IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 21, Issue 1 Ser.3 (January. 2022), PP 01-06
www.iosrjournals.org

Prevalence of Impacted Third Molar in Thiruvallur District

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Aim. To evaluate the prevalence of impacted third molar in the Department of oral medicine and radiology of Priyadharshini dental college and hospital and compare between male and female subjects. Method. This cross-sectional study comprised of who attended dental clinics in the Department of oral medicine and radiology of Priyadharshini dental college and hospital. Patients' dental records and panoramic radiographs were reviewed retrospectively. Impacted teeth were recorded from panoramic radiographs. The Pearson chi-squared test was performed to determine gender differences regarding impacted teeth.
Results. The study included radiographs of 250 patients with a sample of 1000 teeths . the total number of impacted teeth was 926 in the sample, out of which 462 (92%) were in the upper arch and 464 (93%) in the lower arch. More females (53.60%) than males (46.40%) had impacted teeth totally (1.0%). There was a high prevalence of impacted teeth. Females demonstrated a higher occurrence of impacted teeth than males. Early detection of impacted teeth can help prevent malocclusion and maintain a healthy dentition. The prevalence of impacted teeth among male and female reported in department of oral medicine and radiology of priyadharshini dental college and hospital were p=0.108

Date of Submission: 20-12-2021 Date of Acceptance: 04-01-2022

I. Objective:

To assess the prevalence of impacted Third molar and compare between male and female subjects based on the retrospective analysis of panoramic radiographs obtained at the Department of oral medicine and radiology of Priyadharshini dental college and hospital.

Inclusive criteria:

Patient aged from 18 years and older, both male and female were selected

Only panoramic radiograph showing a high technical standard, allowing for proper visualization of all quadrants were selected.

Patient has permanent dentition and roots of impacted teeth were fully formed.

Presence of second molar adjacent to the impacted third molar

No filling for wisdom teeth or the second molar been undertaken before the study

Exclusive criteria:

Totally edentulous patients were excluded

Patient exhibiting one or more pathological condition and hereditary disease or syndrome.

Incomplete or missing data were excluded.

II. Material And Methods:

In this retrospective, cross-sectional study, panoramic radiograph of 200 patients attending Oral Medicine and Radiology Department of Priyadharshini dental college and hospital were reviewed for the presence of impacted teeth. All images were evaluated to determine the prevalence and pattern of impacted third molars. The demographic details such as patient age, gender were obtained from dental records.

Radiographic image were analysed using tools resource available at maximum magnification. Data were entered into spreadsheet specifically designed for the purpose of this study.

Classification of impacted mandibular third molar level, position, and depth determined by panoramic radiograph according to the following classification: A) Pell and Gregory radiographic classification with respect to mandibular ramus into: Class I, Class II, and Class III;10 B) Pell and Gregory radiographic classification for the occlusal plane: Class A, Class B, and Class C;10 and C) based on winter's classification: mesio-angular, distoangular, horizontal, vertical, buccal/lingual obliquity, and transverse. Classification of

impacted maxillary third molar: Class A, Class B and Class C, and sinus approximation/no sinus approximation and tooth location (maxillary and mandible).

A case definition was used for impacted teeth. &The impacted teeth were those teeth that were prevented from eruption within path of eruption due to a physical barrier such as the adjacent teeth, bone, or soft tissue. Teeth were considered impacted if they remained in the jaw for more than two years beyond their average eruption time. & The records were included in the analysis if patients had permanent dentition, and the roots of the impacted teeth were fully formed in the radiographs. cases in the archived records that met the inclusion and exclusion criteria were included in the study. patients were excluded from the study if they exhibited one or more pathological situations (endocrinal deficiency such as hypothyroidism, hypopituitarism, trauma, or fracture of the jaw) and hereditary diseases or syndromes such as Down's syndrome and cleidocranial dysostosis. patients were excluded because the normal growth of permanent dentition can be affected due to these conditions. Statistical analysis was performed by Microsoft Office 2013 (Excel) and IBM SPSS Statistics for Windows, Version 22.0. Incomplete or missing data were excluded from the statistical analysis. Descriptive statistics included frequencies, percentages, means, and standard deviations. A chi-squared test was performed to compare the proportions of impacted teeth and spaces occupied between male and female study participants. A P value ≤0.05 was considered statistically significant.

