

REVIEW

Adult Orthodontics

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Article Info

Received: 20th October, 2009

Review Completed: 27th November, 2009

Accepted: 2nd December, 2009

Available Online: 18th April, 2010

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Abstract :

Adult orthodontics is becoming a larger proportion of many practices. Adult orthodontics is concerned with striking a balance between achieving optimal proximal and occlusal contact of the teeth, acceptable dentofacial esthetics, normal function, and reasonable stability. With the adult, it is more frequently concerned with physiological adaptation and is often symptom related, whereas with the child the dealing is with the signs. In the past three decades, a major reorientation of orthodontic thinking has occurred regarding adult patients. Changed lifestyles and patient awareness have increased the demands for adult orthodontic treatment and multidisciplinary dental therapy has allowed better management of the more complicated and unique requirements of the adult patient population, thereby greatly improving the quality of care and treatment prognosis. In addition to goal clarification, adult patients desire treatment efficiency, convenience in appointment timings and good communication with other health care professionals. Almost 80% of the adult patients require interdisciplinary treatment planning and treatment execution. With the adult, consultation with another specialist isn't occasional. It is the rare adult whom one treats orthodontically without finding it necessary to collaborate with another specialist. This represents both the challenge and the excitement of adult orthodontics.

Key words: *Dento facial esthetics, adult orthodontics*

INTRODUCTION

In the last few years there has been considerable interest in orthodontic treatment for the adult patient. A recent survey conducted by the AAO showed an increase in the percentage of patients over 21 years of age from a fraction more than 4% ten years ago to almost 7% today and nearly 11% is expected after another decade.

Since an adult is defined as one who is fully grown, most males of 18 or 19 and most females of 16 can be considered as adults¹. There are many

reasons why adult orthodontic therapy should be encouraged, including the improvement of function and occlusion, and improvement of esthetics, as well as the psychological aspects. Many adults did not have an opportunity to be treated orthodontically when they were younger, some because of lack of information and many because of lack of financial resources. They are more cooperative about keeping appointments, taking care of their appliances, maintaining good oral hygiene, and following instructions².

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HISTORY³

In 1880, Kingsley indicated an awareness of the orthodontic potential for adult patients. Kingsley also pointed out that some differences existed between tooth movement in adolescent patients and tooth movement in older patients. In 1901 MacDowell wrote, "After the age of 16 years, a complete and permanent change in transition of the occlusion cannot be accomplished successfully owing to the development of the adult glenoid fossa and the density of the bones and muscles of mastication."

In the past 3 decades, a major reorientation of orthodontic thinking has occurred regarding the adult patients. During the last decade the number of adults seeking orthodontic treatment has increased significantly. Changed lifestyles and patient awareness have increased the demand for adult orthodontic treatment and multidisciplinary dental therapy has allowed better management of the more complicated and unique requirements of the adult patient population, thereby greatly improving quality of care and treatment prognosis.

GOALS OF ADULT INTERDISCIPLINARY THERAPY³

1. Parallelism of abutment teeth
2. Most favourable distribution of teeth
3. Redistribution of occlusal and incisal forces.
4. Adequate embrasure space and proper tooth position.
5. Acceptable occlusal plane and potential for incisal guidance at satisfactory vertical dimension.
6. Adequate occlusal landmark relationships.
7. Better lip competency and support.
8. Improved crown to root ratio.
9. Improvement of self correction of mucogingival and osseous defects.
10. Improved self-maintenance of periodontal health.
11. Esthetic and functional improvement.

A coordinated, logical approach is crucial to successful adult treatment. The various diagnostic steps are:³

1. Collect data successfully
2. Analyze database
3. Develop problem list
4. Prepare tentative treatment plan
5. Interact with other specialists involved: discuss the plans and options, clarify sequence and acquire patient acceptance.
6. Create final treatment plan

Additional diagnostic procedures that should be considered in adult patients are:⁴

1. A full TMJ series of x-rays
2. Muscle Examination
3. Splint Therapy
4. A Full Pantographic Tracing
5. Stress Evaluation
6. Diet Evaluation
7. Conferences with Allied Practitioner

The usual sequence of procedure in adult patients is as follows:¹

1. Eliminate all pathology (e.g. caries, abscesses, periodontal disease, retained roots, etc)
2. Orthodontic treatment.
3. Periodontal re-evaluation (and therapy if necessary).
4. Prosthetic restoration (when necessary).
5. Orthodontic retention (when necessary).
6. Periodontal maintenance.

Occlusal adjustments (grinding) should be performed whenever necessary during all of the above stages. It should be pointed out that orthodontic treatment, whether it is for the adult or the child patient, is actually a type of mouth rehabilitation. When performed on the adult patient in conjunction with the restorative dentist, the orthodontic treatment is one aspect of the total oral rehabilitation for that patient. Thus the total oral rehabilitation cannot be carried out orthodontically.¹

ORTHODONTIC TREATMENT IN ADULTS:⁴

According to Robert C. Chiappone in 1976, the only limitation found in adult treatment is in initiating tooth movement. 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 2 quite different groups⁵

- a) Comprehensive treatment : Younger adults- typically under 35 often in their 20's who desired but did not receive orthodontic treatment as youths, and now seek it as they become financially dependent. Comprehensive orthodontics requires a complete fixed orthodontic appliance, intrusion of some teeth, orthognathic surgery to improve jaw relations and the duration of treatment exceeds 1 year. Adults receiving comprehensive treatment are the main candidates for esthetically enhanced appliances, for e.g. clear aligners, lingual appliances and ceramic facial brackets. These patients are quite willing to tolerate a visible orthodontic appliance if the appearance of the teeth will be improved at the end of the treatment.

