Case Report
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Elongated Mental Spine with Two Lingual Foramina in the Mandible of a Kurdish Woman: Case Report

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Abstract
The mental spines are bony prominences found in the lingual surface of anterior mandible, and usually they are arranged in two groups, superior pair and inferior pair. Mostly they are asymptomatic, but sometimes they may interfere with the prosthodontic treatment or with some surgeries. The lingual foramen can be found in different locations around the mental spines, and they are very important vital organ because they transmit nerves and arteries, which may cause a serious problem during some types of surgeries in this region such as implant placement. Here, we report a case of 55-year-old, Kurdish woman with elongated superior mental spine with bilaterally lingual foramina located distally to lower central incisors, that have been seen during a routine CBCT scan. The length of the spine was 6.4 mm, the height was 5.5 mm and the width was 1.9 mm. So, any dentist wants to perform any type of surgery in sublingual and submental regions should be careful of such anatomical variations.
Keywords: CBCT, mental spine, lingual foramen, mandible

Introduction

Many anatomical landmarks can be seen in the anterior lingual surface of the mandible, like mental spines, lingual foramen and mandibular symphysis.[1]

The mental spines (genial tubercules) are small bony eminences projected from the lingual surface of mandible.[2] Usually four spines are found, two superiors, to which the genioglossus muscles are attached and two inferiors, to which the geniohyoid muscles find their origin.[3] The mental spines are important landmarks for maxillofacial surgeons, dental radiologist and prosthodontists. Also, a variation in its morphology and number has been highly reported.[4,5]

The lingual foramen is an opening located on the midline of the lingual aspect of the anterior mandible. It transmits neurovascular bundles to the surrounding structures and it could have variations in number and position.[6]

The Cone-Beam Computed Tomography is a revolutionary imaging modality, which allows three-dimensional visualization of hard tissue structures. It provides accurate volumetric data in axial, sagittal and coronal planes which can be useful in diagnosing and treating several pathologies in oral and maxillofacial region.[5] This modality has been commonly used to evaluate the morphology, size, number and positions of mental spines and lingual foramen.[2,5–7]

Case Presentation

During a routine CBCT scan in Delight Dental Clinic in Duhok Governorate at the north of Iraq, for a Kurdish woman whose age was 55 years, an elongated mental spine was observed on the lingual surface of mandible exactly at the midline (Figure 1). This spine was projected posteriorly from the lingual surface of the mandible with a slight tilt to right. The anterior-posterior length was 6.4 mm, the height was 5.5 mm and the width was 1.9 mm.

Also, two inferior mental spines were observed near the inferior border of the mandible at the midline point (Figure 2).

Besides that, two lingual foramina were found distally to the lower central incisors, the right one about 2.2 mm away from the alveolar crest while the left one about 3.3 mm (Figure 3).

The symphysis menti (mandibular symphysis) was not observed in this case. And no other radiographic anatomical variations were found on this site of mandible.

The type of CBCT machine was XMind Prime CBCT, manufactured by de Gotzon action group – Italy (2021).

Discussion

Using the CBCT in dentistry is an essential component of dental treatment planning.[8] Many studies such as Hueman et al.[9] showed the accuracy of the 3D cone beam CT in the description of the anatomical location of the mental spine.

The mental spine may become (relatively) enlarged and prominent due to a combination of calcification in the tendinous insertion of the geniohyoid and genioglossus muscles and atrophy of the mandible.[3]

Wong et al.[1] reported a case of an elongated mental spine in a 57-year-old Caucasian woman's cadaveric head, with dimensions of 10 mm length, 2.72 mm width and 8.55 mm height. Greyling et al.[10] reported a case of projected mental spine posteriorly from its normal anatomical position on the lingual surface of mandible in 79-year-old white female cadaver, it was flattened from superior to inferior, with 10 mm length. Jindal et al.[11] reported a case of elongated mental spine in a 78-year-old, completely edentulous male patient with the chief complaint of discomfort while eating. The patient was a denture wearer for 10 years and had discontinued wearing denture because of recurrent ulceration of the lingual mucosa caused by the denture. The computed tomographic scan revealed 11 mm wide and 21 mm long, genial tubercles extending about 15 mm beyond the crest of residual mandibular ridge.