Ethical consideration**:** Ethical approval will be obtained from the Institutional Ethical committee of Priyadhashini dental college and hospital, Pandur, Tiruvallur. a waiver of informed consent was approved for this retrospective study. Confidentiality of data was ensured by the commitment of the principal investigator, and by using codes for all study subjects included in this study.

III. Result:

The study analyzed data of 250 patients with mean gender of female 0.53±1.2 and male 0.46± 0.8. Maxillary and mandibular third molars from 250 panoramic radiographs were examined, of the 1000 jaw quadrants were inspected for impaction. Of the total 250 patients, 926 patients had impacted teeth and 74 patients had no impaction. According to statistical analysis of our study, we found that the impacted mandibular third molar were the most prevalent impacted tooth. The total number of impacted mandibular third molars were 464. The second most prevalent impacted tooth was the maxillary third molar. The total number of impacted maxillary third molar were 462. Among 462 maxillary third molar, 34.2% has class A followed by class C (30.4%) then class B (27.8%). The greater proportion in maxillary third molar had vertical angulation (52.0%) followed by distoangular (23.2%) then mesioangular (11.6%) and horizontal (4.2%) (TABLE 1) (Fig:1). Among 464 impacted mandibular third molar, 37.0% has class 2 followed by 30.6% class 3 then 25.2% class 1, And 26.0% has class A followed by 22.4% class B then 13.2% class C. The greater proportion in mandibular impacted third molar had vertical angulation (47.6%) followed by mesioangular (32.6%) then horizontal (7.6%) and distoangular (3.0%), oblique (1.4%) (TABLE 2) (FIG: 2). According to the frequency and percentage of impacted teeth female patients 134 (53.6%) had more impacted teeth then male patients 116 (46.4%) TABLE 3 (FIG:3). The prevalence of impacted tooth among different genders shows no significant differences. (p=0.108). TABLE 4,5.

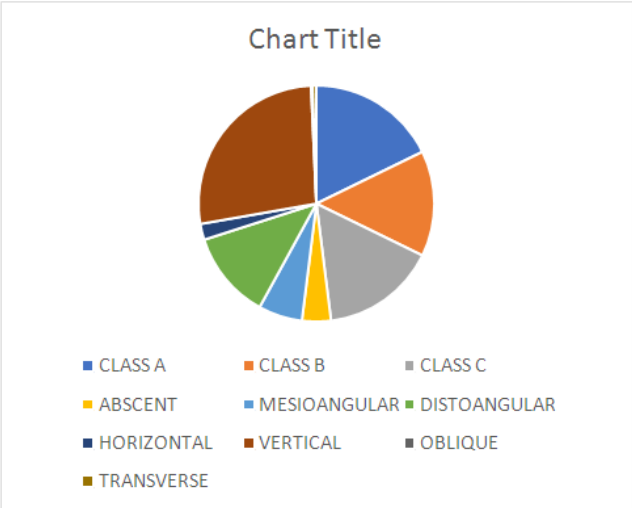

FIGURE 1: percentage of maxillary impacted third molar according to its crown position, level and angle.

