

## Case Report

### Could “Age” be a potential decelerating factor in clinical orthodontics?

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#### Abstract:

Managing malocclusion by orthodontic treatment requires consideration of many factors. One of the important ones is age, as it is the indicator of remaining growth and development of face and jaw and body generally. Clinicians often remain in doubt to plan the orthodontic treatment especially with the adult age group. Many biological and psychosocial factors associated with adults need a change in biomechanics and treatment approach than that in growing adolescents. This article reports and describes orthodontic management of two adults (from both genders) with modification of conventional approach that managed those successfully. Two years post-treatment follow-up already ensure stable occlusions and improve quality of life.

#### Introductions:

“What is the perfect age to start orthodontic treatment?” -That is one of the most frequent queries that any clinician has to face in their orthodontic practice. The American Association of Orthodontists (AAO) recommends that every child first visit an orthodontist by age seven or earlier if a problem is detected by parents, the family dentist or physician. Obviously that raises the second question to be faced by the orthodontist is that – “what is the maximum age limit to start orthodontic treatment?” That’s the million-dollar question any clinician has to face to motivate his elderly patients with orthodontic complaints. There is probably no other area of health care that requires patient cooperation to the extent that orthodontics does.

The first condition required for carrying out a successful orthodontic treatment involves patient cooperation by ensuring its treatment goal and success. Frequently, the uncooperative patient is labeled as having a poor or defiant attitude toward orthodontic treatment<sup>1</sup>. Communication between the orthodontist and the patient, and general information about orthodontic treatment are two important factors in orthodontic patients’ compliance<sup>2</sup>. So to ensure better patient compliance the maximum age limit of orthodontic treatment should be answered. However no definitive border line of age is found to start an orthodontic treatment. Treatment approach, management protocol and finishing goal will be change with a same orthodontic problem according to age. Adult orthodontics requires a different approach to the treatment than treatment for growing adolescent individuals due to varied reasons. Lack of growth potential makes growth modification procedures not applicable to adults and imposes limitations to certain tooth movements. Periorestorative problems, multiple extractions,

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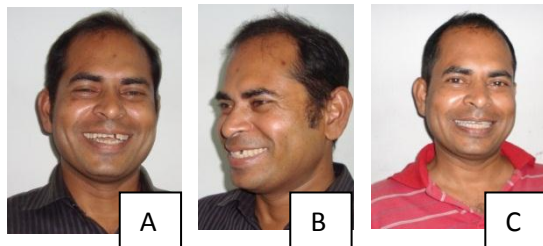
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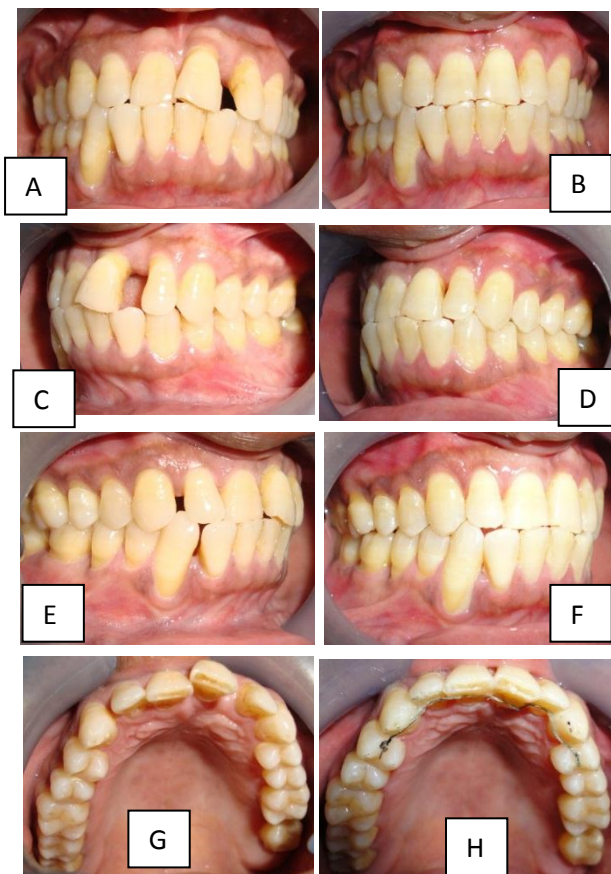
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other oral diseases, systemic problems, aging of the tissues, different psychosocial factors need to be considered while formulating appropriate individualized treatment plan. The complex interaction of these factors leads to a much different approach for adult orthodontics<sup>3</sup>.

