypothesis.[10] Vascular structure is disrupted and small vessels are torn due to mechanical factors (vomiting and pressure sensation), however, our patient was only experiencing swelling in the vascular wall at the onset of headaches, and ecchymosis appeared without any pressure.[11] The other hypothesis for ecchymosis is vasodilatation, distension and intramural edema during headache. In addition, contractile differences (predominantly distension) in the arterial wall can occur during migraine. The vasodilatation is followed by extravasation.[11]

The feeling of swelling and then the ecchymosis in the vascular area support the hypothesis of vasodilation in our case. The cause of ecchymosis in our patient may be vasodilatation and extravasation of vasoactive substances such as heparin.

In conclusion, our case points out an unusual symptom of migraine that merits recognition so that unnecessary concern can be avoided after appropriate investigations.

DISCLOSURE

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Conflict of interest: None

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