THE ROLE OF LOWER WISDOM MOLARS IN ORTHODONTIC RELAPSE OF LOWER INCISAL CROWDING: RESULTS OF A CROSS-SECTIONAL STUDY

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Abstract

Objective: *Retention of orthodontically corrected lower incisal crowding is key for successful orthodontic therapy. The present study aimed to determine the opinion of Pakistani orthodontists regarding the relation between lower wisdom molars and relapse of lower incisal crowding.*

Materials & Methods: *This cross-sectional study was conceived at Faisalabad Medical University and de'Montmorency College of Dentistry, Pakistan. Duration of study was from May 2017 to October 2017. Non-probability consecutive sampling technique was used. The study involved 100 Pakistani orthodontists. They were requested to answer an online questionnaire regarding their opinions on the link between erupted lower third molars along with their removal opinion in a link to the development/prevention of relapse of mandibular incisal crowding. Responses were collected and presented as frequency percentages.*

Results: *A total of 100 Pakistani Orthodontists (60 females, 40 males) completed the online survey. A total of 82 Orthodontists (82%) were resident orthodontic students, while 18 (18%) were qualified orthodontists. Most of the orthodontists, i.e. 79% were of the opinion that there is no role of mandibular third molars in causing a relapse of mandibular anterior crowding and 78% were not of opinion to suggest lower wisdom molars extraction to prevent relapse.*

Conclusion: *Most of the Pakistani orthodontists were of the opinion that there is no role of mandibular third molars in causing a relapse of mandibular anterior crowding and were not of opinion to suggest lower wisdom molars extraction to prevent relapse.*

Key Words: *Relapse; Mandibular third molars; Orthodontist*

Introduction

The eruption of third molars and their relation with rest of the teeth has been of key concern to dental surgeons and orthodontists for a long time. There are wide variations in development time and calcification, coronal and apical root morphology, eruption timing and arch position of third molars. The third molar appears radiographically as early as the age of mix dentition period and as late as the age of late teens. The third molar erupts in the functional occlusion between the ages of 18 and 25.

Long-term stability of treated malocclusion is

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one of the big challenges following orthodontic therapy[1]. One of the controversial debates in orthodontics is the role of lower wisdom molars (8s) in causing a relapse of mandibular anterior crowding[2].

Various studies revealed that when mandibular posterior space is lacking, mandibular wisdom molars may influence mandibular anterior crowding[3-8]. But evidence suggests that the link of lower wisdom molars as a cause of mandibular incisal crowding and its relapse is not yet established[9-10].

As research on the relation between erupted lower wisdom molars and mandibular anterior crowding and its relapse has not yet been clarified, similarly orthodontists have always been divided between supporters and opponents of mandibular anterior crowding and its relapse caused by erupting lower 3rd molars[2,11-16].

Following this presupposition, the present study was designed with an aim to get the opinion of Pakistani orthodontists regarding the relation between erupting lower wisdom molars and mandibular anterior crowding, and their opinion on the prophylactic extraction of 8s to prevent relapse of lower incisal crowding following orthodontic treatment.

Materials and Methods

This cross-sectional study was conceived at Faisalabad Medical University and de'Montmorency college of Dentistry, Pakistan. Duration of study was from May 2017 to October 2017. Non-probability consecutive sampling technique was used.

The sample was selected as per following criteria: Orthodontists willing to give informed consent about participation in the study, and having at least one year of experience as a resident of orthodontics. The study involved 100 Pakistani orthodontists. An E-questionnaire (Table 1) was created and was sent to Orthodontists in an email, after taking informed consent and were requested to answer regarding their opinions.

Statistical Analysis

Data collected were analysed using SPSS version 20.0. Responses were collected and presented in the form of frequency and percentages.

Results

A total of 100 Pakistani Orthodontists (60 females, 40 males) completed the online survey as shown in Table 2. The response rate was 100%.

Responses regarding the question of the link between erupted lower third molars in causing lower incisal crowding relapse is shown in Table 3 as percentages.

Similarly, responses regarding the question of recommending preventive extraction of lower third molars to prevent post-orthodontic relapse of lower incisal crowding are shown as percentages in Table 4.