In this article we have describe two of such adult orthodontic cases (from both gender) where treatment were started in their fourth decade of life, with some modification of conventional treatment approach to gain the finishing goal.



**Figure 1:** Extra oral photograph pretreatment front view (A), right lateral view (B), showing ill smile and post treatment front view (C) showing improvement.



**Figure 2:** Intra oral front view [pre(A)& post-treatment(B)], left lateral view [pre(C)& post-treatment(D)], right lateral view [pre(E)& post-treatment(F)], and occlusal view [pre(G)& post-treatment(H)] shows marked improvement in aesthetics

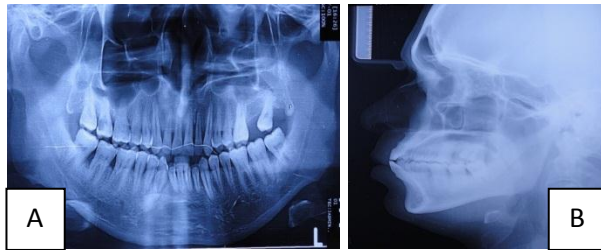
### Report of Cases 1:

A 46-years-of age male professionally tourist guide reported with a chief complain of poor aesthetics smile due to a large gap in between two left front teeth for last two weeks [Fig 1(A&B)]. He also reported using a removable partial denture in between the gap for last 7-8 years that was more importantly (according to his report) contracted by one of the renowned Japanese dentist from Tokyo whose name and corresponding address he could not recall. Patient was habituated with cigarette smoking but non alcoholic.

Extra-oral examination revealed convex face profile, more exposure of lower incisor during smile indicating bimaxillary proclination with adult type of smile change. Intraoral examination reveal angles class I molar, canine and incisor relationship with-out any midline shift [Fig: 2(A,C,E&G)] though use of removable partial denture on left anterior segment has been reported. A 3-millimeter gap between upper left two incisors and a 2-millimeter gap distal to upper right lateral incisor has also been reported. Mild gingival recession with yellowish discoloration is notice which might be due to smoking habit, but no non-vital tooth has been diagnosed, though missing of upper left second molar has reported due to extraction of that tooth 2-3 years back. On radiological examination by orthopantomogram (OPG) no peri-apical pathology and gross bone resorption and root resorption was noticed. Lateral cephalometry analysis reveals a case of class I skeletal pattern.

Though patient was seeking for another prosthetic replacement of denture in a short period of time, but the justification of pacing extra teeth of upper left anterior segment was not found. The previous dentist might prescribe that as an immediate denture while patients short trip to Japan. With proper counseling and motivations patient was panned to treat with

fixed orthodontic treatment with 6 month active treatment and followed by 2 month of retention phase protocol. With fixed orthodontic slanted edgewise bracket of 0.018× 0.025 slot and loop mechanics and proper torque in upper anterior teeth the class I relationship was maintained after finishing[Fig: 2(B,D,F&H)]. No extraction of teeth was done on opposite segment to prevent the midline shift and neither on opposite jaw to maintain the Class I relationship while retracting the upper anterior teeth. Even placing of bracket on lower jaw was also avoided as lower teeth more expose during smiling, that was requested by the patient as he often travel a lot in his profession.



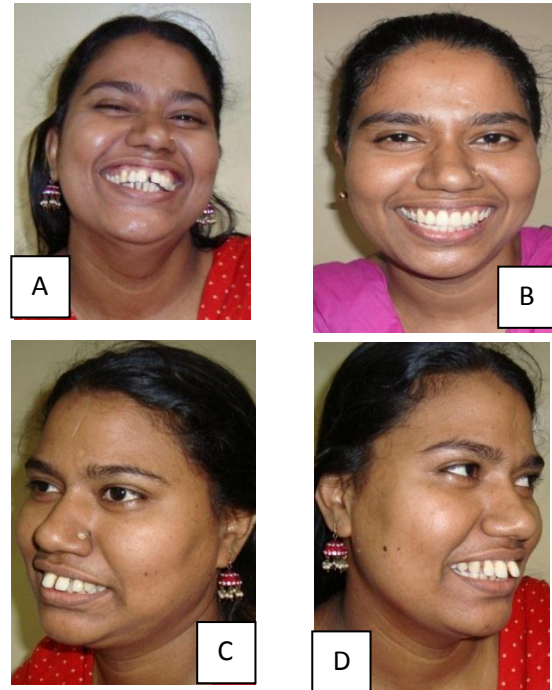
**Figure 3:** Post treatment radiographic evaluation by OPG(A) & Lateral Cephalogram (B).