The orthodontic treatment must be modified in several ways:

- The patient's desire for minimally apparent or invisible orthodontic appliance must be accommodated.
- In patients who have lost some periodontal support, orthodontic force must be kept light.
- Intrusion often is required in leveling of both the arches because of lack of growth.
- Skeletal fixation in the form of miniplate, screws or implants is likely to be required for some types of tooth movement, especially intrusion of

posterior teeth or to support maximum retraction and intrusion of anterior teeth.

- b) Adjunctive treatment: an older group in their 40's or 50's who have other dental problems and who need orthodontics as part of a larger treatment plan. Adjunctive treatment is defined as the tooth movement carried out to facilitate other dental procedures necessary to control disease, restore function and enhance appearance. The primary goal is to replace missing or damaged teeth. The treatment duration tends to be a few months rarely more than a year and long term retention is usually supplied by the restorations. Adjunctive orthodontics must be coordinated carefully with the periodontal and restorative treatment.

The various procedures involved in adjunctive orthodontic treatment are:

- Repositioning teeth that have drifted after extractions or bone loss so that more ideal fixed or removable partial dentures can be fabricated or implants can be placed.
- Alignment of anterior teeth to allow more esthetic restorations or successful splinting, while maintaining interproximal bone contour and embrasure form.
- Correction of crossbite if this compromises jaw function.
- Forced eruption of badly broken down teeth to expose sound root structure on which to place crowns.

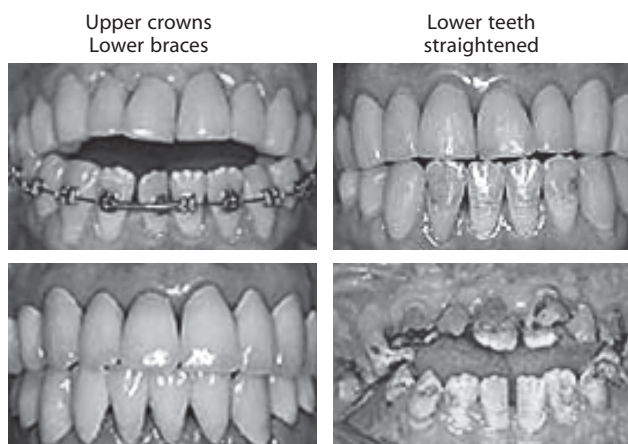


Figure 1: The photographs below explain what can be done for an adult, when the orthodontist, periodontist and prosthodontist all work together.

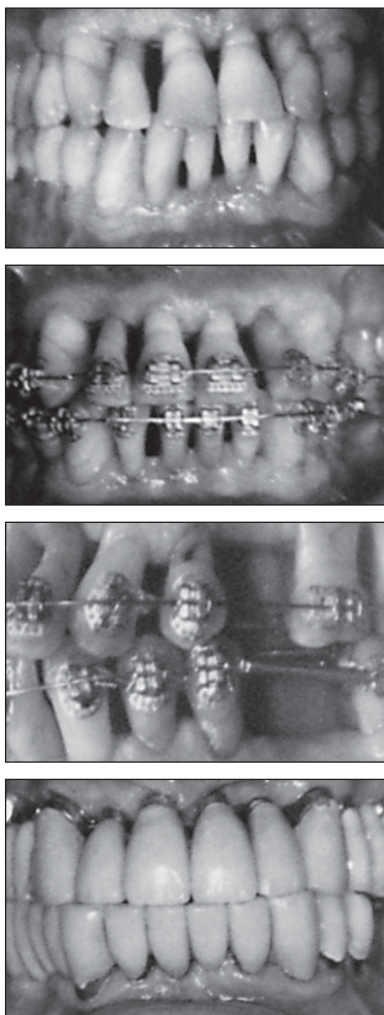


Figure II: Example of adult orthodontic treatment- improvement or correction of the mucogingival and osseous defect.

CONCLUSION

Adult patients provide us the opportunity to render the greatest service possible in orthodontics. There is a great need for orthodontic treatment for the adult patient⁴. Treating adults is a very pleasant and gratifying experience both clinically and personally. Adult patients are cleaner, more careful,

more punctual, prompt payers, have much less pain than youngsters, and treatment time is either the same or less than that of younger patients. Continuing education of the general public will result in an increasing demand for this type of service. The orthodontist should update his knowledge and his thinking in this aspect of his responsibility, and should try as much as possible to co-ordinate his efforts with those of his confreres in other branches of dentistry in order to render to the population a better and more complete dental health service¹. The problems that may arise are minimal in comparison with the great results that the clinician can obtain in consistently improving the function, esthetics, and psychological outlook of the adult patient. With the adult, diagnosis is really simpler than it is for a child. The diagnosis more or less "leaps out at you" and, sometimes, the diagnosis is even made by the patient. Treatment is sometimes more difficult for the adult, because it requires the combined expertise of a number of specialties, and growth is not on your side. Without growth and with some of the symptomatology that occurs, requiring other specialists, orthodontic treatment of adults can be more complex than treatment of the child.⁶

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