

CASE REPORT

Trifocal Nummular Headache: A Case Report of Dramatic Response to Local Anesthetic Injection

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Abstract

The nummular headache is characterized by focal pain in an oval or elliptic region of the head, typically 1-6 cm in diameter. Pain localization is commonly monofocal, but occasionally it is bifocal or multifocal, with each symptomatic region exhibiting all characteristics of nummular pain. It was first described by Pareja and included in the 3rd edition of the International Classification of Headache Disorders (ICHD-3) under primary headache. We report a case of a 51-year-old male patient with nummular headache presenting in three areas on the scalp, which is rarely observed. Local anesthetic was injected onto the sphenopalatine ganglion, resulting in immediate recovery. Nummular headache is a rare but sometimes very severe pain, and lidocaine is an effective treatment option.

Keywords: Autonomic nervous system; headache; injection; lidocaine; local anesthetic; pterygopalatine ganglion; sphenopalatine ganglion.

Derived from the Latin word nummulus meaning coin, the nummular headache is characterized by focal pain in the oval or elliptic region of the head, typically 1-6 cm in diameter. The painful area may be localized to any part of the scalp but is most often found in the parietal region. Pain localization is commonly monofocal, but rarely it can be bi- or multifocal; each symptomatic region exhibits all characteristics of nummular pain^[1-3]. It was first described by Pareja and included in the 3rd edition of the International Classification of Headache Disorders (ICHD-3) under primary headaches^[4,5]. It is a rarely occurring headache among primary headaches. Epidemiologically, it has been reported to have a prevalence of 6.4/100,000^[6]. The pathogenesis of nummular headache is currently unknown. There is no definite treatment guideline. Some patients with mild pain do not require treatment; reassurance is often the only intervention needed in many cases^[7]. Nonsteroidal

anti-inflammatory drugs (NSAIDs), gabapentin, tricyclic antidepressants, topiramate, carbamazepine, pregabalin, lamotrigine, and duloxetine have all been used in its treatment^[8,9]. However, the results are often unsatisfactory. Several cases have been treated by local infiltration of lidocaine^[8,9].

We reported a nummular headache presenting in three areas on the scalp, which is rarely observed. Local anesthetic was injected into the sphenopalatine ganglion, resulting in immediate recovery.

Case Report

A 51-year-old male patient complained of a headache that started off mildly in the temporal area then quickly reached an unbearable severity. The pain was located in a circular 5 cm radius and continued for 15 minutes. Immediately afterwards, the pain moved to the parietal area, maintaining

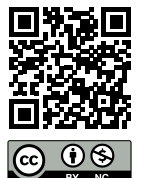
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Submitted Date: 31.10.2022 **Revised Date:** 31.10.2022 **Accepted Date:** 30.01.2023

Haydarpaşa Numune Medical Journal

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the same shape and duration, and then moved to the occipital area. There, the pain also lasted for 15 minutes with the same shape and severity. After an approximately 30-minute pain-free period, the pain returned to the starting point in the temporal area. Affected areas of the patient are shown in Figure 1. There were no associated symptoms such as photophobia, phonophobia, nausea, vomiting, or autonomic symptoms. The area was hypersensitive to touch. Nummular headache appeared only during the daytime, and nocturnal headache was not observed. Physical examination was unremarkable. Neurologic examination was normal; there was no local hypoesthesia or hyperesthesia on the scalp in the painful area. There was no migraine or any other headache in the patient's history. The patient had bruxism for 2 years but had never received treatment for it. The patient underwent surgery 6 months ago for the removal of his left testis due to a tumor but did not undergo chemotherapy and/or radiotherapy. The patient has no history of any illnesses. There is no family history of any similar illnesses. Routine laboratory findings were unremarkable. Cranial and cervical MRI and cranial angiographic findings were normal. The patient was diagnosed with nummular headache and treated with carbamazepine and anti-inflammatory drugs for 3 months; however, his pain did not alleviate. Lidocaine was injected into the pterygopalatine ganglion

