

## PATTERN OF IMPACTED MANDIBULAR THIRD MOLAR IN PATIENTS REPORTING TO DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY, KHYBER COLLEGE OF DENTISTRY, PESHAWAR

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### ABSTRACT

**Objective:** *The aim of this study was to determine the pattern of impacted mandibular third molar.*

**Materials and Methods:** *One hundred and fifty five patients were recruited in this study. Their data was collected on a specially designed proforma. Periapical x-rays and where necessary orthopantomograms were used to determine the pattern of impacted mandibular third molar.*

**Results:** *Ninety Five males and 60 females participated in this study. The age ranged from 17 to 46 years. Based on angulation, mesioangular impaction (40.6%) was the most common pattern. According to the level and relationship of the impacted tooth to anterior border of the ramus of mandible, Type IA (45.8%) was the most common pattern.*

**Conclusion:** *Majority of the patients requiring surgical removal of impacted mandibular third molar were males in their third decade. Mesioangular and Type IA were the common pattern.*

**Key Words:** *Impacted Mandibular 3<sup>rd</sup> Molar, Pell and Gregory classification, Pattern.*

### INTRODUCTION

The mandibular third molar is the most frequently impacted tooth with a frequency of 18 to 32%<sup>1</sup>. The third molar teeth are last to erupt and have a relatively high chance of becoming impacted<sup>2</sup>. The reasons for tooth impaction include several factors which can be subdivided into local and general factors. Local factors include position and size of adjacent teeth, dense overlying bone, excessive soft tissue, abnormal eruption path and inadequate dental arch length and space in which to erupt. General factors may include heredity, genetic abnormality, rickets, anemia, congenital syphilis, tuberculosis and malnutrition<sup>3,4</sup>.

Many impacted mandibular third molars remain asymptomatic for years<sup>5</sup>, however patients may present with symptoms like infection, pain, caries, root re-

sorption and limited mouth opening<sup>6,7</sup>, requiring surgical removal. Several methods have been used to classify impactions. Winter's<sup>8</sup> and Pell and Gregory<sup>9</sup> classifications are most commonly used to classify impacted mandibular third molars.

The aim of this study is to determine the pattern of impacted mandibular third molar teeth in patients presenting to Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar.

### MATERIALS AND METHODS

One hundred and fifty five patients included in the study were referred from the Out Patient Department of Khyber College of Dentistry. After consent, detailed history was taken from each patient to exclude any systemic illness, followed by clinical and radiographic examination. The data was recorded on a specifically designed proforma. Age, gender, medical condition, presence of caries, pericoronitis and infection were recorded.

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Periapical radiographs and when necessary orthopantomograms were used to determine pattern of the impacted third molar. The angulation of the impacted tooth was determined based on Winter's classification with reference to the angle formed between the longitudinal axes' of second and third molars were classified as mesioangular, vertical, horizontal and distoangular impaction.

The level of impaction was determined using Pell and Gregory classification as follows:

- Class I: The crown of the impacted mandibular third molar is completely anterior to the anterior border of the ramus of the mandible.
- Class II: Approximately one half of the crown is covered by the ramus
- Class III: The impacted mandibular third molar is located completely within the mandibular ramus.
- Position A: Occlusal surface of the impacted mandibular third molar is level or nearly level with the occlusal plane of the second molar.
- Position B: Occlusal surface of the impacted mandibular third molar is between the occlusal plane and cervical line of the second molar.
- Position C: Occlusal surface of the impacted mandibular third molar is below the cervical line of the second molar.

The data was analyzed using Statistical Package for Social Sciences (SPSS) version 17.0

**RESULTS**

A total of 155 patients with impacted mandibular third molars were included in the study. Ninety five patients were males (61.3%) and 60 patients were females (38.7%). The male to female ratio was 1.6:1. Their ages ranged from 17 to 46 years with a mean of 26.06 ± 6.67 years. The most common age group was the third decade (55.5%) followed by the second (23.2%). The details of age distribution are given in Table 1.

Table 2 shows that the most common angulation pattern was mesioangular impaction (40.6%) and the least common was distoangular impaction (9%).

Table 3 shows the level and the relationship of the impacted tooth to the anterior border of the ramus of the mandible where Type IA pattern was the most common (45.8%) and Type IIC was the least common (0.6%).

**Table 1: Age Distribution**

Age (years)	n	%
11-20	36	23.2
21-30	86	55.5
31-40	29	18.7
41-50	4	2.6
<b>Total</b>	<b>155</b>	<b>100</b>

**Table 2: Angulation Pattern**

Angulation	n	%
Mesioangular	63	40.6
Vertical	57	36.8
Distoangular	14	9.0
Horizontal	21	13.6
<b>Total</b>	<b>155</b>	<b>100</b>

**Table 3: Class and Type Pattern**

Pell and Gregory Classification	n	%
IA	71	45.8
IB	24	15.5
IC	0	0
IIA	29	18.7
IIB	26	16.8
IIC	1	0.6
IIIA	2	1.3
IIIB	2	1.3
IIIC	0	0
<b>Total</b>	<b>155</b>	<b>100</b>

**DISCUSSION**

The most frequently extracted impacted tooth is the mandibular third molar with pericoronitis being the most common cause<sup>10-17</sup>. Majority of the patients in this study were males (61.3%). Likewise, a

study in Kenya reported male predominance with a male to female ratio of 7:5<sup>2</sup>. Similarly, a study in the U.S.A reported that majority of the patients were males (57%)<sup>18</sup>. However, study in Nigeria on impacted third molars, 181 (53.55%) patients were females and 157 (46.45%) patients were males<sup>6</sup>. Similarly other studies conducted in Pakistan,<sup>17</sup> Malaysia<sup>15</sup> and Korea<sup>19</sup> also reported a predominance of the female gender with impacted third molars.

The predominant age group in this study was the third decade, which is in accordance with local and international studies<sup>16,20-22</sup>. However, in contrast to the study results reported by Khan,<sup>17</sup> very few patients were above the age of 40. This may be due to the increasing awareness about oral health and early removal of impacted third molars.

Mesioangular impaction (40.6%) was the most common pattern in this study followed by vertical impaction (36.8%). These findings correlate with studies in Nigeria,<sup>6,14</sup> USA,<sup>18</sup> Thailand<sup>23</sup> and Spain<sup>24</sup>. Likewise, it was also the most common type among Chinese (80%) and Korean populations (46.5%)<sup>1</sup>. However, a study by Bataineh<sup>10</sup> et al among Jordanian population, reported that vertical pattern of third molar impaction was the most common (61.4%) and mesioangular type was found only in 18.1% cases. A study in Barcelona by Almendros-Marques<sup>11</sup> et al also documented that vertical type of impaction was predominant (47.9%) and mesioangular pattern was found in only 20.5% cases.

Class IA impaction type (45.8%) was the most common presentation in this study, followed by Class IIA (18.7%). The least common impaction type was Class IIC. A study by Bui<sup>18</sup> et al reported that the most frequent impaction type was Class IA and IB. In contrast to these findings, Jaffar<sup>15</sup> found that among the Malaysian population Class IIA was the most common pattern of impaction (45.7%). Similarly among Nigerians<sup>6</sup> and Italians,<sup>25</sup> the highest percentage of patients presented with Class IIA pattern. However in Spanish population the predominant position was Class IIB<sup>11</sup>.

**CONCLUSION**

From this study it was concluded that:

1. Majority of the patients with impacted mandibular third molar were males.

2. The predominant age group was the third decade.
3. The most common impaction pattern was mesioangular and Class IA. There were no cases of Class IC and IIC.

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