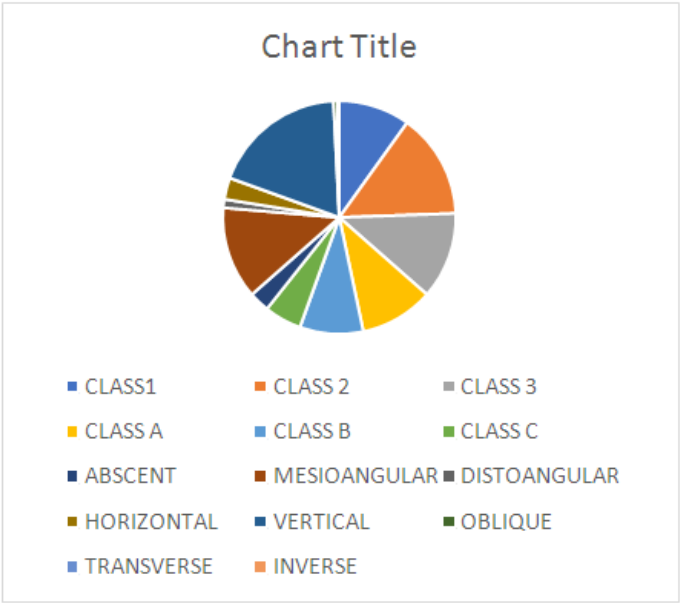

FIGURE2: percentage of mandibular impacted third molar according to its crown position, level and angle.

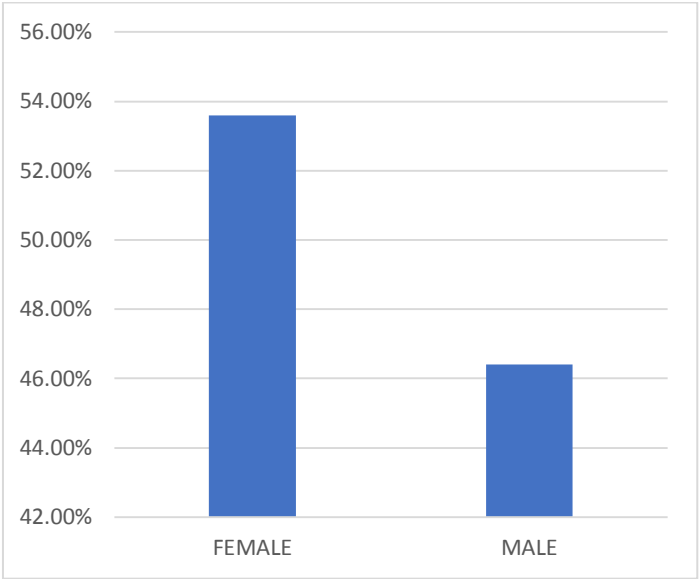

FIGURE 3: percentage of impacted teeth in male and female patients.

IV. Discussion

This retrospective analysis of radiographs showed that the prevalence of impacted third molar was 92.6% in patients attending Oral Medicine and Radiology Department of Priyadharshini dental college and hospital were reviewed for the presence of impacted teeth.

In this study, impacted teeth were diagnosed in 116 male and 134 female subjects. However, our analysis showed no significant differences in occurrence of impacted teeth between male and female study participants, which agrees with the findings of the other similar studies, Fardi et al. detected the existence of more impacted third molar in females (54.1%) than males (45.9%), but there were no significant gender differences. Chu et al. demonstrated impacted teeth with a male to female ratio of 1 :1.2. Among Brazilian patients, Pedro et al. observed no significant association between gender and impaction of teeth; however, authors identified strong influences of age and type of tooth on tooth impaction. Recently, Arabion et al. also found no significant difference in the prevalence of impacted teeth between male (42.6%) and female (57.4%) patients in Iran [20].

To our knowledge, this study is the first to provide valuable information about the prevalence of different types of impactions in patients attending Oral Medicine and Radiology Department of Priyadharshini dental college and hospital. The study filled knowledge gap on the distribution of impacted teeth. In particular, the impactions of molars were highlighted in the study. However, there were some limitations to the study as

well. Females tend to seek for more dental care than males because they are more concerned with their esthetics. This might have led to an increased number of radiographic records of females included in our study and the resultant higher impaction rate among females than males. Although, our sample size was close to some other previous studies. However, it was possible that a larger sample size in our study could affect the prevalence of impacted teeth. The inclusion of this large group of participants, however, could influence the prevalence figures in our study. It is known that a random sample is appropriate to represent the population of the province and to provide accurate prevalence estimates of impacted teeth. However, a representative sample of the population was a challenge because exposing the randomly selected study participants to radiation is unethical and costly. Therefore, caution should be exercised when generalizing the study findings.