Jawahar and Gopal[5] grouped the mental spines into four types: a rough impression of two superior genial tubercles

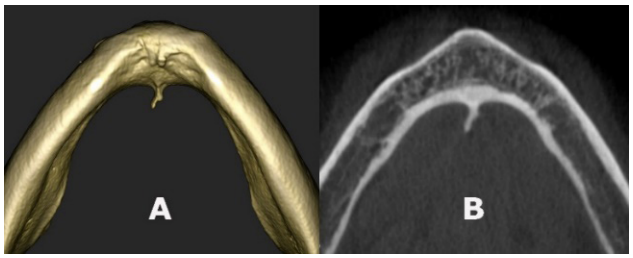

Fig. 1 **The elongated superior mental spine in the lingual surface of the mandible. A: 3D Rendering View. B: Axial View.**

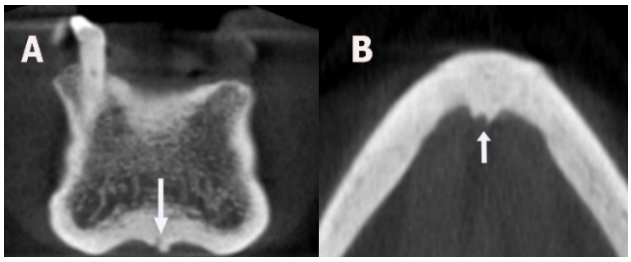

Fig. 2 **The inferior mental spines. A: Coronal View. B: Axial View.**

(Type I), two superior genial tubercles and a median ridge representing fusion of inferior genial tubercles below them (Type II), a single median ridge (Type III) and no prominent genial tubercles (Type IV). While Singh et al.[4] grouped his patients in five types: The classical description of four spines, two superiors and two inferiors were observed in (19.25%), while (70.16%) showed the presence of only two superior spines. In (46.83%) were associated with a median vertical ridge below them, (23.33%) had only a rough impression in place of the median ridge. (8.75%) showed a single prominent median eminence/projection but no separate spines as such. Finally (1.83%) had no spine, ridge or prominence.

The lingual foramina and canals can be categorized as medial or lateral based on their relation to the midline of the mandible.[12] It can be located mainly above and/or below the mental spines, and diameters may be associated with high risk of bleeding vessels.[7]

Denny et al.[6] studied the CBCT scans of 116 patients, the number of lingual foramina ranged from 1 to 3, their position was mainly (60%) in the upper two-thirds distance from the alveolar crest, and there was no significant difference in various age groups or between both genders.

Wang et al.[13] used the CBCT to report the presence of the lingual foramina in 97% of his sample, also the presence of more than one canal medially and laterally was observed.

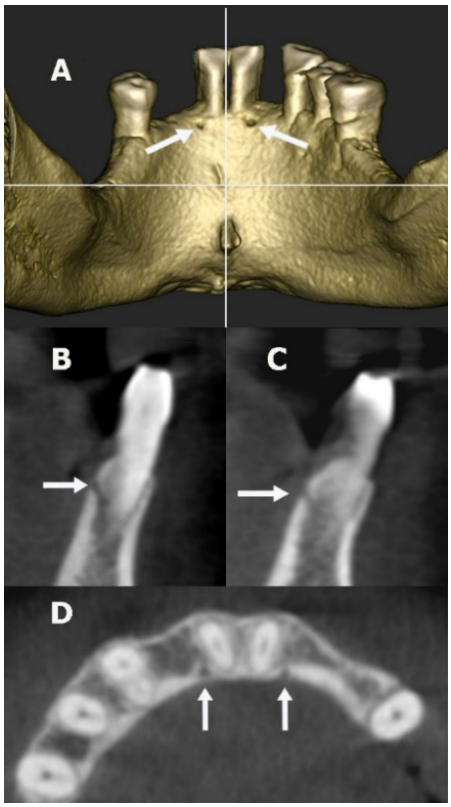

Fig. 3 **Two lingual foramina located distally to the lower central incisors. A: 3D Rendering View. B: Right Lingual Foramen (Sagittal View). C: Left Lingual Foramen (Sagittal View). D: Axial View.**

Conclusion

We reported an elongated mental spine, which seems to be a rare case that has not been seen before, represented by an elongated superior mental spine with two inferior mental spines. Also, the two lingual foramina show a rare style, because they are two in number located in symmetrical position to the midline and near the alveolar crest. The elongated mental spine in spite that is a symptomatic structure, but it still has a great importance for any type of surgery and prosthodontic treatment in area of anterior lingual aspect of mandible. And the lingual foramina are considered very important for any kind of surgery especially the implant placement, because any damage to their vital contents may cause serious problems.

Conflict of Interest

None.

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