

VARIATION IN THE POSITION SHAPE AND DIRECTION OF MENTAL FORAMEN IN DRY MANDIBLE

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ABSTRACT

Aim of the study: Purpose of this study was to find out the most common position shape and direction of mental foramen in dry mandible of Maharashtra region.

Background: Study of mental foramen is important for dentists in administering regional anesthesia and performing periapical surgery in the mental region of the mandible.

Material and methods: Seventy five adult dry mandibles of unknown sex are studied for position shape and direction of mental foramen. All mandibles are studied for position shape and direction of mental foramen.

Results: The most frequent position of mental foramen was in line with the longitudinal axis of the IInd premolar tooth. The shape of mental foramen was round or oval.

Conclusions: Knowledge about morphometry of mental foramen is important for various dental procedure involving periapical region

KEYWORDS: Mental foramen, Dentist, mandible.

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INTRODUCTION

The mental foramen is found on the antero-lateral aspect of the mandible and transmits mental nerve and vessels. It marks the termination of mandibular canal in the mandible through which inferior alveolar nerve and vessels passes. Mandibular canal bifurcates into mental and incisive canal. [1]. Inferior alveolar nerve gives mental and incisive branch inside the canal. Mental nerve emerges from mental foramen and supply sensory innervations to the soft tissues of the chin, lower lip and gingival on the ipsilateral side of the mandible [2]. It is an important landmark for dental surgeons performing surgical and anesthetic procedure of dental region.

MATERIALS AND METHODS

A total of 75 adult dry mandible of unknown sex with complete dentition and alveolar sockets intact from Krishna institute of medical sciences, karad were taken for this study. As the location of mental foramen is described in terms of teeth so mandible with alveolar sockets clearly seen only are taken for this study, Mental foramen was assessed by visual inspection in all mandibles and their situation, shape, size and direction for both halves in each mandible are recorded the help of digital vernier caliper. The distance from the symphysis menti and anterior most point of the mental foramen was measured. The most popular method for identification of mental foramen was proposed by Fishel et. al and Green [3].

The shape and direction of exit of mental foramen was also recorded.

The shape of mental foramen was either oval or rounded which was confirmed by taking vertical and transverse diameter .The direction of opening of mental foramen was recorded as postero-superior, superior or antero-superior. Location of mental foramen was expressed in five relations:

- I- Beneath 1st premolar
- II- Between 1st and 2nd premolar
- III- Beneath 2nd premolar
- IV- Between 2nd premolar and 1st molar
- V- Beneath 1st molar

RESULTS

In 75 adult dry mandible position, shape and direction of mental foramen was studied and recorded. The most frequent position of foramen in relation to teeth was in line with the longitudinal axis of 2nd premolar (52%). The second common position was between 1st and 2nd premolar (23.33 %). Position was bilaterally similar in 89.33 % of mandibles. Oval shape of mental foramen is present in 53.3 % and round shape in 34.67 % . The direction of exit of the mental foramen was postero-superiorly in 90.67 % followed by antero- superiorly in 6.67 % . Mean horizontal diameter was 3.01 mm on right side and 3.22 mm on left side whereas mean vertical diameter was 2.24 mm and 2.11 mm for right and left side respectively . Linear distance from symphysis menti and anterior most point was 26.23 mm on right side and 26.52 mm on left side.

Fig. 1: Mental foramen opening below 2nd premolar.



Fig. 2: Mental foramen opening between 2nd premolar and 1st molar.



Table 1: Position of mental foramen in relation to teeth of lower jaw with side (150).

Position	Bilateral	unilateral	Right	left	Total
I	NIL	NIL	NIL	NIL	NIL
II	34	1	1	-	35
III	70	8	5	3	78
IV	30	7	6	1	37
V	NIL	NIL	NIL	NIL	NIL

DISCUSSION

The results of our study about position shape and direction were compared with that of other authors. The most common position of mental foramen in our study was found in line with 2nd premolar. This position is consistent with findings of Deepa Rani [4] , LBL Probodha[5] Jennifer [6] and Sumit gupta [7] . The same position was observed in Tanzanian adult black male [8] Malay population [9] Brazilian [10] and Malawian mandible [11]. Jasser et al observed most common position as in line with longitudinal axis of 2nd premolar closely followed by location between 1st and 2nd premolar in radiographic study of Saudi Arabians [12]. In northern Nigerian however it was reported that most common position of mental foramen was in line with interdental space between the 1st and 2nd premolar [13]. Gungor et.al also described the same position among Turkish population. [14]. Lopes et. al studying the population of southern brazil reported most common position posterior to the 1st premolar.[15] Shape of mental foramen was oval in greater number of mandible (53.33 %) in present study . this finding was in agreement with studies of prabodha et al.

Ukoha in south eastern Nigerian Singh R et al [16]. and Suresh kanta et al.[17] described most common position round in their studies. In present study direction of opening of mental foramen was postero-superiorly in majority of subjects (90.67 %) which was in agreement with studies of most of the authors. Fabian FM had came across superiorly as most common direction.

CONCLUSION

Findings of our study will be of great help to dental surgeon in avoiding injury of mental nerve while doing surgery of that region like dental implant, apicocurettage, endodontic treatment etc .The knowledge about direction of opening is important dentist in doing mental nerve block. C Bou Serhl et al had suggested pre-operative validation of mental nerve by cross sectional imaging[18].

Conflicts of Interests: None

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