After retention phase bonded lingual retainer was placed with ‘flexible spiral wire’ of 0.012 millimeter (by OROMCO) that was placed by ‘Super Bond C&B’ (by Sun Medical Con. Japan)[Fig: 2(H)]. Over a two year post treatment patient found satisfied with his smile and occlusion and reveal good periodontal condition on the radiological follow-up in 20011 [Fig: 3(A&B)] but no further follow up can be given till date as he has relocated in Johannesburg, South Africa, though advised for that by the clinicians.

**Report of Cases 2:**

A 42-years-of age female house wife reported with a chief complains of poor smile appearance due to excessive protruded front teeth and multiple gaps among them. There was no history of spacing or proclination of teeth in her adolescent age[Fig: 4(A,C&D)]. Those problems appear in last 10-12 years and they are gradually deteriorating over the past years. According to

her this ill appearance of smile creates a negative influence in her personal life. However her personal history reveals that her husband is a businessman and they are suffering from infertility.



**Figure 4:** Extra oral photograph front view [pre(A)& post-treatment (B)], pre-treatment [left-lateral (C) & right lateral (D)] reveal marked improvement.

Extra-oral examination reveals convex face profile, mild gummy smile with protruding incisor[Fig: 4(A)]. Intra oral examination reveals spacing in both upper and lower anterior segment, increase overjet (7 millimeter), angles class I molar relation, mild class II canine relations, and class II incisor relationship [Fig: 5(A,C,D&E)]. Mild gingival recession, especially on proclined teeth also noticed. On radiological examination by OPG, no periapical infection, bone resorption and root resorption seen, though there was a history of trauma on left central incisor teeth 4-5 years back. Lateral cephalogram analysis reveals class I skeletal pattern with reducing intra-incisor angle.

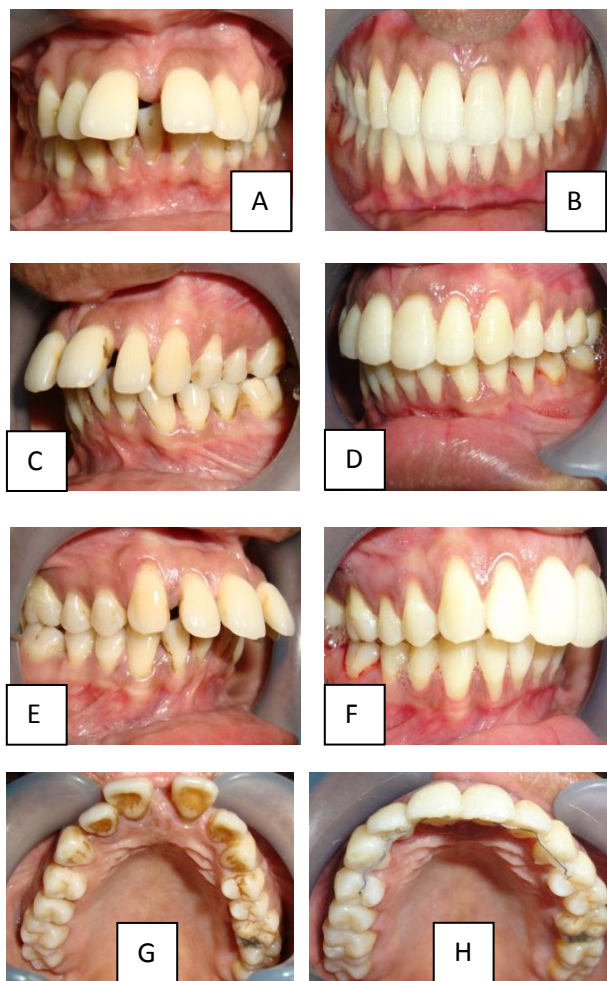
With proper counseling and motivation treatment was planned with fixed orthodontic treatment without extractions. Utilizing the space retraction of anterior teeth was done with

