



## The Study on the Prevalance of Retromolar Foramen of Adult Dried Mandibles in Uttarakhand Northern Region of India and Its Clinical Significance

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### Abstract

**Aim and Objective:** *The current finding is about to observe the presence of retromolar foramen (RMF) bilaterally, on the right and on the left side and to look into the prevalence of RMF on retromolar triangle in cadaveric dry human mandible.*

**Materials and Methods:** *In this study all available 72 dry, fully ossified adult mandibles from the department of Anatomy, Shri Guru Ram Rai Institute of Medical and Health Sciences, Dehradun, Uttarakhand northern region of India had been covered barring gender and age distinction. The mandibles were observed for the presence and absence of retromolar foramen.*

**Result:** *The retromolar foramen located at 24 (33.3%) of 72 mandibles of which 7 on the right side (9.7%), 11 on the left side (15.2%), and 6 bilaterally (8%). From above statistics it is found that Retromolar Foramen located greater on Left side than the right side.*

**Conclusion:** *The knowledge about variations of the retromolar foramen is necessary for practising surgeons, it has been not properly mentioned in all textbooks so on this basis the present study is achieved to consider the incidence of the retromolar foramen and its location in human mandibles.*

**Keyword:** *Dry adult mandible, Retro molar fossa, and Retro molar foramen.*

### Introduction

A mandible is one of the most variable bone in the body, consists of flat bones. The muscle mass and ligaments attached to the mandible gives shape and character to the mandible. The ramus of the mandible has the shape of a quadrangular bone

lamina. It has 2 surfaces and 2 condyles. The anterior aspect of the mandible, ramus begins as an extension of the indirect line. It is sharp and narrow, and medially borders the extramolar sulcus (at the buccal wall of the 3rd molar)<sup>1</sup>.

The retromolar foramen (RMF) is an anatomical shape existing on the retromolar fossa. The retromolar fossa is a depression to the place it is projected into the buccinator muscle extending above the lateroalveolar canal, very essential from a clinical point of view because through this canal infections may pass to the 3rd molar easily<sup>2,3</sup>

Morphology of human mandible and its variations are very indispensable for planning of a variety of surgical tactics like mandibular reconstruction, extraction of the 3rd molar additionally viewed as wisdom tooth and for set up of dental implants<sup>4</sup>. The mandibular place consists of this tooth, its helping factors and the adjoining soft parts, the lingual nerve and the elements of paralingual space. Posterior to the third molar there is a triangular retromolar triangle and retromolar fossa laterally<sup>5</sup>. These constructions are vulnerable to damage for the period of endodontic treatment and sagittal section osteotomy surgeries. Failures in the anesthesia through way of regional blockade of the inferior alveolar nerve are saying due to the presence of these foramina<sup>6</sup>. This foramen extend as canal into the body of the mandible and is considered as an anatomical variation. Clinically, this region is susceptible for passage of infections springing up in connection with the 3rd molar<sup>7</sup>. Ossenberg proven the importance of retromolar foramen as an anatomical landmark and cautioned that the frequency of the foramen varies in accordance to ethnic factors<sup>8</sup>. Though these variations in the incidence of the retromolar foramen are integral for the practising surgeons, It has been not stated and not properly documented in all textbooks. On this basis, the contemporary discover out about is accomplished to evaluate the incidence of the retro molar foramen in the human mandible and discuss the scientific aspects associated with the presence of this foramen.

### Materials and Methods

Seventy-two Uttarakhand northern region Indian adult dried mandibles of unknown sex and age were studied at the Department of Anatomy, Shri Guru Ram Rai Institute of Medical and Health

Sciences, Dehradun for the presence of retromolar foramen. The mandibles were observed for the presence of retromolar foramen (RMF) bilaterally (figure no. 3), on the right side (Figure no.1) and left side (Figure no.2) and to look into the prevalence of RMF on the retromolar triangle in the cadaveric dry human mandibles.



**Fig 1:** Retromolar Foramen (Right side)



**Fig 2:** Retromolar Foramen (left side)



**Fig 3:** Retromolar Foramen (Bilateral)

### Discussion

The retromolar foramen (RMF) is an anatomical structure present on the retromolar fossa along

with retromolar canal in Retromolar Triangle of mandible.72 human mandibles are examined in the present study for the presence or absence of retromolar foramen without gender and age distinction.

The present study shows the retromolar foramen located at 24 (33.3%) of 72 mandibles of which 7 on the right side (9.7%), 11 on the left side (15.2%), and 6 bilaterally (8%) Table no.1. From above statistics it is found that Retromolar Foramen located greater on Left side than the right side.

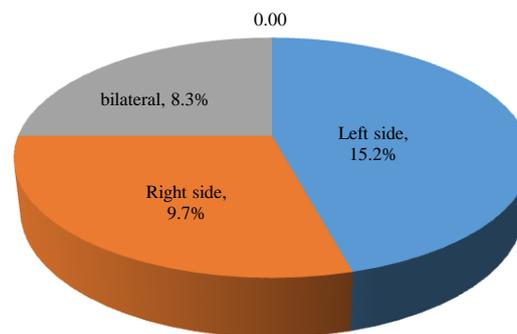
Previous study in dry mandibles and by cone beam computed tomography evaluation have revealed that the frequency of RMF ranges from 3.2% to 75.4%.The incidence of RMF located in the retromolar fossa, in our study was 33.3%, which is close to the value reported by Min-kyu park et al<sup>9</sup> (33.6%) who did a study on Koreans. It is higher than what reported by Rossi<sup>10</sup> et al 26.6% in Brazilian, but lower than that reported by Kawai et al<sup>11</sup> was 52% in Japanese. The incidences reported from Indian population are varying from 7.8 to 21.9%. The differences in the incidence of the RMF in these studies may be due to differential origin in Indian population.

In our study the greater frequency was found on the left side (15.2%). It was similar to the study reported by Motta-Junior et al<sup>12</sup> who did a study on Italians and Priya et al<sup>13</sup> who did a study on Indians. However the studies of Han and Hwang<sup>14</sup> and Narayana et al<sup>15</sup>, both reported greater frequency on the right side. There was no side preference for RMF as reported by Bilecenoglu and Tuncer<sup>16</sup>, Sawyer and Kiely<sup>17</sup>, Suazo et al<sup>18</sup> and von Arx<sup>19</sup>.

**Results**

**Table 1** Prevalence of Retromolar Foramen (n=72)

S. No.	Side	No. of Foramen	Percentage
1.	Right side	7	9.7 %
2.	Left side	11	15.2 %
3.	bilateral	6	8.3 %
4.	Total	24	33.3%



The retromolar foramen found in 24 (33.3%) of 72 mandibles of which 7 on the right side (9.7%),11 on the left side (15.2%),and 6 bilaterally (8.3%). From above data it is found that Retromolar Foramen found more on Left side than right side.

**Conclusion**

This finding about consequently without a doubt establishes the prevalence and significance of the retromolar canal. This study shows that the retromolar foramen and canal can be viewed every so often in routine dental surgery. Due to the neurovascular bundle passing through it, the retromolar canal and foramen should be kept in mind for all anesthetic and surgical approaches regarding the retromolar vicinity and mandible.

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