

Case Report

UNILATERAL ACCESSORY MANDIBULAR CANAL AND BILATERAL DOUBLE MENTAL FORAMINA IN DRIED HUMAN MANDIBLE-A CASE REPORT

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ABSTRACT

The mandibular canal is extended from mandibular foramen to mental foramen and contains inferior alveolar nerve and neurovascular bundle. We reported one dry human mandible with unilateral accessory mandibular canal on right side and double mental foramen on both sides of mandible during routine teaching of undergraduate students. The accessory mandibular canal extended from accessory mandibular foramen to symphysis menti which was confirmed by radiography. The accessory canal, accessory mental foramen might be transmitting neurovascular bundle to provide additional innervation and blood supply to mandible. Finding of these variations are of great clinical importance. Failure to acknowledge the presence of these anatomical variations can cause inadequate anaesthesia during surgical procedures done in this area.

Keywords: *Mandible, Accessory Mandibular Canal, Accessory Mental Foramen*

INTRODUCTION

Standing (2008) mentioned that Mandible forms the lower jaw. It consists of a horizontal horse shoe shaped body and two broad oblong rami projecting upwards. In the newborn, the body is composed of two halves united at symphysis menti by a fibrous joint which is replaced by bone within two years.

Body presents external and internal surfaces, an upper alveolar border and a lower border or base.

The ramus presents two surfaces i.e. lateral and medial, four borders and two processes. The upper border displays a condylar process behind and a coronoid process in front. The other three borders are lower, anterior and posterior. The junction between lower and posterior border forms the angle of mandible.

Kaufman *et al.*, (2000) mentioned that Mandibular canal extends from mandibular foramen (which is present on the medial surface of ramus) to mental foramen (present on external surface of body). The contents of mandibular canal are inferior alveolar nerves and vessels.

The presence of accessory mandibular canal is of great clinical importance. The contents of the accessory mandibular canal may be neurovascular bundle. The presence of the additional innervation by the nerve running in accessory mandibular canal may be the cause of the failure to achieve adequate anaesthesia during surgeries.

The accessory mandibular canal is often ignored or receives little attention which further leads to various complications during surgeries. The extent of such anatomical variation in human mandible can be ascertained by radiography.

CASES

The present case was observed on adult human dry mandible during routine undergraduate teaching in the department of Anatomy, Gian Sagar Medical College and Hospital, Banur, Patiala. We found an opening close to mandibular foramen on right side i.e. an accessory mandibular foramen and double mental foramina on both sides of the mandible.

On radiography, we observed the extent of wire R1 was from right mandibular foramen to right mental foramen which represent normal mandibular canal on right side. The wire R2 present in accessory mandibular canal extended from accessory mandibular foramen to symphysis menti instead of leading into the accessory mental foramen.

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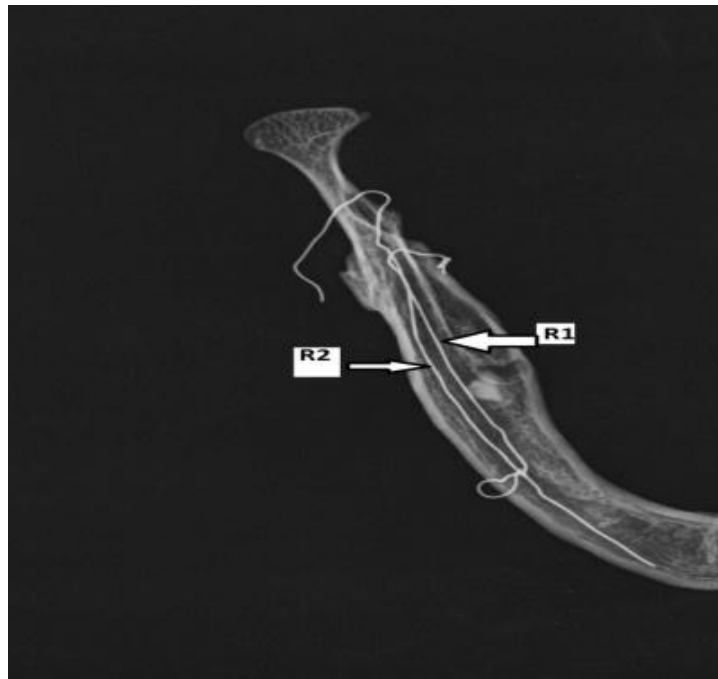


Image Showing Normal (R1) and Accessory Mandibular Canal (R2)

DISCUSSION

To ignore the presence of anatomical variations in mandible i.e. presence of accessory foramina and accessory canal can cause complications during surgeries and dental procedures. Complications may be haemorrhage, fibrous formation and dyesthesia of patient. Common variations occur in form of size and number of mandibular and mental accessory foramina. Sizes of these foramina are variable. Some mandible have none, in rare instances in one mandible have up to 100 foramina. Seema and Mahajan (2012) mentioned that majority of accessory foramina are present on inner surface of human mandible. The contents of these accessory foramina and canals may be neurovascular bundles.

Patterson and Funke (1973) identified a case of unilateral bifid Mandibular canal with two mental foramina by study of panoramic and lateral jaw radiograph.

Nortje *et al.*, (1977) mentioned duplication of Mandibular canal in 0.9% cases by study of panoramic radiograph from 3612 routine dental patient.

Drust and Snow (1980) reviewed 1024 radiographs and reported multiple mandibular canals were present in 8.3% cases.

Casey (1978) reported an adult dry human mandible had bilateral accessory foramina and canals and joined the Mandibular canal.

Naitoh *et al.*, (2009) studied 157 patients using cone beam computed tomography and founded 11 patients had double on one side [7%] and 2 had triple mental foramina on contra lateral side [1.2%].

Clinical Significance

These accessory foramina and canals may have neurovascular bundle. The neurovascular bundle may be formed by branches of mylohyoid, facial, buccal and transverse cutaneous nerves, sublingual artery and accompanying veins which supply the bone. These neurovascular foramina might be of significance in relation to local anaesthesia following the inferior nerve block and cause bleeding during dental procedures and surgeries because of vascular trauma. The bleeding is profuse as it difficult to control.

In clinical practise each patient must be assessed thoroughly to identify the neurovascular bundle. Murlimanju (2012) stated that the surgeons performing the extraction procedures must be aware of these accessory foramina and canal and thus, give anaesthesia at an appropriate site. By identifying these variations in advance the surgeons will be more careful in surgeries performing in mandible area.

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Conflict of Interest

None

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