CASE REPORT

Rare but There: Accessory Mental Foramen and Nerve

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ABSTRACT

Precise knowledge of the anatomy of Mental Nerve and location of Mental Foramen is essential during oral surgical procedures and dental implant placement in mandible. We present a case report where two mental foramen with two mental nerves were seen. Periapical and panoramic films which are the usual radiographs taken may not allow for proper identification of such anatomical variations. Conebeam Computed Tomography may be useful in the diagnosis and treatment planning of the mandible.

KEYWORDS: Mental Nerve; Accessory Nerve

INTRODUCTION

The Inferior Alveolar Nerve exits the mental foramen (MF) near the 2nd premolar in the form of mental nerve(MN).[1] The MN with its four major branches: Angular, medial inferior, lateral inferior and mental branches is an afferent sensory nerve and innervates the chin, lip corner and its adjacent mucosa.[2]

MF is located usually at the midpoint that is equidistant from the lower border of the mandible and the alveolar margin on vertical plane. In the horizontal plane, it is approximately one quarter of the distance from the mental symphysis to the posterior border of the ramus of the mandible[3]. The location of MF is variable and shifts with age. MF is near the lower border in a child and shifts up to midway between the upper and lower borders of the mandible in an adult and in edentulous jaw it is near the alveolar ridge.[4] This position can be more accurately described in the vertical and horizontal planes for each age group.[3,5]

In adults, the position of MF lies halfway between the lower border of the mandible and the alveolar margin and approximately one quarter of the distance from the Symphysis to the posterior border of the ramus of the mandible.[3] During placement of tooth implants, reconstructive surgery of the mandible and administration of anesthesia, precise location of the MN is important to prevent iatrogenic injury to the nerve and also MF should be differentiated from other radiolucent pathologic lesions.[6,7] Hence, being aware of these canals is of paramount importance in all diagnosis, treatment plan and prognosis aspects.

CASE REPORT

A 23 year male reported to the department of oral and maxillofacial surgery with right parasymphysis fracture of mandible due to road traffic accident. The proposed treatment plan was open reduction with internal fixation under general anesthesia. Pre-operative orthopantomogram was taken showing the fracture line between right lateral incisor and canine involving the lower border of mandible. Accordingly incision was placed in the mandible right vestibule to expose the fracture site. Subsequently two mental foramen were seen with two mental nerves coming out in the region of the premolars (fig1). No evidence of accessory mental foramen was seen in the preoperative x-rays.

Fig 1: two mental nerves are seen associated with two different foramen

DISCUSSION

In an anthropologic study done in 1956 first evidence of accessory foramina was seen , in which multiple mental, ethmoidal and infraorbital foramina were described in the human race.[8] The Mental nerve is on average, 2.89

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(±0.42) from the Symphysis, 1.40 (±0.38) from the inferior border of mandible and 1.75 (±0.38) cm from cemento- enamel junction.[9] During the placement of mandibular reconstruction plates, tooth implants, and harvesting bone from the Symphysis which will be used to reconstruct for craniofacial defects the measurements are relevant in approximating the position of the Mental nerve.

The location of the Mental nerve is also important to an oral surgeon when performing a Mental nerve block so as to achieve effective anesthesia as well as to avoid iatrogenic nerve injury. When teeth are missing or mal-positioned then to locate the anatomic location of the MF and MN the measurements can be used.[9] The incidence of accessory MF ranges from 1.5% to 12.5%. Mandibular side, age and gender do not influence this incidence other than race.[2,10,11] De Freitas, who studied 1435 dry skulls reported incidence of absence of MF in 0.2% [12]. Double and triple MFs were reported in 1.8–10.6% and 0.6–1.2% of population[6,10], bilateral accessory mental foramen (AMF)were seen in 1.1% of population.[11] In the periapical and panoramic views, the AMF which has less than 1 mm diameter, had a distortion rate of 14% and 23.5% respectively.[10] A helical CT, nevertheless, may also miss these anatomic variations due to its inherent low resolution.[6] Cone beam CT has a precision of less than 0.06 mm discrepancy ,and is reliable to detect such small foramina.[2]

