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AN OVERVIEW OF ADULT ORTHODONTIC TREATMENT

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ABSTRACT

There is an increasing demand for geriatric oral healthcare in all developed and developing countries including India. Since, the main reason for this demand is the increasing patient awareness and the desire to improve the facial aesthetics. Therefore, this critique presents a road map of how we might answer the present and future geriatric oral health concerns in a most efficient manner in a developing country.

INTRODUCTION

Orthodontic therapy, which is one of the most prevalent procedures for improving smile aesthetics, is becoming increasingly popular not only in teenagers but also in adults. According to **Ackermann**, adult orthodontics is defined as the branch of orthodontics concerned with striking a balance between achieving optimal proximal and occlusal contact of the teeth, acceptable dentofacial aesthetics, normal function and reasonable stability". However, the adult patients fall under two different groups i.e., **younger adults** aged in 30s and **the older group** between 30s to 60s. But because of some factors these adult patients could not receive the orthodontic treatment early- as they were not aware of orthodontic treatment, some could not afford it, some did not desire the treatment and were not given proper advice by family dentist or other reasons might be no orthodontist located in the vicinity or the dissatisfaction with the outcome of previous treatment.[1,2]

India has attained the tag of an ageing nation with the elderly population in 2013 being over 8% (100 million) and is anticipated to increase to 20% (325 million) by 2050. The sex ratio among the elderly shows an increasing trend from 94 women per 100 men in 1991 to 105 in 2011 of which 80% of the elderly population resides in rural areas. According to the World Health Organization (WHO), the provision of oral healthcare services is very little in rural parts of India where approximately 80% of the elderly resides. Dental Council of India (DCI) conducted a National Oral Health Survey among 18,233 elderly subjects in 19 states of the rural and urban parts of the country and reported a prevalence of 85% and 80% among the 65–74 years old for dental caries and periodontal disease respectively.[3,4,5,6]

DISCUSSION

Orthodontic treatment involves various types of tooth movements which is a result of cellular reaction to a mechanical stimulus however, the cellular response varies with the health and age of the individual which causes physiologic and psychological pressures that impose additional requirements on top of those already imposed by the demands, activities, and growth status of the patients. To combat this, the majority of elderly patients use pharmaceutical drugs, which have their own set of negative effects and this marks the intrinsic biological limitation.

Also, there is another factor which is extrinsic biomechanical limitation caused by our inability to adapt the force system to produce the desired stimulus and as the cellular activity decreases the tissues becomes rich in collagen i.e., slow response of tissues to orthodontic forces. Thus, for an orthodontist, treatment becomes challenging and has limitations however it provides the possibility for integral oral rehabilitation and improves the quality of life.

So, the basic goal of treatment is to maintain proper dental health by easy & effective control of disease & restoration of missing teeth and also, as an adjunctive procedure to the larger periodontal & restorative goals (not necessarily interested in the ideal result) which requires interdisciplinary approach for the treatment which can be accomplished successfully in elderly patients with appropriate treatment planning and selection of the patients.

Thus, adult orthodontics is important in order to improve tooth-periodontal tissue relationship, to balance the existing space for prosthetic replacement and to establish an improved plane of occlusion for better distribution of forces to coordinate between the muscle and the TMJ but because of some confutations the orthodontic therapy cannot be carried out in adults which are presence of any local or systemic disease, severe skeletal discrepancies, excessive alveolar bone loss, poor stability prognosis (tooth movement into unfavorable positions), no improvement in PDL health, function/aesthetics, negative anchorage potential (movement of teeth against inadequate anchorage), inability to prevent excessive hard/soft tissue destruction, inadequate space for tooth movement, lack of patient motivation & co-operation and the resistance to wear the appliance.

table: comparison of factors between adolescence and adults

Factors	Adolescence	Adults
Growth factors	Growth is left – Orthopedic treatment option is available - stable correction of skeletal discrepancy is possible.	No growth – Surgical procedures - moderate to severe skeletal disharmonies Dental camouflage - mild skeletal problems.
Dentofacial aesthetics:	Reasonable concern, frequently matched to severity of the condition.	Seek treatment more often for esthetic reasons and hence is likely to have unreasonable expectations about the outcome of the treatment.
Periodontal susceptibility	More resistant to bone loss as a result of periodontal disease; but highly susceptible to gingival inflammation.	High degree of susceptibility to bone loss as a result of periodontal disease.
Neuromuscular maturity:	Significant potential for adaptability of the stomatognathic system, allowing variety of biomechanical choices.	Mechanical options are limited due to lack of neuromuscular adaptability; also, tendency toward transitional occlusal trauma, coinciding with orthodontic occlusal changes.
Rate of tooth movement:	Predictable and rapid, particularly during eruptive stages when permanent root development is not yet completed.	Initially somewhat slower, but more rapid and predictable after initial movement has begun.
Extractions:	Four premolar extractions frequently carried out to resolve crowding symmetrically; Space gaining techniques are also available.	Four first premolar extractions are used less frequently to resolve crowding; Asymmetric extractions and stripping of over bulked restorations is carried out.
Dental caries	More susceptible	Recurrent decay restorative failures, root decay& pulpal pathosis
TMJ adaptability	High	Symptoms with dysfunction
Occlusal wear	Infrequent	Increased enamel wear with adverse change in supporting tissue.

