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International Journal of Oral Health Dentistry

Journal homepage: www.ijohd.org

Case Series

Driftodontics – A case series

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ARTICLE INFO

Article history:

Received 09-02-2022

Accepted 12-02-2022

Available online 23-03-2022

Keywords:

Driftodontics

Physiological drift

Crowding

Extraction

ABSTRACT

In spite of the tremendous improvements in technology that allow for fewer patients to require extractions, there are always patients who have significant enough crowding that ultimately necessitate the removal of premolars.

Alleviating the lower anterior crowding prior to placement of the fixed appliances shortens the time in braces, and allows self correction by natural drift. One such treatment strategy which allows all this is Driftodontics.

This paper is intended to bring forth the clinical advantages of driftodontics by showing some of our cases which achieved efficient results.

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1. Introduction

Space gaining methods in orthodontic treatment of crowded teeth include expansion, distalization, proximal slicing or extraction of teeth. Cases which necessitate extraction of teeth should be critically evaluated, for selection of teeth to be extracted and time of extraction to avoid undesirable tooth movement into extraction space.¹ As physiological drift of the teeth is most often in the mesial direction because of mesial component of force, greater mesial movement of molars is seen with second premolar extraction than first premolar extraction.² However, teeth mesial to the extraction space move in distal direction.

Potential benefits from a period of physiologic dental drift post-extraction, was proposed by Bourdet.³ “Driftodontics” is a term that can be attributed to Dr. R.G. “Wick” Alexander in his textbook.⁴ The benefits include shorter period of fixed appliance therapy because of unprompted alignment of the teeth, oral hygiene problems due to appliance therapy decreases because of less time

period of appliance in the oral cavity and the dentoalveolar support also increases.^{5,6}

2. Case Reports

2.1. Case 1

An 18-years old female patient presented with a chief complaint of forwardly placed upper front teeth. Clinical examination revealed convex profile with competent lips, Angles class I malocclusion with crowding in the lower anterior region, skeletal class I with normodivergent growth pattern, proclined upper and lower anteriors (Figure 1). Based on clinical and cephalometric findings we have planned for all 4’s extractions and driftodontics in the lower arch. Immediately after the extractions, banding and bonding of upper arch was done with 0.022 MBT bracket prescription. Initial alignment of upper arch was done with 0.016 inch, 16x22inch and 19x25inch NiTi wires. After 4 months of upper arch strap up, lower arch was bonded and aligned (Figure 2). Space closure was done using 19x25SS wire.

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2.2. Case 2

A 13 year old male patient reported with a chief complaint of irregularly placed teeth. Initial examination revealed convex profile with incompetent lips, Angles class I malocclusion with crowding in the upper and lower anterior region, cross bite in relation to 26, lower midline shifted to right by 3mm. Skeletal class I with normodivergent growth pattern and proclined upper incisors (Figure 3). Due to excessive crowding in the upper and lower arches, we decided to treat the case by extracting upper and lower first premolars. After the extractions, banding and bonding of upper arch was done with 0.022 in MBT bracket prescription. Expanded transpalatal arch was placed between 16, 26. Initial alignment of upper arch was done with NiTi wires sequentially starting from 0.014 inch wires. Lower arch was left for driftodontics for 5 months in this case, later on bonding was done and aligned (Figure 4).



Fig. 1: Pretreatment intraoral and extraoral photographs for case 1



Fig. 2: Series of lower occlusal photographs showing driftodontics over a period of 4 months (A-D) for case 1

2.3. Case 3

A 17-year-old female patient came with chief complaint of irregularly placed teeth. The patient was mesoprosopic and had convex profile with competent lips. Skeletal class I with normodivergent growth pattern and proclined upper incisors. Intraoral examination revealed Angles class I malocclusion with crowding in the upper and lower anterior region, cross bite in relation to 22,25, lower midline shifted to right by 2mm. (Figure 5). Extraction of all 4's done followed by banding and bonding of upper arch with 0.022 in MBT bracket prescription. Anterior bite plate was inserted to correct the crossbite. Initial alignment of upper



Fig. 3: Pretreatment intraoral and extraoral photographs for case 2



Fig. 4: Series of lower occlusal photographs showing driftodontics over a period of 5 months (A-D) for case 2

arch was done with 0.014 inch followed by 0.016 inch, 16x22inch and 19x25inch NiTi wires. In a period of 3 months significant amount of crowding was relieved in the lower arch (Figure 6). After 3 months of driftodontics in the lower arch, strap up was done and aligned.



