

A case of uncommon anatomic variation of the middle turbinate associated with contact point headache: Bilateral double middle turbinate

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ABSTRACT

By applying pressure to nasal mucosa, anatomic variations at nasal cavity and paranasal sinuses may cause headache without any sign of inflammatory diseases such as sinusitis or nasal polyp. This phenomenon is called as contact point headache (CPH) and observed as a result of concha variations, mostly due to concha bullosa. Accessory middle turbinate (AMT) is a very rare variation and occurred as a result of mediale and inferior folding of uncinat process. When this folding is severe, AMT may cause double middle concha appearance in nasal cavity. To the extent, we know, bilateral double middle turbinate variation has not been defined before. Hereby, we present a CPH phenomenon in a patient with bilateral double middle turbinate variation which is related to contact of AMT to real middle turbinate.

Keywords: Anatomical variation; contact point headache; middle turbinate.

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Headache is a symptom that has been seen widespread and many etiological factors play a role. These etiologic factors can be divided into rhinogenic and non-rhinogenic causes. Non-rhinogenic causes involve diseases such as migraine, neuralgia, otalgia, vascular headaches, temporomandibular joint disorders, high or low arterial pressure, ophthalmologic headaches, and cervical spine disorders [1]. However, rhinogenic headaches can be divided into sinusitis-related and non-sinusitis-related headaches. By applying pressure to the nasal mucosa, anatomic variations at the nasal cavity and paranasal sinuses may cause headache without any sign of inflammatory and infectious diseases such as sinusitis or nasal polyp [2]. It has been reported that concha bullosa and paradoxical middle turbinate variations cause contact point headache (CPH) [2–5]. On the other hand, accessory middle turbinate (AMT) is a very rare variation. In

this article, to the extent we know, for the first time, we present a CPH phenomenon in a patient with bilateral double middle turbinate variation which is related to mucosal contact of AMT to the real middle turbinate.

CASE REPORT

A 43-year-old female patient admitted to our otorhinolaryngology outpatient clinic with complaints of an intermittent headache at frontal region and between two eyes. She had been examined by neurology, ophthalmology, dentistry, and otorhinolaryngology specialists before and she had been treated with non-steroid anti-inflammatory drugs, nasal steroids, and decongestant medicines, but she had not experienced any benefit from these treatments. She did not have aura, photophobia, and nausea. She stated that a neurologist had initiated treatment for



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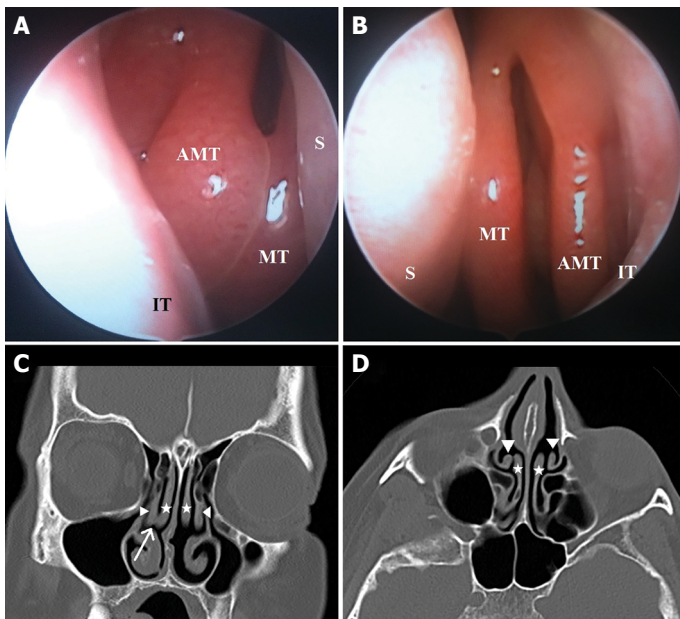


FIGURE 1. (A) Endoscopic appearance of right nasal cavity, (B) endoscopic appearance of left nasal cavity, (C) paranasal tomography coronal section, and (D) paranasal tomography axial section.

