

Pattern of Mandibular 3rd molar Impaction in Matlab Uttar Upazila of Chandpur

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ABSTRACT

Background: Mandibular third molar impaction is a common dental condition that can lead to various complications if not managed timely and effectively. Understanding the pattern of impaction is crucial for proper treatment planning and intervention. However, there is limited information on the pattern of mandibular third molar impaction.

Objective: The objective of this study was to analyze the pattern of mandibular third molar impaction in Matlab Uttar Upazila of Chandpur, with a focus on determining the prevalence and distribution of various impaction types and positions.

Methods: This is a retrospective study of all patients who came during and after into outpatient department of Matlab Uttar Upazila of Chandpur between 2022 to 2023. Data on demography and events were collected and analyzed from outpatient department.

Results: A study was conducted to analyze the pattern of mandibular third molar impaction in Matlab Uttar Upazila of Chandpur. Out of 320 impacted third molars, the most common impaction pattern was mesio-buccal (41.88%), followed by vertical (36.88%) and horizontal (11.25%) impactions. Disto-buccal impaction was observed in 8.75% of cases, while 1.25% fell under other patterns. In terms of position, position A impactions were the most prevalent (52.5%), followed by position B (28.75%) and position C (18.75%). Additionally, the right lower third molar was more commonly impacted (52.5%) compared to the lower left third molar (47.5%). After full explanation of the study procedure informed written consent was taken. Data was collected in a pretested semi-structured questionnaire. All data was processed by the SPSS V 27.0. (Armonk, NY: IBM Corp.) Values was expressed as frequencies or mean \pm SD unless otherwise mentioned.

Conclusion: Position A was the most prevalent, with the right lower third molar being more commonly impacted compared to the lower left third molar. These findings provide valuable insights into the pattern of mandibular third molar impaction in this region, which can aid in better treatment planning and management strategies for impacted third molars.

Keywords: Pattern, Mandibular 3rd molar, Impaction.

I. Introduction

Third molars are noticeably more likely than other teeth to experience dental impaction, a pathological disease that is defined by a tooth's inability to regain its normal functional position. Particularly, the mandibular third molars in humans show the highest prevalence of impaction. In dentistry, impacted third molars are frequently found, and this disease can be successfully treated using dental procedures [1]. The larger crown size, restricted skeletal growth, inadequate space, and delayed molar maturity are some of the reasons that lead to the greater impaction rate of the third molars [2]. The third mandibular molars are the most often affected teeth overall [3]. Furthermore, the maxilla experiences impacted teeth more frequently than the mandible [3].

A lack of space between the anterior border of the mandible's ascending ramus and the distal aspect of the second mandibular molar occasionally results in impaction of the third mandibular molar. Pericoronitis, pain, caries, bone loss, incisor crowding, resorption of neighboring dental roots, trismus, food impaction, and cheek biting are among the issues linked to impacted third molars [1,2,4-6]. The third molar impaction shows up as varying angulations. Third molars can be impacted in a vertical, mesio-angular, horizontal, or disto-angular position, using Winter's classification [7,8]. The global frequency of impacted third molars varies greatly. For instance, research conducted in Hong Kong [10] found that the prevalence of mandibular impaction was much higher than that in Eritrea [9], at 27.8%. Within Japan [7], the reported frequency. According to a study done in southeast Iran [14], vertical impaction (45.3%) and mesio-angular impaction (22.2%) were the most common angulations of impaction in the maxilla, while mesio-angular impaction (48.3%) and horizontal impaction (29.3%) were the most common angulations in the mandible.

II. Methods:

The investigation conducted a retrospective analysis of outpatient of Matlab Uttar Upazila of Chandpur between 2022 and 2023. The study included individuals age 0 to 80, residing in the Bangladesh. A total of 320 cases of impacted mandibular third molars were included in the study. Data on the type and position of mandibular third molar impaction were collected from dental records and radiographs. The frequency and distribution of different types and positions of mandibular third molar impaction were analyzed using descriptive statistics. Percentage values were calculated to represent the prevalence of each impaction type and position. Data were collected and analyzed using statistical software IBM SPSS Version 26.0.

III. Results

Out of 320 impacted third molars, the most common impaction pattern was mesio-angular (41.88%), followed by vertical (36.88%) and horizontal (11.25%) impactions. Disto-angular impaction was observed in 8.75% of cases, while 1.25% fell under other patterns. In terms of position, position A impactions were the most prevalent (52.5%), followed by position B (28.75%) and position C (18.75%). Additionally, the right lower third molar was more commonly impacted (52.5%) compared to the lower left third molar (47.5%).

Table 1: Sociodemographic characteristics of patients n=

Variables	n	(%)
Distribution of age		
15-29	148	46.25
30-44	136	42.5
>45	36	11.25
Sex		
Male	212	66.25
Female	108	33.75

Table-2: Distribution of impaction according to angulation:

Variables	Frequency (n)	Percentage (%)
Mesio angular	134	41.88
Vertical	118	36.88
Horizontal	36	11.25
Disto-angular	28	08.75
Others	04	01.25

Table-3: Distribution of impaction according to position and location:

Position	Frequency(n)	Percentage (%)
Position A	168	52.5
Position B	92	28.75
Position C	60	18.75
Location		
Right lower 3rd molar	168	52.5
Lower left 3 rd molar	152	47.5

IV. Discussion:

In order to determine the prevalence and distribution of impacted third molars among patients who visited a private dental clinic in Addis Ababa, a retrospective examination of the records was conducted. During surgery, third molar impaction can present a number of difficulties, including restricted access and sight and a higher risk of nerve damage. Additionally, issues like discomfort, cysts, tumors, and infections can arise from impacted molars and impair oral health as a whole. The prevention or management of these possible issues depends heavily on routine dental examinations and prompt evaluation of the impacted molars.

The results of this study showed that 22% of third molars were damaged, which is in line with the results of another study done in Turkey [21] in 2022 by Yildirim and Büyükgöze-Dindar, where the prevalence was reported to be 23%. The prevalence found in this investigation, however, was less than that seen in a number of other investigations. For instance, 58.3% of participants in a study by Alfadil and Almajed in Saudi Arabia in 2020 [15] had impacted third molars, and 52.3% of orthodontic patients in a study by Jain et al. in 2029 in India [22] had at least one affected third molar. According to research conducted in Yemen in 2019 by Al-Shamahy and in Oman in 2014 by Al-Anqudi et al., the prevalence rates for people with at least one impacted third molar were 38.8% and 54.3%, respectively. These discrepancies could be explained by variances in the research populations between the several investigations. Our may be because most third molars erupt between the ages of 15 and 29 in our study, when the highest prevalence of third molar impaction was discovered. The study found that females had the highest rate of third molar impaction. In a similar vein, a 2019 South African study by Ishwarkumar et al. [5] found that female patients had a greater incidence of third molar impaction. This suggests that third molar impaction is more common in women, which is associated with variables that may contribute to the observed disparities between men and women, including genetics, changes in hormones, and the size of the jaw.

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Conflicts of interest:

There is no conflict of interest.

V. Conclusion:

In the study conducted in Matlab Uttar Upazila of Chandpur, it was found that mesio-buccal impaction was the most common type of mandibular third molar impaction, followed by vertical and horizontal impactions. Position A was the most prevalent, with the right lower third molar being more commonly impacted compared to the lower left third molar. These findings provide valuable insights into the pattern of mandibular third molar impaction in this region, which can aid in better treatment planning and management strategies for impacted third molars.

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