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### Position of mental foramen among two North Indian population

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#### Abstract

**Introduction:** The mental foramen is located in the apical region of the mandibular premolars. Variations in its position can be a cause of complications during local anesthesia or surgical procedures as well as in the diagnosis of lesions periapically.

**Objective:** The purpose of the present paper was to evaluate the location of mental foramen between the populations of Bihar and Jharkhand

**Materials and Method:** A total of 120 Digital Panoramic radiographs suitable for our study were selected from the records of Vananchal dental college & hospital, department of Oral Medicine and Radiology of which 60 radiographs belonged to the Bihar and 60 radiographs belonged to the local inhabitants of Jharkhand. The location of mental foramen was differentiated into 6 types with reference to the mandibular posterior teeth.

**Results:** The mental foramen was situated between the two premolars in both the population.

**Conclusion:** The study concluded that there was no significant difference in the location of mental foramen among two North, Indian inhabitants.

**Keywords:** mental foramen, bihar, jharkhand, OPG

#### Introduction

The accurate identification of the mental foramen is important for both diagnostic and clinical procedures. Lack of knowledge regarding the correct position of mental foramen leads to repeated failure during injections and operative procedures<sup>[1]</sup>. The radiographic appearance of the mental foramen may result in the misdiagnosis of a radiolucent lesion in the apical area of the mandibular premolar teeth. As such, various events affecting these teeth, such as odontogenic infection and orthodontic, endodontic, periodontal, or surgical misadventure, may result in neurosensory disturbance of the mental nerves<sup>[2]</sup>.

The location of the mental foramen is very unusual and hence it is difficult to assess it clinically. The most accurate and convenient method to assess the position of MF would be on the radiographic examination by using a panoramic radiograph. Panoramic radiograph is one of the most routinely used modes of radiographic investigation in the dentistry which gives a complete view of both the mandible and maxilla and also the bilateral position of the MF in a single view<sup>[3, 4]</sup>.

The location of MF may change with age as it is more closer to the superior border in edentulous arch as a result of bone resorption in aged patients and it is appreciated between canine and first molar<sup>[5]</sup>. The rationale behind the study was to contrast the difference in the location of MF between the two north Indian states, Bihar and Jharkhand using Ortho pantomogram (OPG) as there is only handful of studies comparing the population belonging to population of South India and first molar in childhood.

#### Materials and Method

A total of one thousand radiographs were examined from the archives of department of Oral Medicine and Radiology, Vananchal dental college & Hospital, Garhwa, retrospectively the demographic data between, 2016-2017. 120 radiographs which showed the bilateral presence of MF and their borders clearly identified, met the inclusion and exclusion criteria which were selected. 60 radiographs belonged to the local population from Bihar and 60 from Jharkhand. All the radiographs were taken in Radiological evaluation of the patient was done using OPG

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model Orthoralix DDE (GENDEX, USA) digital panoramic system (Tube Potential: 60–90 kv, Tube Current: 2–15 mA, Total Filtration: >2.5 mm, time: 13.9 s)

### Inclusion Criteria

1. Bilateral presence of mental foramen which could be clearly identified on the radiograph.
2. Presence of all the teeth in the mandible between right second and left second molar.
3. Age 16-45 years and above with presence of all permanent teeth in the mandible.

### Exclusion Criteria

1. Patients with periodontal problems.
2. Periapical lesions in the mandible.
3. Patients who have undergone maxillofacial surgeries in the mandible.
4. Poor quality of radiograph.

The position of the mental foramen on the OPG was classified as per the criteria given by [6, 7, 8].

Position 1: Position of MF anterior to the first premolar.

Position 2: Location of MF along the long axis of first premolar.

Position 3: MF amid the apices of the first and second premolar.

Position 4: Situation of MF in line with the long axis of second premolar.

Position 5: MF located between the apices of the second premolar and first molar.

Position 6: MF situated along the long of first molar tooth.

### Results

Data was statistically analyzed using descriptive analysis to determine the percentage of position of MF in the two population. Table 1 reflects in percentage the position of MF in both Jharhand and Bihar population. Position 3 was the most prevalent followed by position 4 with 56% and 22% respectively in Jharkhand population, similarly in Bihar population Position 3 was frequent with 57% followed by Position 4 with 24%.