AMT: Accessory middle turbinate; IT: Inferior turbinate; MT: Middle turbinate; S: Septum, star shows middle turbinate, arrow shows mucosal contact point, arrowhead shows accessory middle turbinate.

migraine without aura, but the treatment was terminated, because she did not experience any benefit. On the endoscopic nasal examination, a double middle turbinate was observed in both nasal cavities (Fig. 1A, B). It was observed that two middle turbinates contacting with each other in the right nasal cavity. 5% Lidocaine-impregnated cotton was kept on contact point for 15 min. The headache of the patient decreased significantly after topical anesthesia. For this reason, it was thought that the patient could have CPH. As a result of coronal section paranasal tomography scanning, it was concluded that the patient had bilateral AMT. In addition, double middle concha appearance was observed since AMT was reaching out to real middle turbinate level in anterior and inferior (Fig. 1C, D). The contact point of real middle concha and AMT in the right nasal cavity was also detected by tomography. Under general anesthesia, AMTs situated in lateral were excised in two nasal cavities. Any complications were not seen. It has been observed that the headache problem of the patient was treated completely. The diagnosis of CPH was made according to the criteria of "Headache Classification Committee of the International Headache Society" [6]. A written consent form was received from the patient.

DISCUSSION

CPH requires a multidisciplinary approach to be able to diagnose. When there is no inflammatory disease in paranasal sinuses, at first, the patient needs to be reviewed by neurology, ophthalmology, dentistry specialist, and specialist from other areas; in this way, other reasons for headache shall be eliminated. If the reason of the headache cannot be detected as a result of examinations, CPH should be suspected and detailed endoscopic nasal examination should be performed. If the headache disappears after application of the topical analgesia to contact point and re-appears after the effect of analgesic wears off refers to CPH. However, there are also opinions suggesting that headache and facial pain are not related to the contact point. Bieger-Farhan et al. [7] detected contact points in 55 patients in the study, in which they examined 100 consecutive paranasal sinus tomography. Only ten of these 55 patients had headache and 27 of them had facial pain. They found contact points in 55 of 71 patients without headache and 28 of 46 patients without facial pain in tomography. As a result, they reported that there was no relationship between the contact point and facial pain and headache. Abu-Bakra et al. [8] reported that they detected equal contact points in patients with headaches and without headaches. They reported that removal of mucosal contact points for facial pain is usually unnecessary, because the etiology of this facial pain is likely to be associated with other more central pathological processes. Tosun et al. [2] reported that 43% of patients complained of headache completely recovered by surgery, 47% significantly improved, and only 10% of patients had the same degree of headache.

Pre-operative evaluation of sinonasal variations has great importance in terms of avoiding complications during the operation. One of the most important landmarks in endoscopic surgery is the middle turbinate, where the largest variation is seen. Rarely, seen and similar to middle turbinate variations are bifid inferior turbinate (BIT), AMT, and secondary middle turbinate (SMT) [9, 10]. BIT is defined as excessive replacement of uncinat process in medial and inferior rotation. AMT is defined as folding of uncinat process to medial and inferior. SMT is a very rare variation originating from the lateral nasal wall and projecting superomedially. Although BIT and AMT are defined within the middle turbinate variations, it is actually more accurate to say uncinat process variation. In our case, there was a double middle turbinate appearance attached to bilateral AMT. This situa-

tion might cause confusion. Hence, when AMT observed in lateral is assumed as a real middle turbinate, the real turbinate in medial may be considered as overextended superior turbinate. Failure of detecting middle turbinate, which is the one of the most important landmarks for endoscopic sinus surgery, results in many complications such as cerebrospinal liquid leakage and visual loss. For this reason, the real middle turbinate should be detected by sinus tomography. Although BIT and AMT can interfere with each other, discrimination by sinus tomography is easy, because uncinata process is not observed in BIT. Surgical excision of the sinonasal variation that causes the contact point in cases with CPH is an effective method for the treatment of headache. In our case, the excision of the AMT, which comes into contact with the middle turbinate, has made sure that the headache of the patient is completely healed.

Conclusion

As a conclusion, double middle turbinate is a very rare anatomical variation. AMTs might contact with real middle concha and cause CPH. Although this variation is suspected during the endoscopic examination, the certain diagnosis should be made by paranasal sinus tomography. The excision of turbinate in lateral with endoscopic surgery may result in a complete solution for the headache.

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

Conflict of Interest: No conflict of interest was declared by the author.

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