

Incidence of Accessory Mandibular Foramen in Dry Adult Human Mandible

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Abstracts

Context: The accessory mandibular foramen is an important anatomical land mark and provides pathway for additional branch of inferior alveolar nerve and vessels. Adequate anaesthesia is a prerequisite of most of the dental procedures. Effective pain control in dentistry may be achieved by the local anaesthetic techniques; the most common procedures which are followed by the inferior alveolar nerve block. Therefore, identification of accessory mandibular foramen is important for dental surgeons in nerve block and surgical procedures to avoid injury to neurovascular bundle. The aim of this study was to observe of the accessory mandibular foramen around mandibular foramen on the medial side of mandibular ramus. In 185 dry adult human mandibles.

Materials and Methods: A cross-sectional, analytical type of study was conducted in the department of Anatomy, Dhaka Medical College, Dhaka from July 2010 to June 2011. The mandibles were observed for the presence of accessory mandibular foramen. (figure 1).

Results: The accessory mandibular foramen were present in 6.49% of mandibles.

Key words: accessory mandibular foramen, mandibular foramen and Inferior alveolar nerve.

Introduction:

The mandibular foramen (MF) is located above the center on the medial surface of the ramus. The mandibular canal starts at the MF and descends obliquely forward in the ramus and later in the body of mandible containing the inferior alveolar neurovascular bundle.¹

Any opening around mandibular foramen is referred as accessory mandibular foramen². The presence of accessory mandibular foramen (AMF) and additional branches of inferior alveolar nerve may lead to the most frequent technique failure in

anaesthesia of the inferior alveolar nerve³. The risk of undesirable mandibular fractures might decrease when the accessory mandibular foramen is taken as anatomic repairs in osteotomies performed for orthognathic purposes⁴. Accessory mandibular foramen also provide an easy route for the spread of infection and tumor cells following radiotherapy⁵.

Despite the significance of AMF, little attention has been given to the study of the incidence of AMF in Bangladesh; hence this study has been conducted to investigate the incidence of AMF.

Materials and Methods:

One hundred eighty five dried adult human mandibles with complete dentition and intact alveolar margin of unknown sex collected from the Department of Anatomy of Dhaka Medical College, Sir Salimullah Medical College and Shaheed Suhrawardy Medical College, Dhaka were used for this study. Incidence of accessory mandibular foramen was determined by observing the presence of accessory mandibular foramen around mandibular foramen on the medial surface of

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mandibular ramus by means of simple visual observation with the help of magnifying glass (Fig. 1).

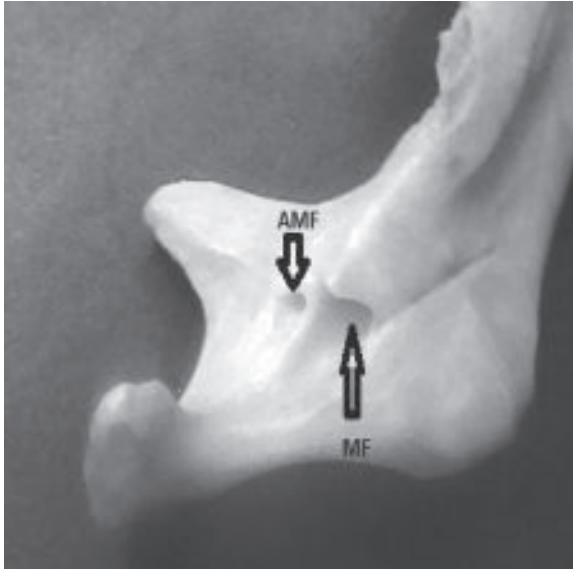


Fig.-1: Medial surface of mandibular ramus showing mandibular foramen (MF) and accessory mandibular foramen (AMF).

Results:

AMFs were present in 6.49% of mandibles. A single AMF was present in 5% of mandibles and double AMFs were observed in 1.49% of mandibles.

Discussion:

Reported cases of accessory mandibular foramina are very few. In a study conducted on south Indian population, the AMF was present in 16.4% of mandibles. A single AMF was found in 9 cases and double AMFs in 2 cases in the study conducted by Murlimanju et al, 2011⁶. Narayana and Prashanthi 2003⁷ reported the incidence of AMF in human mandibles to be 0.3%. In a Brazilian population, AMF was present below the MF in 27.93% of mandibles and above the MF were 43.24% of mandibles as reported by Freire et al, 2012⁸. In the present study an AMF was present in 6.49% of mandibles. A single AMF was present in 5% mandibles and double AMFs were observed in 1.49% mandibles. All the AMFs were present on the medial surface of the mandibular ramus which is in accordance with Das and Suri,2004⁹.

Conclusion

Exact location of AMFs is essential for dentists and oro-maxillofacial surgeons to avoid damage to the neuro-vascular structures and to help oncologists in planning for radiotherapy.

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