**Table 1:** Position of Mental foramen

Position of mental foramen on OPG	Jharhand Population (%)	Bihar Population (%)
Position 1	4%	3%
Position 2	15%	14%
Position 3	56%	57%
Position 4	22%	24%
Position 5	0%	2%
Position 6	3%	3%

### Discussion

There is considerable debate regarding the normal position of mental foramen in different populations. It was found that according to most authors the mental foramen is usually located between the lower premolars. However, there are some studies that reported that mental foramen most commonly lies near the apex of the second premolar [2].

The precise location of MF is very valuable for various dental trial [9]. The outcome of the study suggests that the most frequent position of MF encountered in both Bihar & Jharkhand inhabitants is position 3 that is between the two premolars. The result obtained are comparable with similar studies done on inhabitants of Southern states of India [10, 5]. As there are no studies comparing the position of MF between

the two population we compared the parameters and found no significant difference between the position of MF.

Other studies done in population of North Indians have shown that the most common position of MF is position 4 [11, 12, 13].

The present study justifies that there is no difference between the position of MF in different North Indian (Bihar & Jharkhand) population but when the our study data is compared with the data on another North Indian population there is a clear difference, hence this difference in the position of MF can be used as an unique identification mark in cases mass disaster, forensic, studies. Further in can be helpful in various dental surgery, Nerve block, and implant procedure.

### Conclusion

The most common position of MF in Bihar and Jharkhand population was between the two mandibular premolars and as the sample size was small further studies have to be carried out in order to draw a definite conclusion with a large number of sample size.

### References

1. Ngeow WC, Yuzawati Y. The location of the mental foramen in a selected Malay population. *J Oral Sci.* 2003; 45:171–5.
2. Alok A, Singh ID, Panat SR, Singh S, Kishore M, Jha A *et al.* Position and symmetry of mental foramen: A radiographic study in bareilly population. *J Indian Acad Oral Med Radiol.* 2017; 29:16-9.
3. Moiseiwitsch JR. Position of mental foramen in a North American, White population. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1998; 85(4):457-60.
4. Phillips JL, Weller RN, Kulild JC. The mental foramen: Size and position on panoramic radiograph. *J Endod.* 1992; 18(8):383-86.
5. Srinivas N, Sali K, Ramdurg P, Puranik S, Ingaleswar P. Position of Mental Foramen among two south Indian Population. *International Journal of Oral Health Dentistry.* 2017; 3(2):94-96.
6. Ngeow WC, Yuzawati Y. The location of the mental foramen in a selected Malay population. *J Oral Sci.* 2003; 45(3):171-75.
7. Gada SK, Nagda SJ. Assessment of position and bilateral symmetry of occurrence of mental foramen in dentate asian population. *J Clin Diagn Res.* 2014; 8(2):203-05.
8. Al Jasser NM, Nwoku AL. Radiographic study of mental foramen in a selected Saudi population. *Dento Maxillofac Radiol.* 1998; 27(6):341-43.
9. Gada SK, Nagda SJ. Assessment of position and bilateral symmetry of occurrence of mental foramen in dentate asian population. *J Clin Diagn Res.* 2014; 8(2):203-05.
10. Gupta V, Pitti P, Sholapurkar A. Panoramic radiographic study of mental foramen in selected Dravidians of south Indian population: A hospital based study. *J Clin Exp Dent.* 2015; 7(4):e451-56.
11. Verma P, Bansal N, Khosa R, Verma KG, Sachdev SK, Patwardhan N *et al.* Correlation of Radiographic Mental Foramen Position and Occlusion in Three Different Indian Population. *West Ind Med J.* 2015; 64(3):269-74.
12. Agarwal DR, Gupta SB. Morphometric Analysis of Mental Foramen in Human Mandibles of South Gujarat. *People's J Sci Res.* 2011; 4(1):15-18.
13. Ali A, Shah A, Hakim T, Shawl J, Bhat I, Aslam S *et al.* Panoramic Radiographic Study of Mental Foramen in Selected Kashmiri Population. *Ann Int Med Den Res.* 2016; 2(4):112.