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ORIGINAL RESEARCH

Predictivity of mandibular third molar position as a risk indicator for pericoronitis- A prospective study

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ABSTRACT:
Background: Pericoronitis is a painful, debilitating infection. The present study was undertaken to predict mandibular third molar position as a risk indicator for pericoronitis. **Materials & Methods:** The present study was conducted on 84 patients with pericoronitis of both genders. A thorough clinical examination was done and radiographs were taken. Theamount of the occlusal surface covered by the pericoronal soft tissues was recorded as a visual estimate in 25, 50, 75and 100%.Angulation of third molar was measured as follows: vertical, ±10 degrees, mesioangular, (11–70) degrees, distoangular, (11–70) degrees and horizontal, greater than ±71 degrees. **Results:** Out of 84 patients, males were 30 and females were 54. Vertical impaction was seen in 32, mesio angular in 22, disto angular in 20 and horizontal in 10. The difference was significant (P< 0.05).25% soft tissue coverage was seen in 6, 50% in 10, 75% in 48 and 100% in 20. The difference was significant (P< 0.05). Vertical impactions were associated with the maximum episodes of pericoronitis; difference between the types of angulations was statistically significant. **Conclusion:** Vertical impaction was most commonly seen. There was correlation between vertical impaction and pericoronitis.
Key words: Third molar, Impaction, Pericoronitis.

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INTRODUCTION

Dental caries, root resorption, cystic processes, periodontitis, periapical infection, benign or malignant tumors of odontogenic origin, and inflammatory processes (pericoronitis) are among the various pathologic conditions that are frequently associated with unerupted or partially erupted third molars.[1] Pericoronitis is a painful, debilitating infection that is most commonly found among young adults with erupting mandibular third molars and accounts for approximately 10% of the third molars extracted. The associated spectrum of symptoms can range from mild, low-grade pain to sharp or throbbing pain, redness, swelling, purulence, limited mouth opening, fever, lymphadenopathy, halitosis, pharyngeal involvement, and systemic toxemia.[2]

Although third molars with a proper positioning normally emerge between the ages of18 and 24 years, approximately 40% fail to erupt and thus become partially or completely impacted in the bone. Third molars may also lead to arch crowding and interfere with the stability of orthodontic treatment. Thus, prophylactic extraction may be considered before occurrence of such consequences.[3]

Analysis of eruption patterns of the impacted mandibular molars may lead to early prediction and diagnosis of the various pathologies associated with the impacted mandibular molar. Although there seems to be no universally acceptable predictive criteria for third-molar eruption involving subsequent impaction or pericoronitis, the relation of incidence of pericoronitis to the position of the third molar is of particular concern.[4] The present study was undertaken to predict mandibular third molar position as a risk indicator for pericoronitis.

MATERIALS & METHODS

The present study was conducted in the department of Oral & Maxillofacial surgery. It comprised of 84 patients with pericoronitis of both genders. All were informed regarding the study and written consent was obtained.

General information such as name, age, gender etc. was recorded. A thorough clinical examination was done and radiographs were taken. The presence of sharp or throbbing pain, redness, swelling,

and/or purulence associated with the third molar was termed as pericoronitis. The presence of limitations of mouth opening, discomfort on swallowing, fever, lymphadenopathy and halitosis were also recorded.

The amount of the occlusal surface covered by the pericoronal soft tissues was recorded as a visual estimate in 25, 50, 75and 100%.Angulation of third molar was measured as follows: vertical, ±10 degrees, mesioangular, (11–70) degrees, distoangular, (11–70) degrees and horizontal, greater than ±71 degrees. Results were subjected to statistical analysis. P vale less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