CONFLICT OF INTEREST

The authors declare that there are no conflict of interest regarding the publication of this paper.

TABLE 1: The frequency and percentage of maxillary impacted third molar according to its crown position, level and angle.

Pattern of impaction	**Frequency**	**Percentage%**
CLASS A	171	34.20%
CLASS B	139	27.80%
CLASS C	152	30.40%
MESIOANGULAR	58	11.60%
DISTOANGULAR	116	23.20%
HORIZONTAL	21	4.20%
VERTICAL	260	52.00%
OBLIQUE	2	0%
TRANSVERSE	5	1.00%
INVERSE	0	0%

TABLE 2: The frequency and percentage of mandibular impacted third molar according to its crown position, level and angle.

PATTER OF IMPACTION	**FREQUENCY**	**PERCENTAGE%**
CLASS 1	126	25.20%
CLASS 2	185	37.00%
CLASS 3	153	30.60%
CLASS A	130	26.00%
CLASS B	112	22.40%
CLASS C	66	13.20%
MESIOANGULAR	163	32.60%
DISTOANGULAR	15	3.00%
HORIZONTAL	38	7.60%
VERTICAL	238	47.60%
OBLIQUE	7	1.40%
TRANSVERSE	0	0%
INVERSE	3	0.60%

TABLE 3: The frequency and percentage of impacted molar male and female.

GENDER	FREQUENCY	PERCENTAGE%	MEAN VALUE And STANDARD DEVIATION
MALE	116	46.40%	0.536±1.2
FEMALE	134	53.60%	0.464±0.8

TABLE 4: Prevalence of maxillary impacted tooth among different genders

ROW	FEMALE(P-VALUE)		MALE	
CLASS A	102 (0.37)		78 (0.42)	
CLASS B	50 (3.87)		74 (4.4)	
CLASS C	90 (1)	P- VALUE (0.379)	62 (1.14)	P-VALUE(0.290)
MESIOANGULAR	24 (0.57)		28 (0.66)	
DISTOANGULAR	56 (1.33)		34 (1.52)	
HORIZONTAL	12 (0.09)		8 (0.11)	
VERTICAL	146 (0.32)		142 (0.36)	
OBLIQUE	2 (1)		0 (1)	
TRANSVERSE	2 (0)		2 (0)	
INVERSE	0 (0)		0 (0)	

TABLE 5: prevalence of mandibular impacted tooth among different genders

ROW	FEMALE		MALE	
CLASS A	44 (4.26)		68 (4.92)	
CLASS B	108 (0.08)		100 (0.092)	
CLASS C	96 (4.68)		48 (5.38)	
CLASS 1	120 (0.38)	P-VALUE (0.140)	118 (0.44)	P-VALUE (0.077)
CLASS 2	52 (0.28)		52 (0.33)	
CLASS 3	76 (1.86)		46 (2.122)	
MESIOANGULAR	78 (0.11)		74 (0.126)	
DISTOANGULAR	16 (1.33)		6 (1.6)	
HORIZONTAL	12 (1)		18 (1.142)	
VERTICAL	134 (0.007)		116 (0.008)	
OBLIQUE	6 (1)		2 (1)	
TRANSVERSE	0 (0)		0 (0)	
INVERSE	0 (1)		2 (1)	

P value -0.108

V. **Conclusion**:

The study found high prevalence of impacted third molar In Thiruvallur district. Impactions occurred more frequently in the lower than the upper arch. The most common cause of impaction was the premature loss of primary teeth. Females demonstrated greater impactions than males. Early detection of impacted teeth should be performed to prevent malocclusion and to maintain a healthy and normal dentition, which would improve esthetics and masticatory functions.

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B. Karthika, et. al. "Prevalence of Impacted Third Molar in Thiruvallur District." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(01), 2022, pp. 01-06.