A STUDENT SECTION : IS EXTRACTION THE ONLY SOLUTION?

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INTRODUCTION

As we come close to the turn of the century, revolutionary changes are taking place in all aspects of life including the field of dentistry. The modern trends in dentistry have currently embarked upon an era of conservation. In the quest of development, there is a tireless search for innovative discoveries aimed at perpetual preservation of natural dentition. The inter-relationship of periodontia with other branches has proved a more comprehensive patient care. Periodontal therapy has helped us to retain mutilated, mobile teeth thus maintaining arch integrity, proprioception and functional efficiency.

All teeth have some degree of physiologic mobility which is related to the physiologic width of periodontal ligament, root attachment area, elasticity of the alveolar process and function of the tooth.[1]

Increased tooth mobility may be caused by a variety of factors including hormonal changes (pregnancy, menstruation) treatment (orthodontic, prosthodontic, periodontal, endodontic) hypo or hyperfunctions, diseased states (local and systemic) low bone levels in the elder or debilitated population, boneloss associated with advanced periodontal diseases and traumatic injuries.[3]

CLINICAL FEATURES

Periodontal tissues possess the incredible capacity for repair and regeneration that reverses any degree of tooth mobility. But this capacity is not unlimited. There is a critical point at which the periodontal ligament loses its unique capacity for favourable change so that irreversible tissue changes occur and irreversible tooth mobility results. This critical point is reached when crestal alveolar bone height is reduced to a level approaching the apical third of the root.

Mobility is clinically observed along with gingival inflammation or deep periodontal pockets and/or is accompanied radiographically with the presence of increased width of periodontal space, thickened lamina dura, vertical destruction of interdental septum, root resorption and radiolucence and condensation of alveolar bone.

Individual mobile or loose teeth or groups of teeth are of concern to the patient. Tongue action, flaring, spacing, episodic sensitivity, masticatory discomfort and poor esthetic appearance contribute to the patient's apprehension and desire for immediate treatment.

CLINICAL SIGNIFICANCE

Inspite of the many recent advances towards a better understanding of the role of tooth mobility, its function and significance is still a controversial question in the field of periodontal physiology. According to Kjennerud, mastication on mobile teeth can lead to further injuries of the pericementum.[4] These changes will slowly breakdown more and more of the periodontium without the patient's knowledge increasing the mobility of the teeth. The result would be that one day the teeth would be bitten

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out or would have to be extracted. Its importance however is obvious when we consider it as a symptom of periodontal pathology. Also a definite correlation has been established between loss of bone in periodontal disease and mobility enhancement. In evaluating the effectiveness of periodontal treatment the examination of tooth mobility plays an important role. It is therefore imperative that the measurement of tooth mobility for clinical and research purposes be accurate.[5]

METHODS FOR ASSESSING TOOTH MOBILITY

The determination of pathologic mobility is a clinical exercise. The clinical evaluation of tooth mobility starts with the assignment of a degree of mobility to each tooth as per criteria given by Millers i.e.

Mobility is scored from 0 to 3
0 - no detectable mobility.
1 - distinguishable tooth movement
2 - movement of crown 1 mm in any direction.
3 - movement of more than 1 mm.

Also teeth that can be depressed or rotated in their sockets.

2. Over the years, many electronic and mechanical devices have been developed that permit the recording of very detailed information on vertical and horizontal mobility. Some of them are a large dial indicator, complex oscillometer, vibrometer, resistance wire strain guage, linear variable differential transformer, cathoderay oscilloscope etc. Some optical devices like halographic interferometry and stereophotography were also used. Recently many experiments are being carried out to evaluate the use of lasers in detecting tooth mobility.[4]

TREATMENT MODALITIES

The treatment of advanced periodontal disease poses a serious dilemma for clinicians. Approaches to treatment can vary from replacement of the affected natural dentition by full dentures to rehabilitation of the natural dentition. Assuming that the patient would prefer to attempt to salvage his dentition rather than to ignore his condition or to submit to so many extractions and full denture it is possible to institute treatment and to defer final judgment.

Increasing evidence shows that teeth with advanced boneloss that may have been considered for extraction can be maintained in function with appropriate treatment and continued supervision. Therefore it becomes the dentist's duty to attempt to save compromised teeth and thus the patient's natural dentition, provided the patient can be motivated to maintain adequate level of oral hygiene. As De Van has said our objective should be perpetual preservation of what remains of the patient's masticatory apparatus rather than a meticulous restoration of what is missing.

It is a simple matter to make a treatment plan for a patient whose periodontal condition is obviously either manageable or hopeless. It is quite another matter to make a definite decision when the prognosis is questionable.

As Delabarre pointed out in 1819, it is much easier to extract a tooth than to determine whether it is absolutely necessary. Unfortunately the function of splints in periodontal treatment has been misunderstood. They have been used as a form of treatment for periodontal disease where tooth mobility has been an obvious clinical feature in the misguided belief that the control of the symptom would also control the disease.

However splinting cannot itself cure periodontal disease and therefore it must be considered as an adjunct to the other measures which are basic, comprising of scaling, polishing, occlusal equilibration followed by periodontal surgery.

WHAT IS A SPLINT?[6]

"A SPLINT is an appliance for immobilisation or stabilization of injured or diseased parts".

Stabilisation of a tooth is an increase in the resistance to applied force by providing reciprocal antagonism and increasing the effective root area. The force may remain the same but the resistance is increased.

Through splints, we may achieve stabilization which aids healing and facilitates normal masticatory function. This intervention may lead to success or the periodontal structures may progressively deteriorate. In any event, the final answer becomes apparent only with the passage of time.

The chart below illustrates the basic spectrum of splint therapy.

An ingenious classification formulated by Stern.

I. External devices:

a. Ligaturesi) Metallic (gold, steel, brass), ii) Non Metallic (Silk, grassline)

b. Metallic bands joined in a series (Gold, Steel) (0.003", 0.005")

c. Cast continuous clasp (Gold, Steel)
Dental Night Guards, Hawley appliance - Bite plate and occlusal splint.

II. Intercoronal devices (Cavity preparation type)

a. Continuous plastic Restoration. (Amalgam, Cement, Acrylic and Gold foil)

b. Cast unit restorations joined in a series. (Gold inlays, Onlays, Pin-ledges)

c. Pin Splints (Vertical, Horizontal, Parallel, Non-Parallel)

d. Cast bars, retained by Screws.

e. Endo dontic Endosseous Implants.

III. Circumcoronal devices (Crown preparation type)

a. Acrylic Splints

b. Reinforced Acrylic Splint

c. Cast gold crowns joined in series (3/4, full, veneer, Telescope)

Recent Advances:
UV Light polymerizing bonding materials
Fiber Glass.

Depending on the above cascade of splints, a wise dentist should select an appropriate one as per the demands of an individual case.

In the light of the above facts, our mission as guardians of oral health should focus more on the prevention aspects. The cause of mobility involves both dentist as well as patient factors. Hence, the dentist must take utmost care in rendering dental treatment with a multidisciplinary approach. Also the patient has to be made aware of the importance of oral health and prophylaxis to minimise periodontal problems. Only then, our goal of rendering highest possible standards of patient care will be truly accomplished.

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