ORIGINAL RESEARCH PAPER

ESTHETIC REHABILITATION OF ANTERIOR MISSING TEETH WITH LOOP CONNECTOR- A CASE REPORT

ABSTRACT

Esthetic rehabilitation of missing anterior teeth with diastema is a relatively complex procedure. Only limited treatment options are available for this condition, which includes, implant supported prosthesis and fixed partial denture with loop connectors. If implant prosthesis is not feasible, fixed partial denture with loop connector is the best alternative treatment to achieve optimum esthetic results. This case report describes the fabrication of loop connector to restore missing anterior teeth with diastema.

INTRODUCTION:
Replacing the missing anterior teeth is always a prosthodontic challenge. Various treatment options are available for replacement that includes removable partial denture, fixed partial denture and implant prosthesis. Loss of teeth may lead to drifting of adjacent teeth into the edentulous space, which leads to reduced pontic space. Whereas replacement of teeth with existing diastema is more complicated situation because of the available excessive mesio distal pontic space. In such conditions which conventional fixed partial denture (FPD) is given it leads to widened anterior teeth and over contoured emergence profile which ultimately results in poor esthetic appearance. Implant prosthesis may be used for replacement of missing teeth but it is expensive, time consuming and its requires favorable medical and oral conditions. Maximum esthetic results are provided by maintaining the diastema, anatomic form of teeth and minimal over contouring of adjacent teeth. This case report describes the fabrication of three unit FPD with loop connector to restore the missing lateral incisor to provide maximum esthetic result. Loop connectors provide the best possible solution to address the problem of excessive mesiodistal width pontic space and provides optimum restoration of esthetics.

INDICATIONS FOR LOOP CONNECTOR:
1. When the patient wishes to maintain the diastema,
2. Presence of excessive mesiodistal pontic space
3. Multiple joined prosthetic restorations in clinical situations with presence of localised or generalised spacing between abutments.

LIMITATIONS
1. Leads to food accumulation.
2. Difficulty in maintaining hygiene especially in patients with limited manual dexterity.
3. Interference in tongue movements and phonetics.
4. Relative flexibility as compared to conventional connectors.

CASE REPORT:
A 44 years old female reported to the department of prosthodontics to restore her missing upper anterior teeth. Intraoral examination revealed the presence of post and core restoration in 11 and missing 22 with generalized spacing was seen between the upper anteriors. A midline diastema was seen in lower anteriors (figure 1). Patient lost her natural tooth due to trauma before 5 months.

Figure 1: Intraoral image

Pulp vitality test revealed that 21 and 23 were vital. Radiographic examination showed adequate amount of bone support in 21 and 23. 11 was endodontically treated. Patient wanted a fixed replacement for the missing tooth. A Conventional FPD could not be suggested because of the excessive mesiodistal space in the region of 22. Patient was not willing for an implant supported prosthesis also. FPD with loop connector design was planned for replacing missing 21, 22, 23. Both 21 and 23 were taken as abutments and a single metal ceramic crown was planned for 11.

Figure 2A : Radiographic examination of 11, Figure 2B: Radiographic examination of 21, 22, 23

PROCEDURE:
Teeth preparation was done in 21, 23 and retraction cord placement was done (figure 3). Final impression was made with condensation silicone putty and light body using two stage putty wash technique (Zhermack Zetaplus, Germany) (figure 4). Master cast was poured using type IV dental stone. Die cutting and ditching was done. Wax pattern was fabricated on the master cast using pattern wax (Thowax, Yeti dental , Germany) and casting was done using base metal alloy (Ni-Cr alloy, Denchrome NG, Germany). Metal try in was done.
and clearance was checked intraorally for ceramic layering (figure 6). After metal try in, ceramic layering was done (figure 7) and bisque try in was done. The occlusion was checked and permanent cementation was done using type I GIC (GC, Japan) (figure 8). Patient reported back after 1 week for a review. She was comfortable and had no signs of inflammation or food accumulation in the connector region.

DISCUSSION:

The replacement of missing anterior teeth with existing diastema is a challenging case for the prosthodontist, to achieve optimum esthetic results. In this condition the available treatment options are implant supported prosthesis and FPD with loop connector. If implant prosthesis is not chosen then the only viable treatment option is loop connector FPD. Maximum esthetic results may be obtained only if the natural anatomic forms of the teeth are protected and the diastema is maintained. The FPD with loop connectors enhance the natural appearance of the restoration, maintain the diastemats and the proper emergence profile. In a loop connector the loop may be cast from sprue wax either circular in cross-section or shaped from platinum-gold-palladium (Pt-Au-Pd) alloy wire. Disadvantages of loop connectors includes additional laboratory procedures, difficulty in maintenance and may affect the phonetics especially linguopalatal sounds. However keeping the connectors round and small in size will not affect the phonetics. Photoelastic analysis revealed that highest stress area was found in the gingival region of connector, therefore smoother, less angled, rounded connectors should be used for lower stress level. If routine oral hygiene measures are followed by the patient, food accumulation and gingival inflammation could be reduced. Loop connectors are used not only to manage excessive (single/multiple) pontic space(s), but also to splint pathologically migrated teeth effectively.

CONCLUSION

Proper treatment planning is essential to rehabilitate the missing tooth, Although they are rarely used, loop connectors are sometimes required when an existing diastema is to be maintained in a planned fixed prosthesis, as in the above case. If the patient can get adapted to a projecting connector, loop connector FPD offers a simple and excellent solution to a prostodontic dilemma involving an anterior edentulous space.

REFERENCES