Discussion

The justification behind the theory of relapse of crowding following orthodontic therapy stated in literature is the production of the mesial component

Table 1: Questionnaire to determine the opinion of Pakistani orthodontists

NO.	Questions
1	Your experience as orthodontists
2	Do you of opinion that the erupted mandibular 3rd molar can cause a post-orthodontic relapse of mandibular anterior crowding? (Yes/No)
3	Do you suggest removal of lower 8s to prevent post-orthodontic relapse of mandibular anterior crowding? (Yes/No)

Table 2: Descriptive stats about the opinion of Pakistani orthodontists

		Number (n)	Percentage %
Orthodontists (n 100)	Residents	82	82
	Specialists	18	18
	Total	100	100

Table 3: Opinion of Pakistani Orthodontists about the relation between erupted mandibular third molars on relapse of mandibular anterior crowding

		No	Yes
Orthodontists (n 100)	Residents	64 (78%)	18 (22%)
	Specialists	15 (83.3%)	3 (16.6%)
	Total	79%	21%

Table 4: Opinion of Pakistani Orthodontists about the suggestion of removal of mandibular third molars to prevent relapse of mandibular anterior crowding

		No	Yes
Orthodontists (n 100)	Residents	62 (75.6%)	20 (24.3%)
	Specialists	16 (88.8%)	2 (11.1%)
	Total	78%	22%

of pressure from erupting lower 8s to mandibular anterior region resulting in re-displacement of lower incisal alignment following orthodontic treatment[17].

The recommendation of extraction of asymptomatic lower 8s has been debatable for decades[12-16]. It is not advocated scientifically to extract asymptomatic lower 8s[18,19]. The current research was conducted to record the present opinion of Pakistani orthodontists regarding the relation between erupted lower 8s and relapse of mandibular anterior crowding.

Seventy-nine percentage of orthodontists answered 'NO' regarding opinion that erupted lower 8s do cause mandibular anterior crowding relapse. Similarly, 78% of orthodontists responded 'NO' regarding opinion that prophylactic extraction of lower 8s should be suggested for preventing relapse of mandibular anterior crowding. It is not surprising to find such opinion on this relapse topic, as it is consistent with findings of available high-level evidence[2], and it showed that most of the Pakistani Orthodontists, especially qualified orthodontists are updated with currently available evidence on this topic.

There were no statistically significant differences between the opinions regarding the influence of experience. Results are in contrast with a study where recent graduates were less likely to suggest wisdom molar extraction to prevent lower incisal crowding[20]. Results are similar to study findings of Italian clinicians where younger orthodontists do not differ from those of the older orthodontists[21]. However; both of these studies were not on opinion in the link between lower 8s and relapse of crowding but lower 8s and development of lower incisal crowding.

In contrast to opinion results of present study, Hasegawa related lower crowding to the arch length deficiency or the presence of the lower wisdom molars[6]. Bergstrom showed that patients with unilateral agenesis of lower wisdom got lesser crowding on agenesis side than on sides where lower third molars were present[5]. Vego in a longitudinal study showed that patients with total agenesis of lower wisdom got lesser crowding than in patients, where lower third molars were present[3]. Sheneman found that the patients in whom lower 8s were congenitally missing were having more stable lower anterior segment than those in which 8s were present[7]. Schwarze reported that patients who had lower 8s removed as a prevention measure were more resistant to lower incisal crowding than patients with the lower 8s present[8].

However, in agreement to opinion results of present study, Zachrisson[9] concluded that post-orthodontic lower incisal crowding relapse is a multifactorial phenomenon. Richardson[10] showed that the link of the wisdom molars in the aetiology of lower anterior crowding is debatable, but it is not true that lower wisdom causes lower incisal crowding relapse[11].

It is established already that reoccurrence of lower incisal crowding following orthodontic treatment is a threat to the integrity of treated lower arch[16]. The possibility that mandibular incisal crowding reoccurrence is linked to the presence of 8s could not be substantiated so far by evidence[2], and most

of the orthodontists in this study also voted same, by giving their opinion.

Conclusion

Most of the Pakistani orthodontists were of the opinion that there is no role of mandibular third molars in causing a relapse of mandibular anterior crowding.

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