INTRODUCTION

The lingual nerve represents a large branch of the mandibular nerve which gets born from the aforementioned at the side of the infratemporal fossa. From its place of origin, the lingual nerve passes through the interpterygoid space, the pterygomaxillary space the inframandibulary region and the lingual lodge.(17) It passes the mandibular third molar and may help avoid lingual damage during surgery in the third molar and retromolar region of the mandible.(22)

Kim SG1, in a study published in 2014, proves that condylar osteochondroma caused jaw deviation and joint dysfunction. Complete surgical excision achieved an adequate long-term outcome, but condylar reconstruction is advisable.(19) The results of this retrospective study, performed by Feng Z in 2013, show that supraomohyoid neck dissection for oral squamous cell carcinoma is an appropriate treatment if metastases occur.(20) Some studies confirm the relatively unsafe position of the lingual nerve in relation to some oral and maxillofacial surgery procedures. In approximately 15% of the cases, this nerve can present anatomical varieties.(24) The precise anatomic location of the lingual nerve in relation to the surrounding elements is clinically significant because the lingual nerve is subjected to injury during varieties of oral and maxillofacial surgery.(25) Unless adequate protection of the nerve is acquired by following an adequate surgical technique, the lingual nerve will always be vulnerable to damage during surgical intervention or manipulation in this region. Treatment of nerve injuries remains controversial, while the recovery of the patients is unpredictable.(26) There is a strong relationship between the incidence of lesions of the lingual nerve and its intraoperative exposure.(27)

PURPOSE

The purpose of this study is to examine the morphological and morphometric characteristics of the lingual nerve, thus determining the topographic relations of the nerve with the surrounding anatomical elements. We’re therefore able to better acknowledge these topographic relations, finally leading to more safety while dealing with the regions it passes through.

METHODS

For the proper performing of this study, we’ve done...
research on four human bodies, on which, through careful dissection of the infratemporal region, we exposed the lingual nerve together with its branches and topographic relations. The didactic material was carefully prepared in solutions containing formaldehyde. The dissections were performed by the same person, while the measurements were taken with the same device. The process of dissection had started from the superficial regions, exposing the branches of the lingual nerve, followed by isolation and highlighting its relations with the other bony, vascular and nervous elements of the infratemporal fossa.

To achieve the morphological study of the lingual nerve, we’ve calculated the following parameters:

- $X_1$ – the distance between the nerve and the anterior edge of the mandible branch corresponding to a horizontal plain at 1 cm above the occluding plan of the inferior molars
- $X_{1.1}$ - the distance between the nerve and the anterior edge of the mandible branch corresponding to a horizontal plain at 1.5 cm above the occluding plan of the inferior molars
- $Y_1$ – the distance between the lingual nerve and the temporal crest on a plain parallel with the occluding plain at 1 cm above the inferior occluding plain
- $Y_{1.1}$ - the distance between the lingual nerve and the temporal crest on a plain parallel with the occluding plain at 1.5 cm above the inferior occluding plain
- $Z_1$ – the distance between the inferior edge of the mandible branch and the lingual nerve on a vertical plain located at 1.5 cm in front of the posterior edge of the mandible
- $Q_1$ – the distance, on a horizontal plain, between the lingual nerve and half the distance between the long root of the cheek bone and the mandible angle
- $W_1$ – the distance between the inferior alveolary nerve and the lingual nerve at 1 cm above the occluding plain of the inferior molars
- $W_{1.1}$ - the distance between the inferior alveolary nerve and the lingual nerve at 1.5 cm above the occluding plain of the inferior molars

Table no. 1. Branches of the lingual nerve and its relations with the other vasculo-nervous and bone elements of the infratemporal fossa

<table>
<thead>
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<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
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<tbody>
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<td></td>
<td>I.A.N.</td>
<td>L.N.</td>
<td>I.A.N.</td>
<td>L.N.</td>
</tr>
<tr>
<td>$X_1$</td>
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<td>0.9</td>
<td>2.4</td>
<td>1.6</td>
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<tr>
<td>$X_{1.1}$</td>
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<td>1.3</td>
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<tr>
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<tr>
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<tr>
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<td>$W_1$</td>
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<td>$W_{1.1}$</td>
<td>0.8</td>
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<td>0.8</td>
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</tbody>
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B(1,2,3,4) = the bodies that were studied; I.A.N. = Inferior alveolary nerve; L.N. = Lingual nerve

Figure no. 1. Lingual nerve and its branches

Figure no. 2. Maxillary artery and its relations with the neighbouring structures in the second case

1. External carotid artery
2. Superficial temporal a.
3. Trigeminal ggl.
4. Lingual nerve
5. Inferior alveolary n.
7. Lateral pterygoid muscle

Figure no. 3. Maxillary artery and its relations with the neighbouring structures in the third case

1. External carotid artery
2. Superficial temporal a.
3. Trigeminal ggl.
4. Lingual nerve
5. Inferior alveolary n.
7. Lateral pterygoid muscle

The third case emphasizes, together with the connecting branch between the lingual nerve and the eardrum’s chord, another connecting branch between the inferior alveolary nerve and the eardrum’s chord.

The fourth case presents a lingual nerve which is, in fact, the largest branch of the mandibular nerve. It is located beside the inferior alveolary nerve, medial to the maxillary artery, which is superficial (figure no. 3).
CONCLUSIONS

1. Within the interpterygoid space, the first space to be crossed by the lingual nerve, in all the cases that we have studied the lingual nerve was connected to the eardrum’s chord.
2. Within the pterygomandibular space, in three of the cases, the lingual nerve was located parallel to the inferior alveolar nerve.
3. Two of the studied bodies presented lingual nerves that were located medially to the maxillary artery, which was disposed profoundly.
4. In none of the cases the inferior alveolar nerve and the lingual nerve were located on different sides of the artery.
5. In two cases, the lingual nerve was located laterally to the maxillary artery, which was found in the deep section of the region.
6. The lingual nerve features, in one case, connecting branches to the inferior alveolar nerve, while the milohiod nerve gives birth to nervous branches that reach the third tooth on the inferior arch.
7. There is a close relationship between the incidence of lingual nerve injuries, its anatomical position, careful clinic evaluation and its exposure during manoeuvres at this level.
8. There was also a case in which the lingual nerve was the largest branch of the mandibular nerve.

REFERENCES

18. Testut L. Traite d’anatomie humaine volumul 3, Paris 1930