

## LIMITED OUTCOME ORTHODONTICS- TWO CASE REPORTS

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### ABSTRACT

There is an increasing trend in adults seeking orthodontic treatment. Visibility of braces and duration of treatment are factors detrimental to patients choice of having orthodontic treatment as well as their satisfaction with the outcome. Adult orthodontics is unique both in the treatment goals as well as tissue response. Realistic goals with adjuvant procedures and short duration of treatment are preferred. We present two cases of “Limited outcome orthodontics” in adult patients with localized malalignment, successfully managed within a very short duration of 5 months.

**Keywords-** Adult orthodontics, Limited outcome Orthodontics, Short term orthodontics

**How To Cite This Article:** Mohamed Iqbal J<sup>1</sup>, Dharshini V<sup>2</sup>, Aruna Vallinayagam<sup>3</sup>, Limited Outcome Orthodontics- Two Case Reports. Int J Orthod Rehabil 2022; 13: 1:36-39.

DOI: 10.56501/intjorthodrehabil.v13i1.3

### Introduction

Adult patients in the age bracket of 26-40 years are increasingly seeking orthodontic treatment. A survey by the British Orthodontic Society conducted among its members has shown a 15% increase in adults seeking orthodontic treatment between 2016 and 2018<sup>(1)</sup>. Terms such as “Limited treatment Orthodontics” and “Short term Orthodontics” are used in literature. Adult orthodontics differs from adolescent orthodontics in several distinct ways. Orthodontic procedures in adults invariably involve other treatment modalities like composite build ups, veneers and crowns, necessitating the participation of other specialties like Conservative dentistry, Periodontics and Prosthodontics<sup>(2)</sup>. The average treatment duration also is 6 months and acceptable occlusion rather than ideal occlusion is the goal. These limited outcome interventions in carefully selected cases using precise mechanics are of extreme value in adults seeking orthodontic treatment for esthetic and psychosocial reasons. We present two cases of adult female patients aged 20 yrs and 22yrs, where limited mechanics along with adjuvant conservative treatments were used to manage mal-alignment that significantly affected aesthetics. Couple system of force and Reciprocal anchorage were used respectively along with composite build ups to attain results that improved patients’ self confidence in a very short duration of 5 months.

### CASE REPORT 1

A 20 year old female patient reported to the Department of Orthodontics and Dentofacial Orthopedics with a chief complaint of rotated upper front tooth. She was mesomorphic in build, mesocephalic and mesoprosopic. She had a straight profile with good soft tissue balance (Fig 1).



Intraoral examination revealed Class I molar relationship, Class I canine relationship, stable posterior occlusion and a distolabially rotated 21(Fig 2a,2b,2c).



All treatment options were presented to the patient. She chose the option of limited outcome orthodontics. Considering her acceptable profile, soft tissue balance, stable posterior occlusion; we planned a partial fixed appliance protocol involving a couple system of force to derotate 21. 0.022 slot MBT prescription brackets were bonded from 14 to 11 and 22 to 24. Rotated 21 were not included in the arch. As the arch was well aligned, a stiff 0.022 SS wire was used to stabilize the bonded segments. Labial and lingual buttons were bonded to 21(Fig 3).



A couple system was created using an E-chain from labial button to 23 and another E-chain from lingual button to 13(Fig 4).



Couple system of force finds application in two areas of orthodontics viz: to achieve pure rotation and to produce a counter moment for up righting in Edgewise & Pre adjusted edgewise mechanics. We have used it to bring about pure rotational correction. 3 months post strap up, rotational correction was achieved (Fig 5).



The patient was extremely happy and forthcoming in her social interaction in comparison to a distinct reluctance to speak or smile pretreatment (Fig 6).



## CASE REPORT 2

A 22 year old female patient reported to the department of orthodontics with complaints of spacing in the upper front teeth region. The patient was mesomorphic in build with a mesocephalic head form and mesoprosopic facial form. Her profile was straight with good soft tissue balance. Intraoral examination revealed a 5mm midline diastema between 11 & 21(Fig 1).

