



# Prevalence and Patterns of Third Molar Impaction among Residents of District Panchkula, India

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**INTRODUCTION:** It has been documented that third molars are the most frequently affected impacted teeth, and their prevalence varies from one geographic location to another.

**AIM:** To assess the prevalence of third molar Impaction among residents of District Panchkula, India

**MATERIALS AND METHODS:** The study adopted a cross-sectional study design and impacted molars that were observed during routine diagnostic procures that required the taking of an IOPAR were selected, after which, the patients were advised to go for an OPG to determine the number of impacted teeth as well as the angulation of those teeth.

**RESULTS:** The study comprised of 306 study subjects, with a majority of them being males (194, 63.4%); The most frequent number of third molar impactions were of one teeth (163, 53.3%), followed by two teeth (96, 31.4%). Mesioangular impaction (170, 55.5%) was the most common type, followed by vertical impactions (82, 29.8%). A significant difference was observed upon comparison of location and gender ( $p=0.04\%$ ). Odds' Ratio (OR) analysis also found that males were 1.6 times more prone of having impactions as compared to females.

**CONCLUSION:** Upon suspicion of having the presence of impacted molars, dentists of Panchkula region are advised to take an OPG and manage the same accordingly so that complications arising from an impacted tooth can be avoided.

**KEYWORDS:** Third molar, Impaction, Prevalence.

## INTRODUCTION

Failure of tooth eruption as a result of obstruction in the eruption path, inappropriate tooth position, or any other reason is termed as tooth impaction and its prevalence varies from region to region.<sup>1</sup> The causes of impaction are divided into two broad categories – local (e.g. lack of space, retained deciduous teeth, etc.) & systemic (heredity, rickets, anaemia, cleidocranialdysostosis, cleft palate etc.).<sup>2</sup>

Tooth impaction is classified according to its angulation; namely mesioangular, distoangular, horizontal, vertical and bucco-lingual. Impacted teeth can sooner or later cause complications which may manifest itself as dental caries, periapical lesions, periodontal disease, temporo-mandibular joint disorder, root resorption of adjacent teeth, formulation of oral cysts and tumors and can cause unbearable pain and unnecessary expenditure for its treatment. It is important to diagnose and manage an impacted tooth with detailed discussion between the patient and the physician, as most of the times, an impacted tooth does not present itself with any signs and symptoms and is usually diagnosed during radiographic procedures.<sup>3</sup>

Regarding the treatment of an impacted tooth, Dental surgeons are opinionated between not treating cases free of symptoms or related pathologies, due to

a higher risk of mandibular fractures. Others, believe that an impacted tooth can cause complications (e.g. periodontal problems, root resorption and caries of the adjacent tooth), and hence, an impacted tooth needs to be surgically extracted.<sup>4</sup>

Since an impacted tooth can cause an increased burden in the society, the present study was conducted to assess the prevalence of Third Molar Impaction among residents of district Panchkula, India

## MATERIALS AND METHOD

The present cross-sectional study was conducted among 306 patients visiting a satellite clinic in district Panchkula, India. The impacted molars were observed during routine diagnostic procures that required the taking of an IOPAR since no OPG machine was present in the satellite centre. Once the impacted teeth were identified, the patients were advised to undertake an OPG to determine the number of impacted molars. The inclusion criteria included patients aged >18 years. Exclusion criteria were patients who have had surgical extraction of impacted teeth, who are completely edentulous and pregnant mothers. Following the radiographic evaluation, patient's records were reviewed in terms of age, sex and presence of teeth impaction and were

entered in excel and subsequently transferred to SPSS version 22.0 and the chi squared test was applied for genderwise comparison in relation to number of impacted teeth present.

## RESULTS

Table 1. describes the distribution of the study subjects according to number of impacted teeth and gender. It was observed that males (194, 63.4%) formed a majority of the 306 subjects enrolled in the study. the most frequent number of third molar impactions were of one teeth (163, 53.3%), followed by two teeth (96,31.4%) three (44,14.8%) and four (3,0.5%) impacted teeth respectively.

