PERCEPTION OF ORTHODONTIST ON DISTALIZATION AND EXTRACTION IN BORDERLINE CASE - QUESTIONNAIRE STUDY

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ABSTRACT

Background: Extraction vs Non-extraction orthodontic treatment for borderline cases is subject of debate since more than 100 years.1) The tendency towards choosing non-extraction approaches has been increasing because of the availability of effective and minimally invasive treatment methods.2) Recent developments in mechanotherapy & changes in concepts have reduced the need for extraction in several types of discrepancies.3) Management of borderline cases has always surmounted controversies. The article is based on Perception of Orthodontists to choose one of the treatment modalities.

Material and method: The present study was conducted on perception of 100 Orthodontists doing clinical practice. The questionnaire of 10 questions was formulated on the Google forms for the ease to send and with an intention to reduce bias.

Results: The results showed that, every question showed highly significant difference with p < 0.001. Orthodontists are aware of distalization procedure, mostly used distalization appliance are pendulum and with Implant. It is found that patients usually not ready to extract the tooth but treatment result of Extraction and convenience of Extraction treatment is high.

Conclusion: It was concluded that Orthodontists are aware of Distalization and using Distalization as treatment modality. However Distalization is one of the common treatment modality in Borderline cases, Extraction is found more convenient and gives better results. Also patients or Parents are generally not ready to Extract the teeth still Orthodontists Perception on Extraction as a treatment modality in Borderline cases have higher weightage.

Keywords: Orthodontics, Extraction, Molar Distaliation

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INTRODUCTION
The frontiers of treatment strategies have surely and steadily expanded over the past few decades. The philosophy of non extraction treatment by E.H Angle and that of extractions advocated by Charles Tweed and later by Raymond Begg was universally accepted protocols. They both were correct in their own perspective that is some patients may benefit from one modality of treatment and some from the other.

Molar Distalization has developed as one of the key component of non extraction treatment. It has to be used selectively in cases with dental rather than skeletal discrepancies. In early 1980’s Cetlin and Ten Hoeve introduced non extraction treatment method for Class II div 1 malocclusion, which corrected the molar relationship with the use of a distalizing plate combined with extraoral traction.

The Pendulum appliance developed by Hilgers has been the most popular one preferred by Orthodontists because of its simple design and ease of construction.

Extraction vs Nonextraction orthodontic treatment for borderline patients is subject of debate since more than 100 years. The tendency towards choosing non-extraction approaches has been increasing because of the availability of effective and minimally invasive treatment methods. Recent developments in mechanotherapy & changes in concepts have reduced the need for extraction in several types of discrepancies. Management of borderline cases has always surmounted controversies.

An estimated 25-30% of all orthodontic patients can be benefited from maxillary expansion, and 95% of class II cases can be improved by molar rotation, distalization & expansion. With the recent trend towards more nonextraction treatment, several appliances have been advocated to distalize molars in the upper arch. Certain principles, as outlined by Burstone.

MATERIAL AND METHOD:
The present study was conducted on perception of 100 Orthodontists doing clinical practice. The questionnaire of 12 questions was formulated on the Google forms for the ease to send and with an intention to reduce bias. Questionnaire was sent to total 120 Orthodontists, 50 by Whatsapp messaging app and 70 by Gmail. Before the questionnaire description about the study being conducted was given. Total 100 of them took part in the study. The analysis of each question is done separately.
**QUESTIONNAIRE:**

1. Are you aware of distalization?
   - Yes
   - No

2. How many distalization appliance you know?
   - 1
   - 2
   - 3
   - More

3. Which is the most common appliance of Distalization?
   - Open coil spring
   - Pendulum / Pendex
   - Implant supported
   - Any

4. Do you agree that patients or parents are usually not ready to extract the teeth?
   - Yes
   - No

5. Do you practice Distalization?
   - Yes
   - No

6. How many cases of Distalization you have done?
   - 0
   - 1-3
   - 3-6
   - <6

7. How many types of Distalization appliances you have given?
   - 0
   - 1-3
   - 3-6
   - <6

8. Which appliance you prefer for Distalization?
   - Open coil spring
   - Pendulum / Pendex
   - Implant supported
   - All the above

9. Which appliance have better treatment results?
   - Open coil spring
   - Pendulum / Pendex
   - Implant supported
   - All the above
   - Others______

10. Which of the following have better treatment results?
    - Extraction
    - Distalization

11. Which treatment modality is convenient to treat?
    - Extraction
    - Distalization

12. At what age will u prefer to give disalization appliance?
    - Before 10 years
    - 10-14 years
    - >14 years
STATISTICAL ANALYSIS:

Statistical analysis performed using statistical product and service solution (SPSS) version 16 for Windows (SPSS Inc, Chicago, IL).