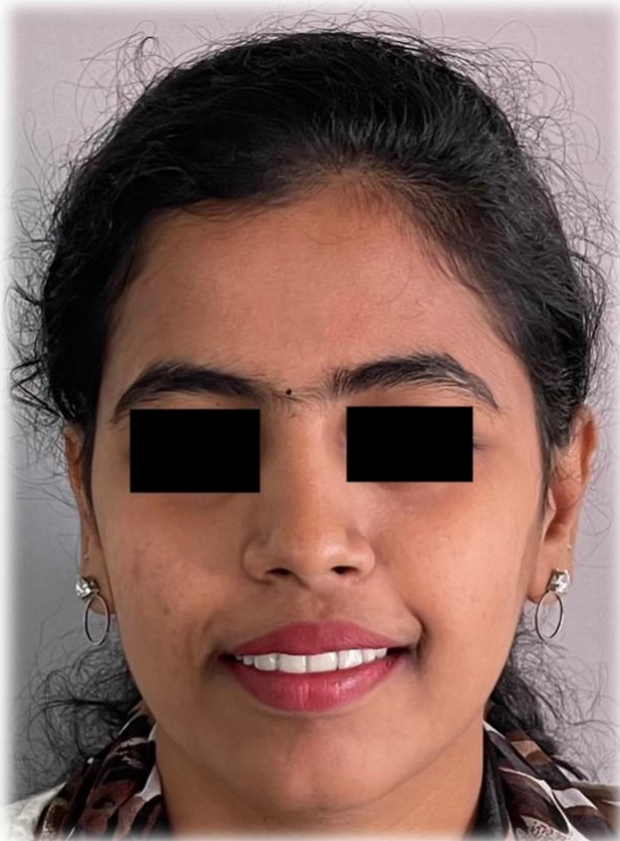


She presented with a Class I molar relationship, Class I canine relationship, and a stable posterior occlusion. Supernumerary teeth and pathologies that could keep the central incisors away were ruled out. Examination of the teeth showed a Bolton's discrepancy in the maxillary anterior region. Treatment options included closing the space using a removable appliance, comprehensive fixed appliance, a limited outcome protocol involving partial fixed appliance and conservative management of space caused due to a relatively short width 12 & 22. All the choices were presented to the patient. A limited outcome orthodontic protocol was chosen with the consent of the patient.

11 & 21 were bonded and aligned. Post alignment reciprocal anchorage with an elastomeric chain was used in a 0.019 X 0.025 SS working wire(Fig 2).



Space between 11 & 21 was closed in 3 months. Space created lateral to 11 & 21 was managed with composite restoration of 12 & 22 to their requisite width proportionate to the widths of 11 & 21 (Fig 3).



Appreciable aesthetics was attained within a very short period of time. Patient communicated an extreme sense of satisfaction about the outcome and treatment duration.

## DISCUSSION

Profile of patients seeking orthodontic treatment has shown a marked change in recent years. A survey conducted by the British Orthodontic Society amongst its members showed a 15% increase in adult patients seeking orthodontic treatment between 2016 & 2018. 26-40 years was the age bracket of adult patients seeking orthodontic treatment. Adult patients seeking orthodontic treatment have two important aspects which are detrimental to their level of cooperation and satisfaction, viz; visibility and duration of treatment. The speciality has addressed the factor of visibility using transparent bracket designs, lingual mechanotherapy and more recently in the form of CAT<sup>(3)</sup>. However all three methods have failed to get the same levels of informed reception as conventional bracket designs and mechanotherapies<sup>(4,5)</sup>.

Limited outcome Orthodontics has emerged as a viable solution to the above mentioned factors of visibility and more so, the duration. Short term Orthodontics is another terminology that is in use lately in the context of adult treatment. Both terminologies refer to treatment of adult patients who desire an improvement in their anterior smile aesthetics which involves a localized region and characteristically involving other specialties as adjuvants. In the second report we have managed the space using a reciprocal anchorage which involves two teeth with similar anchorage values. An E-chain between 11&21 resulted in bodily closure of the space. The space that developed lateral to 11 & 21 was owing to the disproportionate width of 12 & 22 resulting in a Bolton's discrepancy. This was managed using an esthetic composite build up. In the first case the mal-alignment was restricted to the rotation in 21. Since the posterior occlusion and the other criterion of an optimal occlusion were met with, we used a couple system to achieve pure rotation. An orthodontic couple is a system of two forces of equal magnitude and opposite senses having a net unidirectional moment which achieves the requisite derotation without change in position of the tooth. Composite restoration was used to finish the morphology of the tooth to precision.

In both cases patient confidence showed marked improvement. Both the patients mentioned the duration as the most satisfactory aspect of their treatment considering the fact that they were informed that the average period would be 12-24 months.

## CONCLUSION

Limited outcome/Short term Orthodontics should be a case specific option. There is an ongoing debate involving this modality. It is more on who should be exercising it (General dentist or specialist orthodontist) rather than whether it should or should not be exercised<sup>(6)</sup>. However there is consensus that in properly selected cases this modality is effective in achieving realistic treatment goals<sup>(7)</sup> provided precise mechanics are used.

## SOURCE OF FUNDING

The author of this review has no funding sources to declare.

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