Keeping all these factors in mind a careful diagnosis and treatment planning on a multidisciplinary basis is required to treat adult patients. However, adults may also exhibit a potential for such pathological changes as knife-edge ridges, increased cortical thickness, buried roots, impactions, periodontal breakdown, TMJ problems. Osteoporosis, diabetes mellitus, hormonal, vitamin or systemic disorders common to the adult, necessitate more careful and extensive diagnosis evaluations. Therefore, the standard diagnostic aids such as case history, clinical examination, study casts, radiographs and photographs become mandatory in adult patient and the diagnostic approach as described by **Proffit** and **Ackermann** is strongly recommended to ensure that no aspect of the patients need is neglected. Therefore, after careful diagnosis, treatment planning and treatment for adult patients should be considered which is under three groups:

Spg – solo provider group (orthodontist alone)

Dpg – dual provider group (orthodontist & restorative dentist)

Mpg – multiple provider group

But before starting with the management part certain treatment objectives should be formulated i.e., parallelism of abutment teeth, most favorable distribution of teeth, adequate embrasure space and proper root position, adequate occlusal plane and potential for incisal guidance at satisfactory vertical dimension, better lip competency and support, improved crown / root ratio, improvement or correction of mucogingival and osseous defects. After postulating all the treatment objectives factors in the selection of treatment plan should be considered i.e., existing oral pathology, skeletal relationship, biological considerations, therapeutic approaches available, extraction (v/s) non extraction therapy, anchorage requirements, missing teeth (dental mutilation). But, according to Proffit, adult orthodontic procedure is classed into three categories

1. Adjunctive treatment
2. Comprehensive treatment
3. Surgical-orthodontic treatment

Adjunctive treatment procedure involves tooth movement carried out to facilitate other dental procedures necessary to control disease & restore function like extrusion, molar uprighting, space redistribution and incisor alignment in order to facilitate restorative treatment, improve periodontal ligament health and favorable crown - root ratio and therefore it involves less than a full arch and the time frame required is of 6 months or longer while comprehensive orthodontic treatment aims at making the patient’s occlusion as ideal as possible, repositioning all or nearly all the teeth in the process so as to correct open bite, deep bite, class II and class III malocclusion and hence it involves one or both the arches and the time frame varies between 8-36 months.

Therefore, adjunctive and comprehensive orthodontic treatment is feasible for adults of all ages as the correction of malocclusion makes it possible to improve the quality of periodontal and restorative treatment outcomes, in addition to providing psychosocial benefits.

However, the surgical treatment is the correction of severe skeletal deformity in an adult and only, 10 – 20% of adults fall into this category. However, the orthognathic surgeries can be performed in both jaws and in all 3 planes of space as per the requirement of the case. After the careful diagnosis and management of the case keeping all the factors in mind the most important part is the finishing and detailing of the case i.e., the patients with moderate to severe periodontal loss are stabilized with immediately placed retainers as soon as the finishing arch wires are removed. Later detailing of occlusal relationship by equilibration should be performed. Although, finishing in adults does not differ significantly from adolescence.[1,7]

CONCLUSION

The growing need for orthodontic treatment by adults has not only raised the scope of orthodontics but has also extended the upper age limit for orthodontic intervention as the main reason for this demand is the increasing patient awareness and the desire to improve the facial aesthetics. Considering the pertinent policy subjects concerning the oral health needs of the elderly and also the related challenges which include strategies to improve quality of life, to train and educate the dental workforce and above all the role of healthcare systems towards realization of better aged society in India and other developing countries. Geriatric dentistry needs to be developed in the form of specialized courses such as an advanced education program or fellowship for the oral medicine specialists, who are already trained to handle the diseases occurring in this distinct group of population. Now is the time to brace and create a committed manpower that can design and govern oral health care delivery,

education, and research in India. However, with appropriate treatment planning and selection of the patients, the orthodontic therapy can be accomplished successfully in geriatric patients.

REFERENCES

1. Proffit WR, Fields HW, Sarver DM. Contemporary Orthodontics. 4th eition, Mosby: St Louis; 2007.
2. Ackerman JL. the challenge of adult orthodontics. J Clin Orthod 1978;12(1):43-7.
3. Ingle GK, Nath A. Geriatric health in india: concerns and solutions. Indian J Community Med. 2008;33:214–8. doi: 10.4103/0970- 0218.43225.
4. Shah N. Oral health care system for elderly in India. Geriatr Gerontol Int. 2004;4:162–4. doi: 10.1111/j.1447-0594.2004.00187.x.
5. Dental Council of India (DCI). National oral health survey and fluoride mapping 2002–2003 India. Dental Council of India in collaboration with Ministry of Health & Family Welfare. Government of India, 2003-2004.
6. Singh A, Purohit BM. Addressing geriatric oral health concerns through national oral health policy in India. International journal of health policy and management. 2015 Jan;4(1):39.
7. Vanarsdall & Graber: Current principles and tec 1985; St Louis CV Mosby Co 791-856.