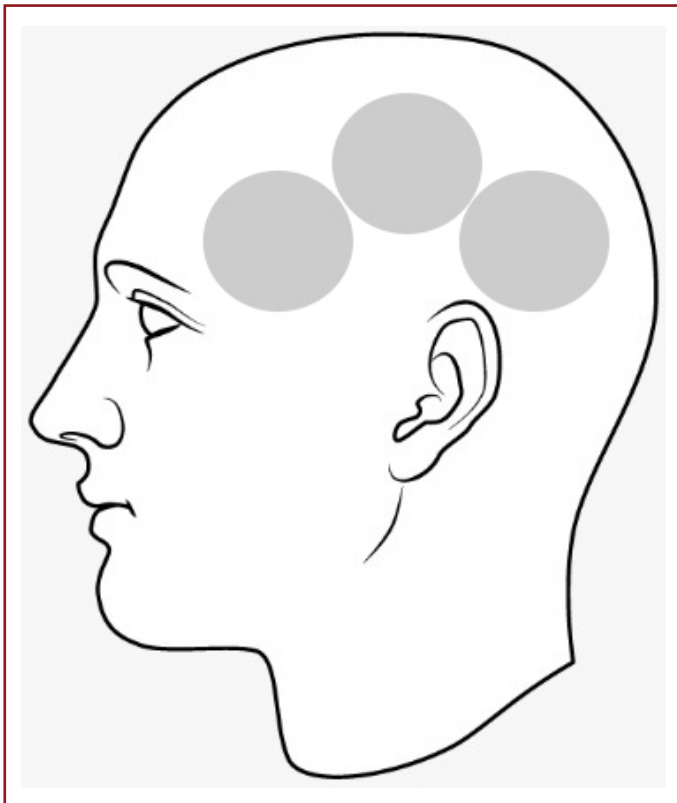


Figure 1. Affected areas of the patient.

on the involved side. 4 ml of 1% lidocaine was injected into the pterygopalatine ganglion, using non-invasive transcutaneous methods with a dental needle. The injection was performed using the same method used in one of the previous studies which used an injection of botulinum toxin^[10]. The patient was tolerant and pleased about the treatment. The pain was relieved immediately after the treatment and has never re-occurred for 3 months.

Discussion

Here, an extremely rare form of trifocal nummular headache was described. Lidocaine applied to the sphenopalatine ganglion transcutaneously using a new method showed an excellent response. This patient presented an exceedingly rare clinical scenario of nummular headache with three distinct symptomatic areas, which were not concurrent. Additionally, his pain mainly occurred during the daytime. Bifocal presentations have been described in several cases^[2]. Some cases present in a sequential manner, moving from one painful region to another. Multifocal nummular headache has also been previously reported^[3]. Although nummular headache is mostly considered a primary headache, it has also been associated with local lesions of the scalp, skull, and adjacent intracranial structures in various focal headaches with a nummular pattern^[11,12].

Our patient had a history of bruxism. Bruxism is one of the etiologies that can cause headaches^[13]. However, to our knowledge, the association of bruxism and nummular headache has not been reported before. It is currently unknown if bruxism could be an etiological factor for nummular headache.

The management of nummular headache is still unclear. For patients with moderate and severe pain, NSAIDs have been beneficial in over 60% of cases^[14]. Gabapentin has been used for prophylactic treatment and has provided relief to over 60% of patients^[15]. Many drugs have been tried in the treatment of nummular headache, such as indomethacin, antidepressants, and other antiepileptics; however, no treatment has demonstrated complete remission.^[8,9] Several intractable cases treated with botulinum toxin injection have been reported, and all patients experienced a reduction in nummular headache symptoms, which lasted approximately 14 weeks on average^[16].

The sphenopalatine ganglion, also known as the pterygopalatine ganglion, is a large extracranial ganglion with multiple neural connections, including autonomic, motor, and sensory fibers^[17]. The blockade of the sphenopalatine ganglion with local analgesic has been used in the treatment of migraine and cluster headaches^[18].

Acute migraine and cluster headache attacks are often associated with parasympathetic activation symptoms such as lacrimation, nasal, and conjunctival congestion. Blocking the sphenopalatine ganglion, which carries the main parasympathetic fibers to the cranial and facial structures, is effective in relieving the pain^[19]. The dramatic resolution of pain following sphenopalatine ganglion blockage suggests that autonomic system dysfunction may have a role in the etiopathogenesis of nummular headache. Autonomic symptoms, including lacrimation, conjunctival congestion, and rhinorrhea, have been reported in several nummular headache cases^[9]. Two patients with nummular headache were given beta-adrenergic blockers and both did not have any recurrence of their complaints at the 6-month follow-up^[20]. Beta-adrenergic blockers have anti-sympathetic activity by blocking the effects of catecholamine released by sympathetic postganglionic neurons. This suggests that activation of the sympathetic system may have a role in the etiopathogenesis of nummular headache.

Conclusion

The dramatic resolution of pain with sphenopalatine ganglion blockage in this patient suggests that the autonomic nervous system in the head and neck region of nummular headache may be implicated in its etiopathogenesis. Additionally, if this non-invasive sphenopalatine ganglion blockage is attempted in more patients, the results may guide future treatment strategies. Evaluating autonomic function in nummular headache will be useful in highlighting this issue in future research.

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report.

Peer-review: Externally peer-reviewed.

Conflict of Interest: The authors declare that they have no conflicts of interest.

Authorship Contributions: Concept: Ü.T.B.; Design: Ü.T.B.; Supervision: Ü.T.B.; Fundings: Ü.T.B.; Materials: Ü.T.B.; Data Collection or Processing: C.K.T.; Analysis or Interpretation: C.K.T.; Literature Search: C.K.T.; Writing: C.K.T.; Critical Review: Ü.T.B.

Use of AI for Writing Assistance: Not declared.

Financial Disclosure: This research did not receive any specific grants from funding agencies in the public, commercial, or not-for-profit sectors.

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