

# A Study of Incidence of Accessory Mental Foramen in South Indian Mandibles:

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## Abstract:

### Aim:

To determine the study of incidence of accessory mental foramen in South Indian mandibles.

### Objective:

More than thirty dry mandible of both sexes were examined for shape, size and incidence of the mandibular foramen.

### Background:

Mental foramen is a small foramen situated in anterolateral aspect of the body of the mandible. Normally, mental foramen is located below the interval between the premolars. It transmits mental nerve, artery and vein. Mental nerve is a branch of inferior alveolar nerve which supplies sensation to lower lip and the labial mucosa and lower canines and incisors. The most useful injection for anaesthetizing the mandibular teeth is the inferior alveolar nerve block. To anesthetize the anterior teeth, including the incisors and canines, it is possible to avoid giving inferior alveolar nerve block by injecting anaesthetic solution adjacent to the mental foramen. So the study of the incidence of accessory mental foramen is very important because it will be helpful to localise the important neurovascular bundle passing through the mental foramen.

### Reason:

While giving anesthesia during surgery the Dentists and surgeons should be aware of an accessory mental foramen while operating.

**Keywords:** Inferior alveolar nerve, mandible, mental nerve, mental foramen.

## INTRODUCTION:

Mental foramen is located in the face and in the body of the mandible at an equal distance from the superior and the inferior border and it is located below the interval between the premolars. Mental nerves and vessels pass through it. [1]. Accessory mental foramen is due to the branching of mental nerve before passing through the mental foramen. Hence its shape, size and verification of its existence would prevent accessory nerve injury during periapical surgery. So the knowledge of its position and incidence is helpful to dental surgeons to achieve complete anesthesia because of this nerve is not blocked anesthesia will be incomplete. Mental nerve is the branch of the inferior alveolar nerve which supplies the sensation to the lower lip and the labial mucosa and the lower canines and the premolars. The most useful injection for anesthetizing the mandibular teeth is the inferior alveolar nerve block. [2]. Mental foramen is also located between the apices of the lower premolar, below the apex of the second premolar. Any foramen in addition to mental foramen is known as the accessory mental foramen in the body of the mandible. [3]. Variations like multiple or absent foramina are often encountered. These variations in the position and the number of mental foramen have been reported in the pattern of their occurrence. [4]. Recent advancement in clinical dentistry has increased the possibility of the procedures in the mental region and the detailed knowledge of the mental foramen and it may not only aid in the prevention of post-surgical neuromuscular complications and morbidity; but also hold the potential of contributing as the identification of maxillofacial anthropologic characteristic feature of different populations. [5].

So the study of the incidence of the accessory mental foramen is very important because it will be helpful to localize the important neuromuscular bundle passing through the mental foramen.

## MATERIALS AND METHODS:

The study was conducted in Saveetha dental college, Tamilnadu, India during the month of April. To analyze the presence or absence of accessory mental foramen in more than thirty dry human mandibles of the both type of sexes.

## RESULTS:

Position of accessory mental foramen in relation to the lower teeth and the mental foramen is situated below the apex of the second premolar.



**Figure:1** The accessory mental foramen is present in the left side and it is unilateral in position



**Figure:2.** The accessory mental foramen is present in the right side and it is unilateral in position



**Figure:3.** The accessory mental foramen is present in the left side and it is unilateral in position.



**Figure:4.** The accessory mental foramen is present in the both right and left side and it is bilateral in position.

**Tabular column:**

No.of Mandibles	Bilateral	Unilateral
1.	Absent	Present. (Right side).
2.	Absent	Absent.
3.	Absent	Absent
4.	Absent	Absent
5.	Absent	Present. ( right side).
6.	Absent	Absent
7.	Absent	Absent
8.	Absent	Absent
9.	Absent	Absent
10.	Absent	Present. ( right side)
11.	Absent	Absent
12.	Present (right side)	Present ( left side)
13.	Absent	Absent
14.	Absent	Absent
15.	Absent	Absent
16.	Absent	Absent
17.	Absent	Absent
18.	Absent	Absent
19.	Absent	Absent
20.	Absent	Present ( left side)
21.	Absent	Absent
22.	Absent	Absent
23.	Absent	Absent
24.	Absent	Absent
25.	Absent	Absent
26.	Absent	Present ( left side)
27.	Absent	Absent
28.	Absent	Absent
29.	Absent	Absent
30.	Absent	Absent

**Size of accessory mental foramen:**

Average size is about 1mm.  
 Minimum size is about 0.6mm  
 Maximum size is about 1.5mm.

**Incidence of accessory mental foramen:**

Accessory mental foramen is observed in 6 mandibles out of 30 mandibles.

The total accessory mental foramen present during analysis is about 20% and number of accessory mental foramen present in the right side is 13% and the number of accessory mental foramen present in the left side is about 10% and the number of accessory mental foramen present in the both sides is about 3%.

**Position of accessory mental foramen:**

Position of accessory mental foramen in 2 mandibles out of 30 was found to be situated below the apex of the first molar teeth whereas it was observed to be located between the first and the second premolar in 4 mandibles out of 30 mandibles. Average distance between mental foramen and accessory mental foramen was 0.65mm .

**DISCUSSION:**

Mandible variant like any other variant may be considerable clinical, racial and regional significance. As a variation from normal especially in foramina may result, in to the unusual course of nerves and vessels of that region and clinical procedure adopted by clinicians should be accordingly adjusted and modified. Several workers have studied the significance of mandibular accessory foramina, a variant studied by present study. Reported cases of accessory mandibular foramina are very few. [6] The Accessory mental foramen are known to transmit the branches of the inferior alveolar nerve. It has been described that the presence of an AMF in the mandible also indicates that extra blood vessels traverse it, which supply the bone [7].

The embryological basis of the occurrence of the AMF and the fact that during the development, initially there will be three inferior alveolar nerves which innervate each of the 3 groups of the mandibular teeth, have been explained.[8].

Das and Suri [9]. passed a metallic wire through the AMF and examined the mandible radiographically. They observed that the canal which led from the AMF had terminated close to the root of the 3rd molar. This alternate route of passage of the nerves through the AMF and their supply to the 3rd molar might lead to the failure of the nerve block during dental surgeries. Some authors advised that the anaesthesia could be best performed at a higher level before the division of the mandibular nerve [10]. by using a technique which is known as the Gow-Gates technique

CagIrankaya and Kansu [11] Singh et al., [12]. reported AMFs below the 1st molar. But in our study, each AMF showed a variable position viz., between the 2nd premolar and the 1st molar, followed by between the 1st molar and the 2nd premolar (left side); between the 2nd premolar and the 1st molar and then between the 1st premolar and the 2nd premolar (right side). The literature on this are very sparse in Indian studies.

**CONCLUSION:**

The result of this study shows that the incidence of accessory mental foramen and this is useful in finding the great clinical especially in surgical, dental and anaesthetic field, regional and racial significances. The results of the present study may be utilized by dentists and oncologists for determining accurate site of local anaesthesia and to prevent unwanted spread of infections and tumour cells during radiotherapy through these variants respectively.

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