proper torque control. A slanted edgewise bracket with 0.018x0.025 slot and loop mechanics were used. Successful outcome was revealed in around 10 month of active treatment and for maintained retention two more months were wait. Retainer was given on lingual to anterior tooth in both jaw with Flexible Spiral wire of 0.012 millimeter diameter (by OROMCO) with custom adaptations and bonded by 'Super Bond C&B' (by Sun Medical Con. Japan). Satisfactory occlusion and correction of gummy smile were noticed at post treatment finishing stage [Fig: 5(B,D,F&H)]. After a one and 8 month post treatment follow up she reported satisfactory occlusion and more surprisingly became a mother of 3 month old daughter, that was probably due to improvement her quality of life contributed by orthodontic management.

[pre(C)& post-treatment(D)], right lateral view [pre(E)& post-treatment(F)], and occlusal view [pre(G)& post-treatment(H)] also reveal the improvement.

**Discussions:**

The only limitation found in adult orthodontic treatment is in initiating tooth movement<sup>4</sup>. This may take a few more weeks than in an adolescent. But once treatment has begun, progress can be as fast or faster in the adult patient due to the excellent cooperation received from the adult patients. The finishing phase of treatment needs greatest attention so as to attain the highest degree of stability of tooth position and occlusion, and the greatest benefits in terms of esthetics and dental health. Adults who seek orthodontic treatment fall into quite different groups<sup>5</sup> comprehensive treatment and adjunctive treatment. None of this group reported to be slowing down or cessation of orthodontic tooth movement. However, treatment modality and goal could be vary with that of adolescents one. Our study did not observe any decelerating factor related to age while managing these two adult orthodontic cases. Similar result has been reported by the retrospective study done in 2002 by Von Bremen and Panchez<sup>6</sup> where 204 patients record were evaluated those were treated with functional, functional/fixed combinations, Herbst/fixed appliance combination, and fixed appliances alone, in both adult and adolescents group. The mean treatment duration was 37 months and the duration decreased with dental development. Moreover, similar type of study by Robb *et al.*<sup>7</sup> with 72 cases reveals did not find any significant treatment duration differences between adult and adolescents group. Considering all other factor that might affect the duration of orthodontic treatment, age is not the factor that might slowdown the tooth movement or influencing the orthodontic treatment<sup>8</sup>. However healthy tooth and surrounding structure might be maintained with age.



**Figure 5:** Intra oral photograph frontal view [pre(A)& post-treatment(B)], left lateral view

**Conclusions:**

Our study and the literature review of similar study clearly reveal that age is not a bar on

orthodontic treatment. Adult patient are more co-operative than that of adolescent, that ensure more rapid success, however their tooth and surrounding structure’s integrity should be ensured before initiation of orthodontic treatment.

**References:**

- 1 Amoric MP, Choukroun MG. Treatment with or without cooperation, *Orthodontics France* 2002; 73(4):429-37.
- 2 Brattstrom V, Ingelsson M, Aberg E. Treatment cooperation in orthodontic patients, *British Journal of Orthodontics* 1991;18(1):37-42.
- 3 Vanarsdall RL, Musich DR. Adult orthodontics: Diagnosis and treatment. In: Graber TM, Vanarsdall RL, Vig KWL (eds). *Orthodontics: Current principles and techniques*. 4<sup>th</sup> edition, St Louis: Mosby, 2005.
- 4 Robert C. Chiappone. Special considerations for Adult Orthodontics. *Journal of clinical orthodontics* 1976; 10:535-545.
- 5 William R Proffit, Henry W Fields, David M Sarver. *Contemporary Orthodontics*, St Louis: Mosby, 2013; 5<sup>th</sup> edition: 623-683.
- 6 Von Bremen J, Pancherz H. Efficiency of early and late Class II division 1 treatment. *American Journal of Orthodontics and Dentofacial Orthopedics* 2002; 121: 31 – 37.
- 7 Robb S I , Sadowsky C , Sneider B J , BeGole E A. Effectiveness and duration of orthodontic treatment in adults and adolescents . *American Journal of Orthodontics and Dentofacial Orthopedics* 1998;113 :383 – 386.
- 8 Mavreas D, Athanasiou AE. Factors affecting the duration of orthodontic treatment: a systematic review. *European Journal of Orthodontics* 2008;30:386–395.