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Research Paper: Indications for Prophylactic Removal of Unerupted Asymptomatic Pathology-free Third Molars Referred by Iranian Orthodontists

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ABSTRACT

Introduction: The management of asymptomatic impacted wisdom teeth remains a controversial issue. Although oral surgeons usually extract such teeth, but orthodontists often manage the condition. Because not only majority of orthodontic patients have asymptomatic impacted wisdom teeth but also some of them need to be extracted for orthodontic issues or to complete orthodontic therapy. This study aimed to determine the indications for referral of unerupted asymptomatic pathology free third molar prophylactic removal by Iranian orthodontists.

Materials and Methods: A questionnaire containing 12 panoramic radiographs was prepared and sent to the email inboxes of all orthodontists in Iran. The radiographs were obtained from dental school of Guilan University of Medical Sciences. Kruskal-Wallis test and Mann-Whitney analysis were used to determine the differences in responses to questions about clinicians' experience, age, sex, and the place of graduation. Level of significance was considered to be 0.05 or less.

Results: In this study, 52 out of 304 orthodontists answered our survey. Out of the total participants, 63.5% were men and 36.5% were women. Mean (SD) age of the study samples was 40.9(8.9) years and their mean (SD) professional practice experience was 10.8(7.8) years. All younger orthodontists (30-39 years old) agreed with the idea of removing the third molar due to lack of space. Most of these orthodontists (91.5%) were graduated from Iran.

Conclusion: The most common reasons of third molar removal are deviation in eruption path, lack of space in posterior region, and lack of antagonist. Mandibular third molar is usually extracted to prevent late anterior crowding. It was found that there was a correlation between referral for tooth removal due to lack of space and the referring clinicians' sex. Although 21.2% of orthodontists believe that third molar tooth can cause late anterior crowding, only 3.8% of them referred these cases because of this problem.

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1. Introduction

Third molars usually first appear on radiograph of people aged 5 to 16 year [1, 2]. They often have a mesial inclination at first which then progressively becomes upright and generally erupts between 18 and 24 years of age [3-5]. Being the last teeth to erupt, they are usually impacted due to lack of space [6]. Impacted wisdom teeth may be either symptomatic or asymptomatic. Both conditions may associate with pathological changes such as pericoronitis, periodontitis, root resorption, caries, cysts, or tumors. If third molar is associated with pathological changes or pain; then the choice of treatment is surgical removal [7].

Prophylactic removal of impacted asymptomatic disease-free third molars is defined as a surgical procedure in which the patient dose not present or has not presented any symptoms or pathologies associated with these third molars [8, 9]. Regardless of numerous attempts to describe the role of third molars in causing late anterior crowding, the issue is still controversial [8, 10]. Despite general consensus on symptomatic impacted third molar removal, the management of asymptomatic impacted wisdom teeth remains a controversial issue. Orthodontists are often involved in making a proper decision for such teeth management. Majority of orthodontic patients have asymptomatic impacted wisdom teeth, which some of them eventually should be extracted for orthodontic reasons or to complete orthodontic therapy [9, 10]. Each decisions on this issue, e.g., retention versus prophylactic removal of these teeth, should be based on scientific evidence [11, 12].

Guidelines for the removal of both symptomatic and pathologic third molars and asymptomatic pathology-free third molars are justified. However, routine asymptomatic third molar removal fails the test of evidence-based dentistry and is in contrast with our primary obligation as doctors to "do no harm." Although in the mid-20th century some authors recommended early extraction of all third molars, in the 21st century the routine removal of asymptomatic pathology-free third molars is outdated and an invalid excuse [12-15].This study aimed to review the indications for referral of unerupted asymptomatic pathology-free third molar prophylactic removal by Iranian orthodontists. This study could help us evaluate the efficacy of supplemental courses in this field in Iran.

2. Materials and Methods

A survey consisting of three parts was developed, which required some personal information of the participants such as sex, age, etc. In the first part, there are questions related to the indications of referral for third molar removal. The second and the last part contained 12 panoramic radiographs containing impacted third molars in either upper or lower jaw to evaluate the orthodontists' judgments. To verify the content validity (CVI and CVR) of the survey, we called the professional evaluation of a panel of orthodontists in Guilan University of Medical Sciences. According to the evaluation, the CVR was low (<0.62) only for the fourth radiograph, which was replaced with another one and CVI of one of the questions had borderline score (74%), which was revised. All other items had strong validity index (CVI>90%).

The survey was designed using Google account as an internet survey tool and distributed to all orthodontists in Iran in 2017. E-mail addresses of the orthodontists were obtained from web pages of the dental schools in Iran and Iranian association of orthodontists (n=304). Follow up E-mail were sent three times within a period of 2 months, too. Kruskal-Wallis and Mann-Whitney analyses were used to determine the differences in responses to questions with respect to the clinicians' professional practice experience, age, sex, and the place of graduation. P value less than 0.05 was considered significant.

