

# Digital Panoramic Radiographs- A Tool for Evaluating Position of Mental Foramen in North Indian Population

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## Abstract

**Background:** Termination of the mandibular canal is called the mental foramen. During surgical procedures and during anaesthesia in the mandibular region, identification of the correct position of mental foramen is important to prevent any trauma to vessels and nerve. **Materials and Methods:** The study was conducted on 100 digital panoramic radiographs. These radiographs were collected from the Department of Oral Medicine and Radiology, Government Dental College, Srinagar. The position of mental foramen was recorded by Anshumen *et al.*, **Results:** It was observed that in 42% right and 41% left sides of individuals mental foramen was in line with second premolar. Between first and second premolars, 26% right and 31% left sides. Between second premolar and first molar 20% right and 17% left sides. Mental foramen in line with mesio buccal root of first molar 8% right and 6% left sides. 4% right and 5% left sides in line with first premolar and none was seen anterior to first premolar. **Conclusion:** The knowledge of the position of the mental foramen is very important for surgeries. Careful identification of mental foramen can help in giving successful anaesthesia to the patient.

**Keywords:** mandibular canal, anaesthesia, radiographs, patient, Mental foramen.

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## INTRODUCTION

Termination of the mandibular canal is called the mental foramen. Inferior alveolar nerve and vessels passing through this canal supply lower lip, buccal area and the teeth [1]. During surgical procedures and during anaesthesia in the mandibular region, identification of the correct position of mental foramen is important to prevent any trauma to vessels and nerve [2]. Position of mental foramen change with age, gender and ethnicity [3]. If the mental nerve gets damaged, paraesthesia, hypoesthesia, anaesthesia of teeth, skin and mucosa can occur [2]. Location of the mental foramen can be done by three dimensional imaging of the mandible [4].

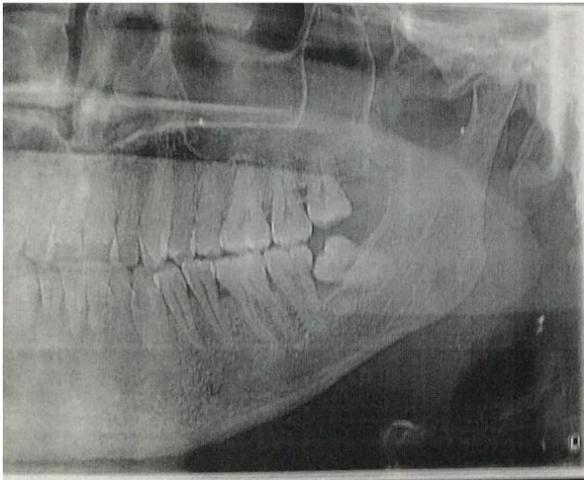
Digital panoramic radiograph is one of the methods which is less expensive and it measures the mental foramen position in relation to mandibular line. This radiograph is quite affordable for an average Indian [5]. The aim of our study was to note the actual position of the mental foramen on the left and right sides of mandible.

## MATERIALS AND METHODS

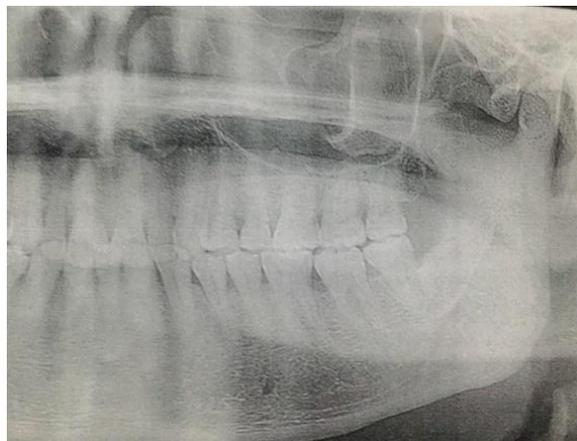
The study was conducted on 100 digital panoramic radiographs. These radiographs were collected from the Department of Oral Medicine and Radiology, Government Dental College, Srinagar. Good quality panoramic radiographs were selected for the study. Radiographs showing lesions, presence of supernumerary teeth in the area of our interest were excluded from the study. The position of mental foramen was recorded by Anshumen *et al.*, as follows:  
 Position 1: is present anterior to first premolar  
 Position 2: in line with the first premolar  
 Position 3: between first and second premolars  
 Position 4: in line with second premolar  
 Position 5: lies between the second premolar and first molar  
 Position 6: lies in line with mesio buccal root of first molar

