



Original Research Article

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Evaluation of the shape and of Mental foramen with using Cone Beam Computerized Tomography

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Abstract

Mental foramen (MF) is the front opening of the mandibular canal on the body of mandible alongside and above the mental tubercle. Normally, MF is located below the interval between the two premolars. The aim of the study is to evaluate the location of the mental foramen and its implication on the clinical treatment plan decision, when implant placed or any surgical procedures is going to be conducted on the mental area. **Materials and methods:** In this descriptive-analytical study anatomical location and geometry of the mental foramen in CBCT images were examined. CBCT images were provided for diagnostic purposes from radiology department of Ahvaz archives for investigation of morphology and anatomy and the position of the mental foramen by a maxillofacial radiologist. **Results:** In this study, according to statistics Shape of mental foramen with a greater percentage was oval in right side and round in the left side. In terms of gender it was more oval shaped in men and more round shaped in women. **Conclusion:** Due to the variety, location and shape of mental foramen reviews before applying CBCT images such as implant and bone graft surgery is necessary.

Keywords: Cone Beam Computed Tomography, Mental Foramen.

Introduction

Mental foramen (MF) is the front opening of the mandibular canal on the body of mandible alongside and above the tubercle of chin. Normally, MF is located below the interval between the two premolars.

But, studies have shown that there are variations in the position of MF in different populations. It may lie between the apices of premolars, below the apex of second premolars.

Any foramina in addition to the MF found in body of mandible are known as accessory MF. It may not present in some of the populations but both

MF and accessory MF are important landmarks in surgical procedures (1)

Some research showed that the location of mental foramen is not gender dependant (2)

Preoperative study of MF is important to prevent damage to the mental nerve which will cause paresthesia, patient may complaint that there is transient or permanent loss of sensation of the lip, chin, oral mucosa that is often associated with a limited xerostomia (3)

Materials and Methods

In this descriptive-analytical study anatomical location and geometry of the mental foramen in CBCT images were examined. CBCT images were provided for diagnostic purposes from radiology department of Ahvaz archives for investigation of morphology and anatomy and the position of the mental foramen by a maxillofacial radiologist. 66 samples CBCT were prepared .

Inclusion criteria patients who first and second premolars are fully erupted and don't have Pulp and periodontal lesion and Unprecedented jaw trauma, surgery or orthodontic treatment.

Results

In this study, according to statistics Shape of mental foramen 47% was oval and 40% round in right side. And 42% was oval and 45% round in the left side. The greater percentage was oval in right side and round in the left side. In terms of gender it was more oval shaped in men and more round shaped in women. The distance of mental foramen on both the right and left side to second premolar was lower than first premolar however the space between mental foramen and lower border of mandible in right side was more than left side. The average distance from this foramen to midline on the left is greater than right side.

Shape of Right mental foramen

| Frequency% | shape |
|------------|-----------|
| 47.0 | oval |
| 42.4 | round |
| 10.6 | irregular |
| 100.0 | total |

Shape of Left mental foramen

| Frequency% | shape |
|------------|-----------|
| 42.4 | oval |
| 45.5 | round |
| 12.1 | irregular |
| 100.0 | total |

Discussion

Study in 2005 conducted by Igbigbi And colleagues ,The aim of this study was to evaluate the mental foramen in the Malay population And the results showed that its shape is more oval and usually symmetrical. Its position near the mandibular second premolar and its vertical position below the line The middle and lower border of the mandible is between alveolar crest. The results of the study were to some extent consistent with the difference that review and study was widened And looked shape of the hole on the left and right. The shape of the hole on the right side similar to this study has been oval shape and round left.(4)

In 2007 Fabian in his study of the position and shape of mental foramen in the mandible

Tanzanian population Concluded that 46% of the foramen were rounded shape And 54% was seen oval shape. The results of the study have almost match. In this study, on the right 47% oval shaped and 4/42% round and left 4/42% Oval and 5/45% have been rounded.(5)

Conclusion

From above literature, we can conclude that the location of the mental foramen is variable between races, in vertical and horizontal direction. When the implant placed in lower premolar area, special concern should be directed to locate the mental foramen in 2D imaging if possible. Otherwise 3D imaging is needed if difficulty finds to locate the foramen with 2D radiograph to avoid nerve damaging or impairmen.

CBCT is a useful tool for the anatomic assessment of the MF region and particularly in the detection of AMF. It is essential to be aware of the possibility of these anatomical variations already when planning surgery and when viewing the pre-operative radiological examination.

References

1. Rajani Singh Srivastav AK (2010). Study of position, shape, size and incidence of mental foramen and accessory mental foramen in Indian adult skulls. *Int. J. Morphol.*, 28:1141-1146
2. Al-Jasser and AL Nwoku (1998). Radiographic study of the mental foramen in a selected Saudi population. *Dentomaxillofac. Radiol.*, 27(6): 341-3.
3. Gary Greenstein, Dennis Tarnow (2006). The mental foramen and nerve: Clinical and Anatomical factors related to dental implant placement: A literature review. *J. Periodontol.*, 77:1933-43
4. Igbigbi PS, Lebona S. The Position of the Mental Foramen in Adult Malawian Mandibles. *West Afr J Med.* 2005 Jul-Sep; 24(3):184-9.
5. Fabian FM. Position, Shape and Direction of Opening of the Mental Foramen In Dry Mandibles of Tanzanian Adult Black Males. *Ital J AnatEmbryol.* 2007 Jul-Sep; 112(3):169-77.

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