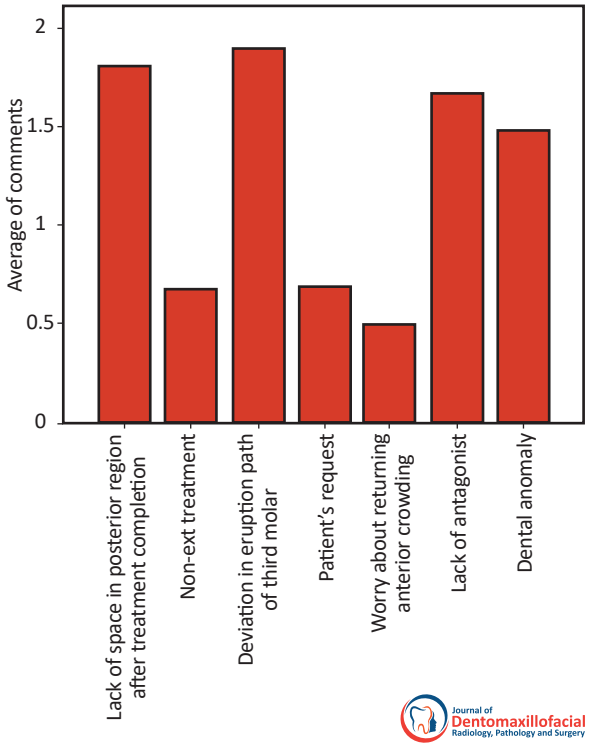

Figure 1. Reasons for removal of third molar

Table 1. Individual & Social characteristics of participants

Characteristics		Number	Percent
Sex	Male	33	63.5
	Female	19	36.5
	Total	52	100.0
Age (yrs)	30-39	26	50.0
	40-49	17	32.7
	>50	9	17.3
	Total	52	100.0
Place of graduation	In country	45	86.5
	Overseas	7	13.5
	Total	52	100.0
Professional practice experience (yrs)	<5	17	32.7
	6-10	12	23.1
	10<	23	44.2
	Total	52	100.0

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3. Results

Of 304 questionnaires that were sent, only 52 returned with answer. Men constituted 63.5% of the sample and 36.5% were women. The mean (SD) age of respondents was 40.9(8.9) years and their mean (SD) professional practice experience was 10.8(7.8) years. Of the total participants, 86.5% studied in Iran and 13.5% in overseas (Table 1).

All the samples who belonged in the age group of 30-39 years agreed with the idea of removal of the third molar owning to lack of space. Of the participants who were in favor of removal of the teeth due to lack of space, 91.5% had studied in Iran. According to the answers, the most popular reason for removal of third molar are deviation in eruption path, lack of space in posterior region, and lack of antagonist (Figure 1). We found a positive correlation between the age of the practitioner and tooth removal because of lack of space in posterior region (P=0.014). It means that younger professionals were more in favor of such references. There was also a correlation between the sex of the practitioner and two of the removal reasons-patient's request (P=0.029) and lack of antagonist (P=0.045). The finding showed that most of the participants (96.2%) disagreed with prophylactic removal to avoid future relapse. We also found a correlation between the place of graduation and lack of space (P=0.001). We didn't find any correlation between professional practice experience and removal reasons. We also found a correlation between late anterior crowding concern and the seventh and eighth panoramic clichés (P=0.042, P=0.049, respectively).

4. Discussion

The current study aimed to evaluate the opinion of Iranian orthodontists, and the relationship between their decision-making process and some variables as their different cultures, place of graduation, sex and professional practice experience.

In 2009, Eser Tüfekçia et al. [13, 16] compared Swedish orthodontists' opinions about the role of erupting third molars as a cause of dental crowding with their

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fellow American orthodontists. They found that most of the American and Swedish orthodontists believe that third molar eruption exerts an anterior force. In spite of this belief, they think that these teeth "rarely" or "never" cause late crowding. In 2007, Steven et al. [14, 10] reported that orthodontists and oral surgeons point of view, mandibular third molars are more likely to cause late crowding and because of that they often remove these teeth prophylactically.

We found that although 21.2% of orthodontists in Iran believe that third molar can cause late crowding but only 3.8% of them referred their patients for prophylactic removal to prevent future relapses. They believe that late crowding concern results in mandibular third molar removal in comparison to maxillary third molar. This finding is consistent with the results of three other studies conducted by Steven et al., Eser Tüfekçia et al., and Snug Jin Kin et al. [13, 14, 16, 10].

This study also showed that the clinicians' sex and their place of graduation could affect their decision-making. It was indicated that almost every man agreed with the idea of third molar removal if it did not have any antagonist tooth, and most of the men disagreed with prophylactic removal because of patient's request. About the place of graduation, most clinicians who had studied in Iran, were in agreement with asymptomatic pathologic-free third molar removal and the striking reason was lack of space.

5. Conclusion

According to the answers of Iranian orthodontists, the three most significant reasons for asymptomatic pathology-free third molar removal are deviation in eruption path, lack of space in posterior region, and lack of antagonist. Mandibular third molar is usually extracted to prevent late anterior crowding. Although 21.2% of orthodontists believe that third molar can cause late anterior crowding, only 3.8% of them referred these cases. Variables such as sex and place of graduation affected clinicians' decision. Out of the study participants, all the male one and all aged between 30 and 39 years were in agreement with third molar removal due to lack of space.

Acknowledgments

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Conflict of Interest

The authors declared no conflicts of interest.

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