THE EFFECT OF USING PRECISION ATTACHMENTS ON THE ABUTMENTS IN KENNEDY CLASS IV

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To

MY

FAMILY

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INTRODUCTION

Management of long span anterior edentulous area (class IV Kennnedy) is considered a prosthodontic challenge, that is usually confronted with many problems related to the length of the span, esthetics in addition to other biomechanical considerations.

The use of fixed prosthesis in such cases can be considered the best solution, however it may be contraindicated in case of excessive bone loss of the edentulous ridge due to excessive resorption or surgery. Also the use of fixed prosthesis in cases of long curved edentulous ridges may subject the abutments to tremendous amount of forces and subject the prosthesis itself to bending, fatigue and consequently fracture. Also it is contraindicated in case of lack of parallelism of the abutments that need much tooth preparation.

The use of implants in class IV cases may be limited by qualitative and quantitative considerations of the edentulous bone, which, must be evaluated before implant placement to ensure long term success.

Conventional removable partial denture was recommended as a solution in long class IV cases, however the involvement of clasps for retention may be inconvenient for the patient esthetically and biomechanically.

The use of attachment retained removable partial denture emerges as an alternative treatment when maximum esthetic and longevity are required. Attachment retained partial denture maintains the periodontal

tissues in good health and thus may be considered a more hygienic treatment modality compared to conventional clasped partial denture.

The coupling between fixed prosthesis and removable partial denture was required for gaining better support, stabilization and fixation. The use of bar attachment provides rigid splinting for abutment teeth together with cross arch stabilization.***(Phoenix et al,2003).***

The question now arises, does the use of bar attachment retained removable partial denture in long class IV Kennedy would affect the alveolar bone support of the abutment teeth?

REVIEW OF LITERATURE

Kennedy class IV

Problems of Kennedy class IV:

Academy of Prosthodontics, 1999, defined Kennedy class IV partial denture as that type of denture which restores a single unilateral edentulous area located anterior to the remaining natural teeth. This class has no modification, but the length of the saddle may vary from two teeth to include posterior teeth on both sides of the arch. This type of denture presents a similar problem to that found in Kennedy class I cases as the saddle, although bounded by teeth at each end, has the features of the free end saddle in that the most remote part of the denture from the teeth is mucosa supported. ***(Applegate, 1966).***

The solution of such problem, however, was not so difficult as with the free end saddle cases. Since class IV partial denture has no free ends, its lateral movement is minimal. Any tendency to lateral abutment tilting is effectively counteracted as the prosthesis is bilateral to the med line and so, twisting or torque stresses on the abutment teeth does not exist. Movement of the removable prosthesis will be mainly vertical toward or away from the subjacent structures. These vertical movements become more difficult to control as the number of teeth missing increases. In such condition, fewer teeth are left among which the resulting stresses will be distributed, so, most of the hard palate must be covered anterior to the fulcrum line and thus, the sinking of the denture will be well resisted and the retention will be assisted by adhesion. Multiple clasping is often employed, which

does not only acts as a splint to the remaining teeth, but, also distributes any torque action. Indirect retention can be obtained by posterior extension over the hard palate, whilst, posterior resting is also a possibility. ***(Osborne and Lammie,1974) and (Phoenix et al, 2003).***

Esthetics is a very distressing problem associated with class IV cases. The desire for a more pleasing arrangement of anterior teeth often will be in conflict with the desire to reduce the leverage action which may be aggravated by labial placement of the artificial teeth. In addition, accidental loss of alveolar ridge structure may aggravate the problem. Also considerable display of metal is difficult to avoid when the anterior abutments are to be the site of clasp retainers. Advantageously, the precision type of retainer is recommended to be used to avoid metal display anteriorly and to gain better esthetics. ***(Applegate, 1966) and(Phoenix et al, 2003).***

Different treatment modalities for Kennedy class IV cases:

The treatment of Kennedy class IV partially edentulous patients may be considered a prosthodontic challenge for the way of its management depending on patient's age, gender, length of the span, condition of the remaining abutments and the tissues covering the edentulous area.

Loss of two or more upper anterior teeth may occur in childhood and adolescence on account of trauma or caries. It becomes wise to delay the construction of any fixed prosthesis until jaw growth and tooth eruption is completed so, the child most often calls for a simple type of denture which is called "spoon denture". The more extensive class IV