Presence of the impactions in relation to its type are depicted in table 2. The most common impaction observed was mesioangular impaction (170, 55.5%), followed by vertical impactions (82,29.8%). A significant difference was observed upon comparison of location and gender ( $p=0.04$ ). Odds' Ratio (OR) analysis also found that males were 1.6 times more prone of having impactions as compared to females.

## DISCUSSION

The present study with an aim to assess the prevalence of third molar impaction among residents of revealed that the most common observation was the impaction of one teeth (163, 53.3%) with a male predilection (194, 63.4%). The results of the present study are in agreement with Hassan AH who documented the maximum presence of one impacted third molar in his study subjects.<sup>5</sup> The observations in the present study are however, contra-indicated by Al-Anqudi SM et al. [maximum presence of two impacted molars, (41%)],<sup>6</sup> and Quek et al.<sup>7</sup>

It was also highlighted in the results of the present study that impacted teeth had a male predilection (194, 63.4%) and these findings are in contrast with various authors (Quek et al.,<sup>7</sup> Kumar VR et al.,<sup>8</sup> Kim JC et al.<sup>9</sup> and Hashemipour MA et al.<sup>10</sup>) who document a female predominance of impacted teeth in their respective studies. It is also important to note that no differences in predilection of third molar impactions have been observed by various authors (Bishara SE et al.,<sup>11</sup> Hattab FN et al.,<sup>12</sup> and Haidar Z et al.<sup>13</sup>)

The most common type of impaction was mesioangular impaction (170,55.5%) and it was in

agreement with various authors.<sup>10,14-16</sup> The reason for such an observation has been explained by Hashemipour MA et al.<sup>10</sup> who reason that this occurrence may be due to the late development and maturation of third molars, path of eruption and lack of space in mandible/maxilla at a later age. In contrast, Bataineh AB et al.<sup>17</sup> and Haider et al.<sup>18</sup> documented vertical impaction as the most common impaction in their respective study.

Statistical significances were found upon gender-wise comparison of third molar impaction among the study subjects ( $p=0.04^*$ ) and was in agreement to Kumar VR et al.<sup>8</sup> ( $p = 0.032$ ). Aitasalo K et al.<sup>19</sup> further documented that upon assessing the prevalence of the third molars among different age-groups, a decrease was found with an increase in age of the study subjects.

## CONCLUSION

From the results of the present study, dental clinicians are advised that upon examining their patients, if the suspicion of having an impacted third molar(s) arises, the use of an OPG can help in management of the impacted tooth/teeth to avoid complications arising from the same.

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## LEGENDS

No. of Impacted Teeth	Females [n,(%)]	Males [n,(%)]	Total [n,(%)]
1	57 (18.6)	106 (34.6)	163 (53.3)
2	34 (11.1)	62 (20.3)	96 (31.4)
3	21 (6.8)	23 (7.5)	44 (14.8)
4	0 (0)	3 (0.5)	3 (0.5)
<b>Total</b>	<b>112 (36.6)</b>	<b>194 (63.4)</b>	<b>306 (100)</b>

**Table 1.** Distribution of the study subjects according to number of impacted teeth and gender (Percentages rounded off to the nearest decimal)

	Impacted Molars		Total [n,(%)]	P value (chi-square test), OR
	Females [n,(%)]	Males [n,(%)]		
Mesioangular	59 (19.3)	111 (36.3)	170 (55.5)	<b>0.004</b> <b>Odd's Ratio (M:F)</b> <b>=1.6</b>
Vertical	29 (9.5)	53 (17.3)	82 (29.8)	
Distoangular	21 (6.8)	28 (9.2)	49 (16.0)	
Horizontal	2 (0.4)	1 (0.3)	3 (0.5)	
Other	1 (0.3)	1 (0.3)	2 (0.4)	
<b>Total</b>	<b>112 (36.6)</b>	<b>194 (63.4)</b>	<b>306(100)</b>	

**Table 2.** Presence of the impactions in relation to its type (Percentages rounded off to nearest decimal)