	Total- 84	
Gender	Male	Female
Number	30	54

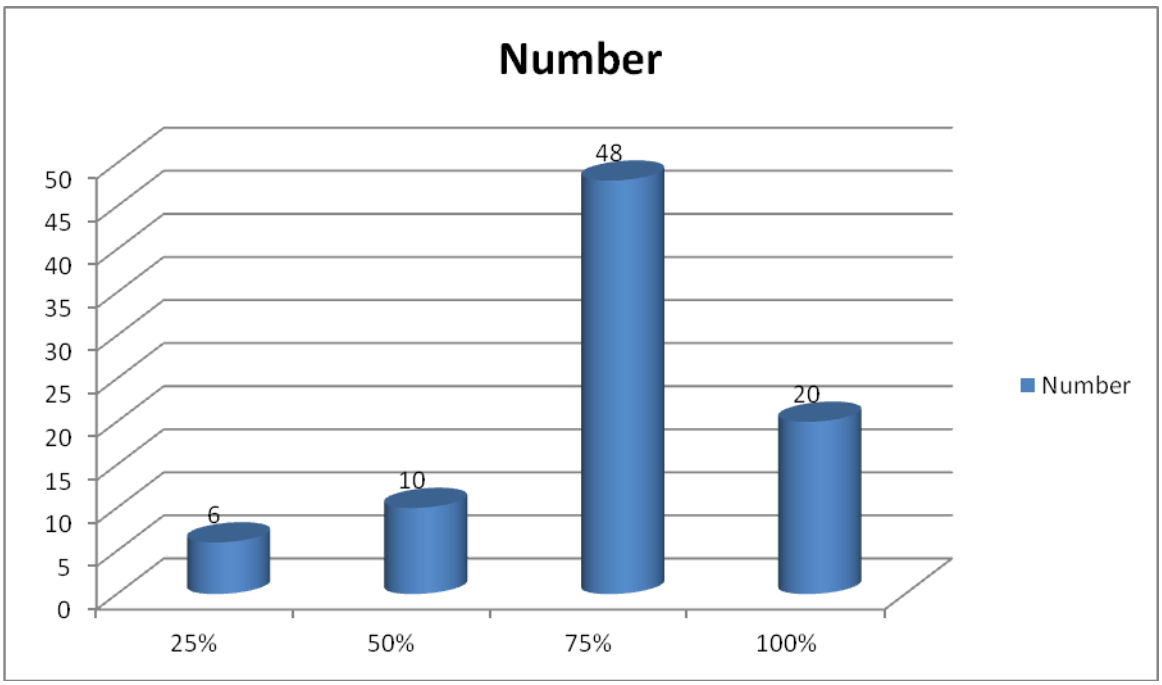
Table I shows that out of 84 patients, males were 30 and females were 54.

Table II Distribution of pericoronitis

Type	Number	P value
Vertical	32	0.01
Mesioangular	22	
Distoangular	20	
Horizontal	10	

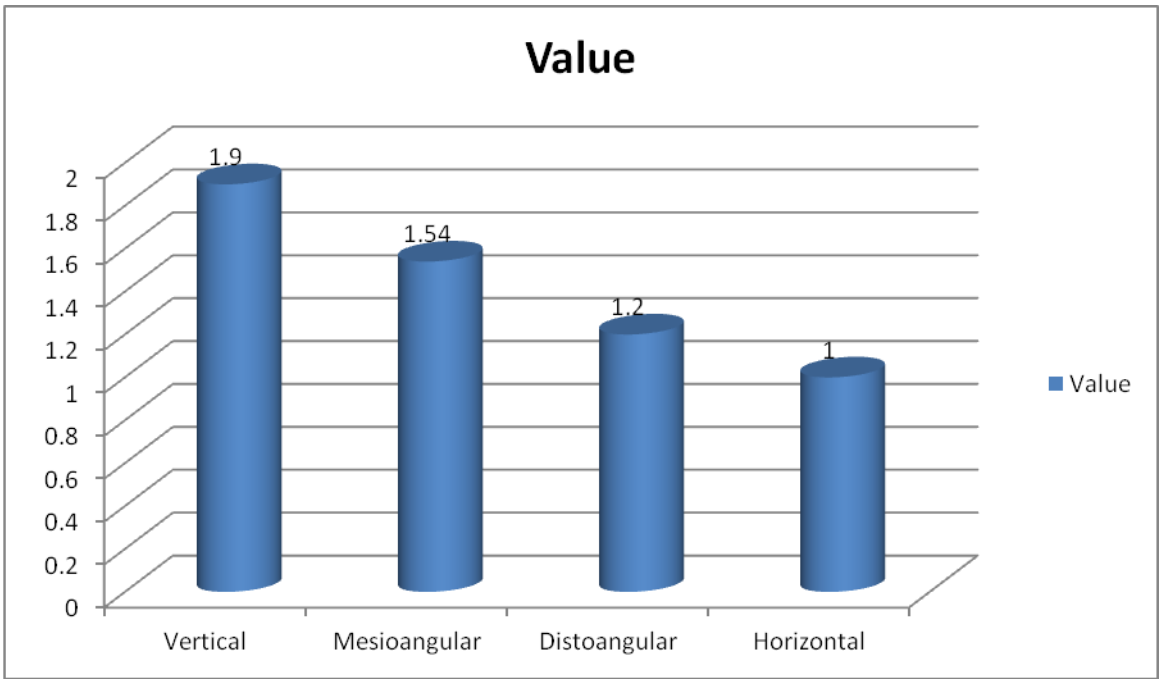
Table II shows that vertical impaction was seen in 32, mesio angular in 22, disto angular in 20 and horizontal in 10. The difference was significant (P< 0.05).

