



Accessory Mental Foramen and Nerve: A Rare Clinical Finding: A Case Report

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Abstract

The presence of accessory mental foramen and nerve is uncommon and its incidence varies with different population. As the maxillofacial surgeon is involved in various surgical procedures related to mandible, they should be familiar with the accessory mental foramen and nerve for proper treatment planning and management of surgical procedures to prevent the paresthesia. This article presents a case of 25 years old male having accessory mental foramen and nerve on right side of mandible which was encountered during orthomorphosis surgery. The mental nerve was carefully dissected and preserved without getting injured. This knowledge of mental nerve's variation is helpful in dissection & prevention of paresthesia.

Keywords: Accessory Mental Nerve (AMN); Accessory Mental Foramen (AMF); Mental Nerve (MN); Mental Foramen (MF)

Introduction

The inferior alveolar nerve divides at premolar region into mental and incisive nerves [1]. The mental nerve supplies the skin and mucosa of the mandibular vestibule from medial border of masseter muscle to the midline [2]. The mental nerve gives origin to three branches among them one distributes to the external surface of chin and the remaining branches supply sensation to skin and mucosa of lower lip [3]. The mental nerve can be classified into four branches inside the depressor anguli oris muscle: A, inferior labial branches (ILM & ILI), M branches [4].

Case Presentation

A 25-year old male patient reported to the Department of Oral and Maxillofacial Surgery with chief complaint of asymmetric face. Patient was previously operated for coronoidectomy and distraction osteogenesis under general anesthesia in October 2018. Even after the treatment, patient was having facial asymmetry. Clinical examination revealed that chin was deviated to left side (Figure 1). Prominent antegonial notch was present over left side. Patient was advised radiographic investigation to measure the discrepancy of chin. Grummons analysis was done for transverse discrepancy of chin and ramus height discrepancy. Transverse discrepancy of 1.4 cm of chin was measured. Bony width of mandible was measured by three dimensional CT scan of patient which revealed midline region was of 11.5 mm, on right body region 8.2 mm and on left body region 9.4 mm. To correct the discrepancy of chin, orthomorphosis surgery was carried out under general anesthesia.

Written informed consent was taken prior to surgical procedure. Under general anesthesia, through intraoral standard mandibular circumvestibular incision was given from first molar to contralateral side of first molar. Full thickness mucoperiosteal flap was reflected. On right side accessory mental foramen with mental nerve was identified posterior to existing mental foramen (Figure 2), whereas on left side one mental foramen and one mental nerve was identified. Horizontal osteotomy cut was marked below the mental foramen region from first molar to contralateral side of first molar and vertical osteotomy cut was marked at right angle to horizontal cut and proceed with oscillating saw and bur. Osteotomy was completed by chisel and mallet and bony segment was separated by using smith spreader with preserving both the mental nerves. From right side, 1.4 cm of bone was removed and chin was shifted towards right side to correct the chin discrepancy and fixation was done by 8 mm titanium chin plate with titanium miniscrew in midline and 1 (4 hole) continuous titanium miniplate fixed with titanium miniscrew at right body region.

Discussion

The inferior alveolar nerve gives branch of mental nerve at premolar region. The cause of

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Received Date: 13 Jul 2021

Accepted Date: 26 Jul 2021

Published Date: 29 Jul 2021

Citation:

Datarkar A, Parmar S, Valvi B, Anukula H, Walkey D. Accessory Mental Foramen and Nerve: A Rare Clinical Finding: A Case Report. *Am J Otolaryngol Head Neck Surg.* 2021; 4(7): 1146.

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Figure 1: Pre-operative clinical photo showing facial asymmetry.



Figure 2: Accessory mental foramen and nerve on right side of mandible.

accessory mental foramen is division of mental nerve prior to formation of mental foramen. The surgery becomes difficult and challenging due to presence of accessory mental nerve and to prevent post-operative paresthesia, intraoperative added care should be taken for retraction of accessory mental nerve [5].

Kieser has classified origin of the mental nerve into five categories. Type 1 and Type 2 is anterior and posterior directed respectively, Type 3 is T-shape with right angle whereas multiple are categorized as Type 4 and Type 5 has severely resorbed ridge leading to unidentifiable foramen [2].

The additional mental foramen is termed as accessory mental foramen. The timing of formation of AMF was similar to mandibular bone formation and after maturation of mandible no AMF is formed [3]. The incidence of AMF varies with different population and it is

mostly found in blacks (16%) compared to white population (6%). The Melanesians has higher incidence (11%) compared to other population and lowest incidence was found in Japanese & Egyptians [6,7]. The variation in position of AMF was lesser in vertical direction than in horizontal direction [8]. According to Singh and Shrivastav, the MF is located mostly below the root portion of 2nd premolar followed by between the apices of 1st and 2nd premolar and rarely below the apex of 1st premolar [9].

The mean distance of AMF to MF is 2.83 mm in Toh et al. study, 6.3 mm in Naitoh et al. study, 0.67 mm in Singh and Shrivastav study, 4 mm in Gupta and Soni study, 4 mm in Imada et al study, 5.3 mm in Kalender et al. study, 2.54 mm in Goregen et al. study and 5.24 mm in George Paraskevas et al. study [10].

Conclusion

The mental nerve gets injured accidentally during surgical procedures such as mandibular anterior segmental osteotomy, orthomorph surgery, parasymphysis and body fracture of mandible, genioplasty, during implant surgery etc. This leads to temporary or permanent paresthesia of chin and lower lip. The existence of accessory mental nerve and foramen can lead to added difficulty during surgery. Thorough knowledge of mental nerve and its variation is necessary to dissect and preserve the nerve while surgery. The surgeon should always keep in mind for this anatomical variation of mental nerve which reduces the chances of temporary or permanent paresthesia.

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