



A case report on additional branch of mandibular nerve

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Abstract

Anatomical variations related to lingual, mandibular, inferior alveolar nerve are of great interest to dentist. During routine cadaveric dissection of infratemporal fossa of an adult male in the Department of Anatomy, an additional branch of mandibular nerve was found on the right side.

Difficulties in failure of local anaesthesia can create hurdles during dental procedures. Such anatomical variations related to mandibular nerve are of clinical significance for dentist and oral maxillofacial surgeons while giving local anesthesia.

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Introduction

Mandibular nerve is the largest and inferior division of trigeminal nerve [1]. It is a mixed nerve containing motor fibers for muscles of mastication through anterior division, mylohyoid and anterior belly of digastric through posterior division, and sensory fibers to cheek through anterior division and anterior 2/3 of tongue, floor of mouth and teeth in lower jaw through posterior division. Posterior division gives three sensory branches as auriculotemporal, lingual, inferior alveolar nerves. Significant portion of the lower jaw is innervated by mandibular nerve [2].

Mandibular nerve is often preferred by dentist for mandibular block. Variations in the branches of mandibular nerve may cause failure of block and create problems in beginning of treatment.

The aim of the study was to discuss clinical significance of rare variation of presence of additional branch of mandibular nerve.

Case Report

During routine cadaver dissection of infratemporal fossa of an adult male in the Department of Anatomy along with lingual, auriculotemporal, inferior alveolar nerves, an additional branch from posterior division of mandibular nerve was found on the right side. Mandibular nerve was seen traveling medial

to lateral pterygoid. After reflecting lateral pterygoid muscle, three branches were arising from mandibular nerve. Lingual nerve was seen on lateral aspect of medial pterygoid, and traveling anteriorly towards tongue, giving sensory supply to it. Just posterior to lingual nerve, inferior alveolar nerve along with nerve to mylohyoid was seen traveling inferiorly. Inferior alveolar nerve entered into mandibular foramen and nerve to mylohyoid supplied mylohyoid muscle.

Posterior to inferior alveolar nerve an additional nerve was seen on the lateral aspect of lateral pterygoid muscle traveling inferiorly towards tongue and supplied it. One branch arising from this additional branch was going towards mylohyoid and supplied it. This additional branch was present superior to submandibular gland.

While on the left side usual branching pattern of mandibular nerve was seen.

Discussion

Many variations related to inferior alveolar nerve, lingual nerve, auriculotemporal nerve have been documented. Variations are related to multiple branches given by inferior alveolar nerve [3]. Inferior alveolar nerve originated from posterior division of mandibular nerve by two distinct roots without any communication with other branches of mandibular nerve [4]. We found inferior alveolar nerve

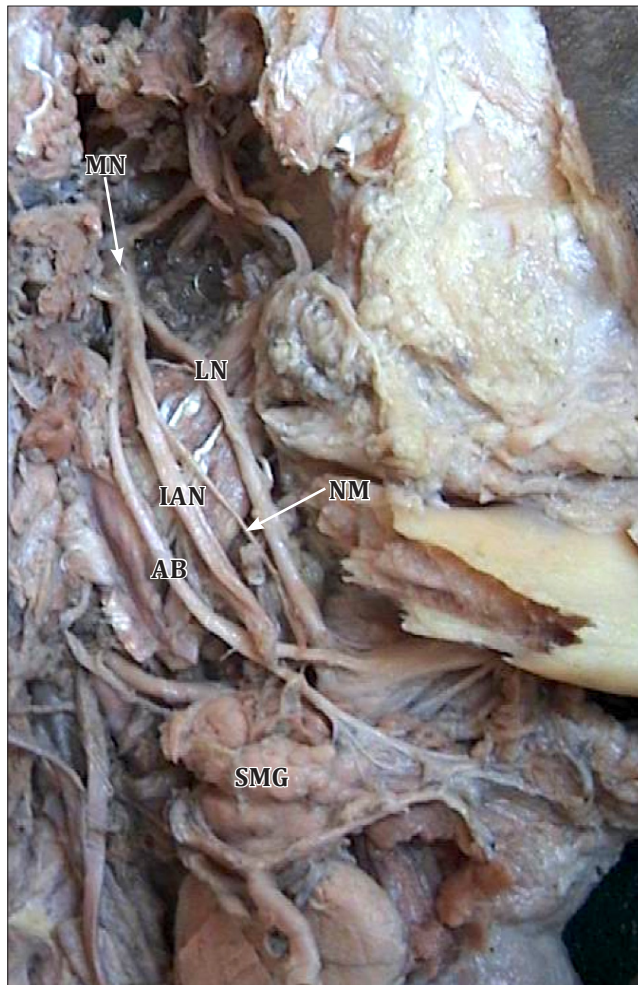


Figure 1. Photograph of infratemporal fossa showing additional branch of mandibular nerve. (MN: mandibular nerve; LN: lingual nerve; IAN: inferior alveolar nerve; NM: nerve to mylohyoid; AB: additional branch; SMG: submandibular gland)

passing through mandibular foramen and supplying the teeth in lower jaw. Additional branch was not passing through mandibular foramen but going towards tongue and mylohyoid muscle. Incidence of communication between lingual nerve and inferior alveolar nerve is 25% [5] and 7% [6]. We did not find any communication between inferior alveolar, lingual and additional branch.

Variation related to origin, splitting, branching, and communication with other nerve is found in literature in great number. To the best of our knowledge, such presence of additional branch arising from mandibular nerve and supplying tongue and mylohyoid muscle is not yet documented.

This variation carries lot of clinical significance in dental point of view.

Anatomical variations are assumed a possible cause of complications or incomplete performance during surgical procedure such as local anesthesia or third molar extraction [7]. Injury to lingual nerve is a significant complication in 3rd molar removal. Frequency of lingual nerve injury during oral and maxillofacial procedures varies between 0.6 to 2% [8–10]. Along with lingual nerve, such an additional nerve running so close to lingual nerve can get injured.

Knowledge about position and course of inferior alveolar nerve and its possible branches is important not only for adequate local anesthesia but also important for dental, oncological and reconstructive operations [11]. Anesthesia in the dental procedure can't be achieved in such cases because of presence of additional branch. For the effective local anesthesia precise knowledge of normal anatomy and possible variations of mandibular nerves should be kept in mind to prevent unexpected complications and hurdles.

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