Graph I Extent of soft tissue coverage



Graph I shows that 25% soft tissue coverage was seen in 6, 50% in 10, 75% in 48 and 100% in 20. The difference was significant (P< 0.05).

Graph II Correlation between angulation and frequency of pericoronitis



Graph II shows that vertical impactions were associated with the maximum episodes of pericoronitis; difference between the types of angulations was statistically significant evaluated using ANOVA test.

DISCUSSION

Pericoronitis is classified into chronic and acute. Chronic pericoronitis can present with no or only mild symptoms and long remissions between any escalations to acute pericoronitis. Acute pericoronitis is associated with a wide range of symptoms including severe pain, swelling and fever. Sometimes there is an associated pericoronal abscess.[5] This infection can spread to the cheeks, orbits and other parts of the face or neck, and occasionally can lead to airway compromise requiring emergency hospital treatment. The treatment of pericoronitis is through pain management and by resolving the inflammation.[6] The inflammation can be resolved by flushing the debris or infection from the pericoronal tissues or by removing the associated tooth or operculum. Retaining the tooth requires improved oral hygiene in the area to prevent further acute pericoronitis episodes. Tooth removal is often indicated in cases of recurrent pericoronitis.[7]The present study was undertaken to predict mandibular third molar position as a risk indicator for pericoronitis.

In present study, out of 84 patients, males were 30 and females were 54. Vertical impaction was seen in 32, mesio angular in 22, disto angular in 20 and horizontal in 10. The correlation between pericoronitis and angulation of the mandibular third molar has previously been reported.[8] The majority of pericoronitis cases were demonstrated to be associated with the vertically oriented mandibular third molars (81%); of the 20. 9% were at or below the height of the occlusal plane of the arch.[9]Leone et al.[10] described the tooth at highest risk as the mandibular third molar that is fully erupted, vertically positioned, in contact with the second molar at or above the occlusal plane, and partially encapsulated by soft and hard tissues. Evidence indicates that third molars partially covered by soft tissue proceeded many more pathologic problems than molars covered by tissue or are erupted.

We found that 25% soft tissue coverage was seen in 6, 50% in 10, 75% in 48 and 100% in 20. Vertical impactions were associated with the maximum episodes of pericoronitis; difference between the types of angulations was statistically significant.

Sasano et al[11] found that vertical impaction was the most frequent angulation (51%), horizontal impaction was quite rare (3%). Mesioangular impaction (25%) was slightly higher than distoangular impaction (21%). Difference between type of angulation was statistically significant for all groups. The frequency of partial soft tissue coverage, particularly 75% coverage, was far more observed than the full soft tissue coverage (47%). The difference for the amount of soft tissue coverage was statistically significant. In 57% of the cases, pericoronitis was associated with the third molars that erupted at the same level of the adjacent tooth occlusal plane. The difference among the three levels of eruption was significant. Impinging maxillary dentition did not have a significant impact on development of pericoronitis (41%).

Bataineh et al[12]reported that pericoronitis cases were much seen in female patients (56.7%) than male patients (43.3%). Singh et al[13] in their study, a total of 120 patients ranging in age from 18 to 55 years suffering from pericoronitis were examined. Subjective and objective observations were recorded that included the age, gender, angulation of partially impacted mandibular third molar, the frequency of pericoronitis in a year, the presence of impinging maxillary third molar, the extent of soft tissue coverage over the impacted mandibular third molar, the clinical signs evaluated in the patient, the class and position of the impacted mandibular third molar, and the presence of distal radiolucency with respect to the impacted mandibular third molar.The results obtained in the study indicate that pericoronitis is associated more in the age group of 26–35 years and is more commonly reported in the

female gender. Distoangular partially impacted mandibular third molars impacted at Class II and position B seemed to be at the highest risk of developing pericoronitis.Kurchid et al[14] in their study found that distomolar impaction had more pericoronitis rate. Lysell et al[15] observed that pericoronitis is one of the main indication for removal of mandibular third molar. The limitation of the study is small sample size and position of opposite teeth was not taken into consideration.

CONCLUSION

Vertical impaction was most commonly seen. There was correlation between vertical impaction and pericoronitis.

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