Fig. 5: Pretreatment intraoral and extraoral photographs for case 3

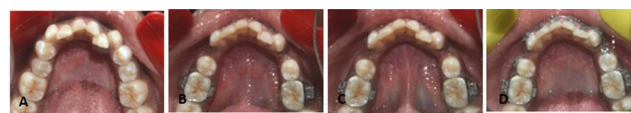


Fig. 6: Series of lower occlusal photographs showing driftodontics over a period of 3 months (A-D) for case 3

3. Discussion

In orthodontics, treatment plan for cases with severe crowding usually include extraction of premolars and immediately banding and bonding of upper and lower arches. In contrast, driftodontics encourage delayed lower arch bonding to allow physiological drift of canines distally into first premolar extraction spaces which will create space for the anterior teeth to relieve crowding.

In his study^{2,4} Papandreas showed that when the maxillary arch is treated and the mandibular arch is allowed to drift for 6 months, predictable movements will take place:

1. Canines will drift distally
2. Incisors will upright
3. Anterior crowding will diminish
4. Molars will drift mesially, but only slightly

Weber⁷ showed that approximately one third of the space closure following first premolar extraction is taken up by mesial molar movement, two thirds is accounted for distal canine movement. Berg and Gebauer⁸ attributed 80% of the space reduction to distal drifting of the canines.

Mandibular molars will be in relatively in more stable position.² In critical anchorage cases lower lingual arch can be placed to prevent lower molar mesial movement which accounts for use of total extraction space for decrowding of anteriors.

Driftodontics will be most successful, if there is minimal skeletal discrepancy and an average overbite. Drifting of crowded canines distally will be more influenced by the lip and tongue muscle action.⁹ So we had chosen cases with skeletal class I, Class I molar relation with crowding in the lower anterior region, matching soft tissue with competent to potentially competent lips.

This physiological drift will be more only in first six months after extractions,² so we have observed changes in the present cases in a period of 4, 5 and 3 months respectively.

Bonding of crowded teeth will be much difficult. Aligning of severely rotated teeth eventually needs change in the bracket position after derotation which will consume much time because the orthodontist again has to go for undersized wires. Complicated mechanics or multilooped arch wires are needed to correct severe crowding which will be difficult for the patient to maintain oral hygiene and which leads to fewer emergency appointments and most importantly happier patients. Hence, extracting and allowing teeth to drift makes bonding easier, will simplify treatment mechanics and reduce the chair side time and overall treatment time.

The other advantage of driftodontics is in case of instanding lower incisors. Placement of continuous archwire in these cases will lead to movement of roots further linguallly. Driftodontics will help in this situation to achieve much better result in lesser time by natural drift into the

extraction spaces.

Generally in driftodontics cases, upper arch aligning and levelling, retraction will be carried simultaneously so that any kind of occlusal interferences for lower canines to move distally will be reduced.

As second and third cases had Class I molar relation with single tooth crossbites, anterior bite plate was used to avoid occlusal interferences effect on the changes in position of lower canines. Most of the lower anterior crowding was relieved by distalization of anteriors into extraction space within 3-5 months.

4. Summary

Alleviating the lower anterior crowding prior to placement of the fixed appliances will have advantages like

1. Shortens the time in braces, which leads to fewer emergency appointments
2. Avoid movement of roots of blocked out incisors further linguallly
3. Avoid complicated mechanics and multilooped archwires
4. Placement of bracket in correct position
5. Better anchorage control
6. Better oral hygiene,

5. Conclusion

As said by Creekmore, "Sometimes doing nothing is doing something".¹⁰ Sometimes letting teeth move in a physiologic way is better than moving them by orthodontic force. Proper case selection and less traumatic extraction of premolars play an important role in the success of driftodontics cases.

6. Source of Funding

None.

7. Conflict of Interest

The authors declare no conflict of interest.

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<p>Cite this article: Peddu R, Dokku A, Mallavarapu K, Lanka D. Driftodontics – A case series. <i>Int J Oral Health Dent</i> 2022;8(1):91-94.</p>
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