It would be wrong to assume that accessory foramina are located posterior and inferior to the main canal and are smaller in size. According to Singh AMF was located beneath the apex of the first molar. There are documented reports in literature that clearly shows that the accessory foramina may be found anterior (mesial) or superior to the main foramen and are even larger in size.[11]

Actually, all mental foramina extended directly from the IAN. Buccal Foramina Or Vascular Foramina (nutritional foramina) are different from Accessory mental foramina.[7,13] These foraminas are mostly seen on the external and internal surfaces of the mandible. They are smaller in size than AMF and do not communicate with the inferior alveolar nerve or the canal. Ichikawa in 1961,defined nutritional foramen as a passage for communications of the lower lip, submental and facial arteries deep into the cancellous bone.[13]

CONCLUSION

Maxillofacial surgeons should be aware of the risk of damage to MN during various minor and major oral surgical procedures. In conclusion, accessory foramina are not uncommon, and a preoperation CBCT is suggested to avoid inadvertent damage, especially when planning a surgery in the mandibular inter-mental region.

REFERENCES

1. Oguz O, Bozkir MG. Evaluation of location of mandibular and mental foramina in dry, young, adult human male, dentulous mandibles. West Indian Med J. 2002; 51(1):14-16.
2. Juodzbalys G, Wang HL, Sabalys G. Anatomy of Mandibular Vital Structures. Part II: Mandibular Incisive Canal, Mental Foramen and Associated Neurovascular bundles in relation with dental implantology. J Oral Maxillofac Res. 2010;1:e3
3. Mbajiorgu EF, Mawera G, Asala SA, Zivanovic S. Position of the mental foramen in adult black Zimbabwean mandibles: a clinical anatomical study. Cent Afr J Med. 1998; 44(2): 24-30
4. Hasan T, Mahmood F, Hasan D. Bilateral absence of mental foramen-a rare variation. Int J Anat Variat. 2010; 3:167-169
5. Wang TM, Shih C, Liu JC, Kuo, KJ. A clinical and anatomical study of the location of the mental foramen in adult Chinese mandibles. Acta Anat (Basel). 1986; 126(1):29-33
6. Katakami K, Mishima A, Shiozaki K, Shimoda S, Hamada Y, Kobayashi K. Characteristics of accessory mental foramina observed on limited cone beam computed tomography images. J Endod. 2008;34:1441–5
7. Murlimanju BV, Prakash KJ, Samiullah D, Prabhu LV, Pai MM, Vadgaonkar R, et al. Accessory neurovascular foramina on the lingual surface of mandible: Incidence, topography, and clinical implications. Indian J Dent Res. 2012;23:433–5.
8. Riesenfeld A. Multiple infraorbital, ethmoidal and mental foramina in the Races of man. Am J Phys Anthropol. 1956;14:85–100
9. Poonamjeet Kaur Loyal1,&, Fawzia Butt1, Julius Alexander Ogeng'o1 .The surgical relevance of the anatomic position of the extraosseous mental nerve in a Kenyan population. Pan African Medical Journal. 2014; 18:51 doi:10.11604/pamj.2014.18.51.3831
10. Ramadhan A, Messo E, Hirsch JM. Anatomical variation of mental foramen. A case report. Stomatologija. 2010;12:93–6
11. Udhaya K, Saraladevi KV, Sridhar J. The morphometric analysis of the mental foramen in adult dry human mandibles: A study on the south Indian population. J Clin Diagnos Res. 2013;7:1547–51
12. de Freitas V, Madeira MC, Toledo Filho JL, Chagas CF. Absence of the mental foramen in dry human mandibles. Acta Anat (Basel) 1979;104:353–5.
13. Naitoh M, Hiraiwa Y, Aimiya H, Gotoh K, Ariji E. Accessory mental foramen assessment usingconebeam computed tomography. Oral Surg Oral Med Oral Pathol Oral Radiol Oral Endod. 2009;107:289–94.

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