Descriptive data will be expressed in proportions (percentages). Chi square test used to compare perception of Orthodontists on Distalization versus Extraction treatment protocol.

Confidence interval is set at 95% and probability of alpha error set at 5%. Power of the study set at 80%.

RESULTS:

Questionnaire was send to 120 Orthodontists from which 100 responded on Google form. With suitable statistical analysis, results are calculated.

In *figure 2* appliance known by 78% Orthodontists are more than 3 appliances, 10% orthodontists are aware of 3 appliances, 7% are aware of 2, 5% orthodontists knows only 1 appliance suggest p < 0.001, that is highly significant.

94% of orthodontists are practicing Distalization and 6% are not practicing in as shown in *figure 3*.

Most common appliance of Distalization was Pendulum/Pendex by 36% Orthodontists while open coil spring and implant supported is 13% and 17% popular respectively. Also 34% Orthodontists chose all of them as in *figure 4*.

In the above results in *figure 5*, 87% of patients and parents are not ready to extract teeth and 13% of them are ready to extract. In *figure 6*, preferred age for Distalization appliance is 6% for before 10 years, 79% between 10-14 years and 15% below 14 years.
for Distalization with 52%, 18% of orthodontist prefer implant supported, 24% and 6% for pendulum/Pendex and Open coil spring each.

In figure 8, 85% of orthodontists say that extraction in convenient to treat and only 15% of them say Distalization is convenient.

In figure 9, 43% of orthodontist say that implant supported appliance have better results, 37% orthodontist say all the appliances can be used for better results, while 20% of them prefer Pendulum/Pendex for better results and 1% of orthodontist use open coil appliance. In figure 10, 82% of orthodontist use extraction for better results and 18% of orthodontist use Distalization as better treatment.
DISCUSSION:

A case is considered as borderline when extraction of permanent teeth is required to reach a stable and functional occlusion, but when the patient has good facial esthetics that could be disturbed by extractions.” Borderline case may also be defined as the case caught in between the conflict of extraction and non-extraction. Borderline cases may also have an absence of dental or craniofacial anomalies, permanent dentition, healthy periodontium and normal anteroposterior relationship between maxilla and mandible.

Extraction of deciduous teeth has been in practice since ancient civilizations. There was little or no opposition to extraction of deciduous teeth to clear the way for permanent successors when Celsius and Pierre Fauchard recommended it. The disagreement arose when dentists started removing permanent teeth for the treatment. The controversy culminated in a widely publicized debate between Angle’s student Martin Dewey and Calvin Case. The battle commenced in 1911 that culminated as "The Extraction Debate of 1911."

In 1911, at a meeting of the National Dental case reports on patients who were treated by non-extraction initially using Angle’s treatment philosophies and were later retreated with first premolar extractions. Four first premolar teeth were removed and the teeth were aligned and retracted. After the retreatment, Tweed observed that the occlusion was much more stable. This gave rise to the Tweed philosophy owing to the scientific evidence he provided towards extraction treatment modality. Extractions were eventually accepted into orthodontics.

The treatment of borderline patients, whether by extraction or non-extraction, achieved generally comparable results for tooth alignment, overbite and overjet, midline symmetry, and lateral occlusion as judged by Indian clinicians in this Indian sample.

In this sample of Indian borderline orthodontic patients, Indian clinicians had a statistically significant preference for the facial profiles of the extraction patients, but no statistically significant preferences for tooth alignment, overbite, overjet, midline symmetry, or posterior occlusion.

In the group of borderline subjects, extraction of either 4 first premolars or 4 second premolars resulted in facial profiles that were favored by a group of Indian orthodontists, compared with non-extraction treatment, as less protrusive facial profiles were preferred by the Indian clinicians.

CONCLUSION

It was concluded that Orthodontists are aware of Distalization and using Distalization as treatment modality. However Distalization is one of the common treatment modality in Borderline cases, Extraction is found more convenient and gives better results. Also patients or Parents are generally not ready to Extract the teeth still Orthodontists Perception on Extraction as a treatment modality in Borderline cases have higher weightage.

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