The mental foramen position was noticed on left as well as on right side. Parallel imaginary lines

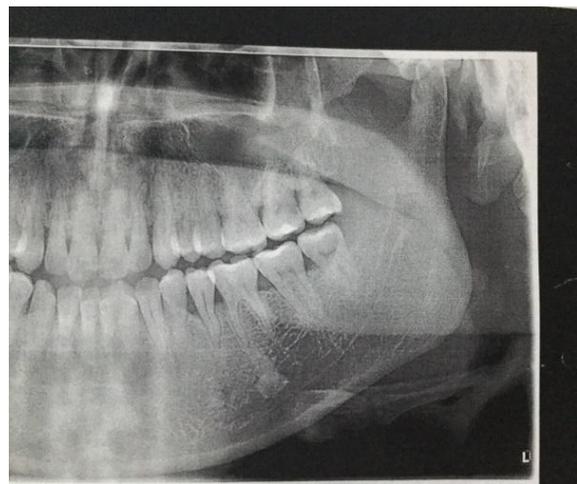
were drawn parallel to long axis of mandibular canine, premolars and molars.



**Fig 1: Mental foramen at position 2**



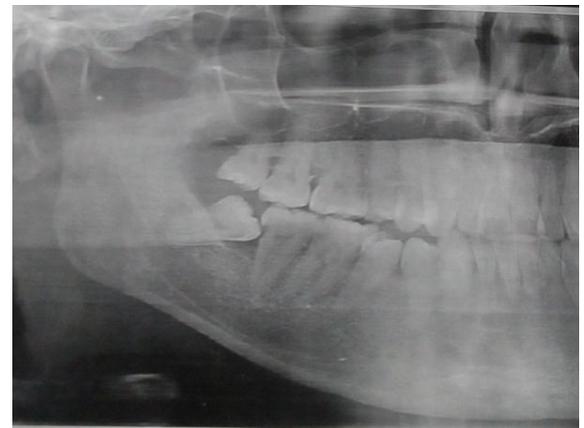
**Fig 2: Mental foramen at position 3**



**Fig 3: Mental foramen at position 4**



**Fig 4: Mental foramen at position 5**



**Fig 5: Mental foramen at position 6**

## RESULTS

We conducted our work on 100 panoramic radiographs and observed that in 42% right and 41% left sides of individuals mental foramen was in line with second premolar. Between first and second premolars, 26% right and 31% left sides. Between second premolar and first molar 20% right and 17% left sides. Mental foramen in line with mesio buccal root of first molar 8% right and 6% left sides. 4% right and 5% left sides in line with first premolar and none was seen anterior to first premolar.

## DISCUSSION

To provide better anaesthesia and prevent injury to mental neurovascular bundle, the knowledge of exact position of mental foramen is important. Oral panoramic radiographs are of great significance for the location of mental foramen. Mental foramen position may show variations because of ethnic and racial discrimination [6]. The position of the mental foramen is found almost symmetrical between right and left sides of mandible [7].

While performing surgeries, mental foramen position is important. Knowledge of its position can prevent mishaps.

## CONCLUSION

The knowledge of the position of the mental foramen is very important for surgeries. Careful identification of mental foramen can help in giving successful anaesthesia to the patient.

**Conflicts of interests:** None.

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