

Flexible Partial Denture For Unilateral Remaining Teeth By Using Wrap Around Clasp

Abstract

Valplast has got a high creep resistance, fatigue resistance, wear resistance and less porosity. Some patients are allergic to free monomer, in flexible denture free monomer content is negligible. In this case teeth were present in unilateral arch, it was not adequate to retain cast partial denture. Flexible denture was fabricated which had got a good retention and stability by using distal wrap around clasp

Key Words

flexible denture, thermoplastic resin denture, tooth and tissue born denture, wrap around clasp denture

Introduction

Flexible denture can be used for the patient having few teeth or at-least two teeth in both side of arch. It can be used even in case with teeth present unilaterally in arch using extended clasp. The application of nylon like material for the fabrication of dental appliances replaces the acrylic and metal to build the framework of removable partial denture.

Thermoplastic materials for dental prosthesis, Valplast (Valplast Int. Corp USA) and Flexiplast (Bredent) were first introduced to dentistry in 1950. Both materials were similar grade of polyamides (nylon plastic) rapid injection systems (Flexible company USA) originated in 1962. Valplast introduced a flexible same translucent thermoplastic resin to create flexible tissue born partial denture. Acetal was first proposed as an unbreakable thermoplastic resin for removable partial denture in 1971. In 1986 tooth coloured clasp was introduced. The clasp was flexible. In 1992 Flexite company developed the first preformed tooth coloured clasp.

Applications of thermoplastic resin are 1) Removable partial denture 2) Provisional crown and bridge 3) Obturator and speech therapy appliance 4) Orthodontic retainer and bracket 5) Impression trays 6) Border moulding material 7) occlusal splint 7) Implant abutments

Case

Patient with age 65 years old came to Panineeya dental collage with the teeth present unilaterally 13,14,15 and 34,35,36,37 Kennedy's class I and class II. Patient wanted a replacement of teeth by removable partial denture. As the patient was very old and medically compromised implant supported denture were not considered. As the teeth are very less in number and present unilaterally, the flexible denture with wrap around distal clasp was fabricated for the patient by engaging the undercut

Method

1. Primary impression was made with irreversible hydrocolloid impression material.
2. Custom tray was made with 2mm wax spacer.
3. Elastomeric impression material with light body and putty was made
4. Duplication of master cast was done with the die stone
5. Jaw relation was made
6. Teeth set-up :- no less than 1/3 of the teeth neck be inserted into modelling wax. V-shaped channels were created on the tissue side of the tooth
7. The duplicated model was waxed up and cut with the special saw or disk as close to the wax as possible
8. Special flask with bolts was used. The lower half of the flask was filled with stone and covered the model
9. Sprues were connected to the wax pattern a) Sprues should be straight .b) A sprue should be thinner at the connector. c) Minimum 3 sprue

¹ Priyadarshini Boral

² Sridhar Chowdhary

³ Goutham Kumar

^{1,2} Professor

³ Reader

Department of Prosthodontics

Panineeya Institute of Dental Sciences &

Research Centre, Kamala Nagar, Road No 5,

DilshukhNagar, Hyderabad - 500 060

Address For Correspondence:

Dr. Priyadarshini Boral

Professor (Department of Prosthodontics)

Panineeya Institute of Dental Sciences & Research Centre

Kamala Nagar, Road No 5

DilshukhNagar, Hyderabad - 500 060

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should be present one on each distal side and one in the middle of the connector

10. Flask was closed using bolts to allow opening it easily after dewaxing
11. Upper half of the flask was filled with stone through opening
12. Dewaxing was performed for 15 min in boiling water
13. The cartridge was heated at 285 degree Celsius and injected in to the flask with Valplast machine
14. Flask was Bench cooled, the denture was taken out, trim and polish it with polishing bur

Discussion:

Flexible dentures exhibit high creep resistance, fatigue resistance as well as excellent wear characteristic and solvent resistance. There is no free monomer and porosity with less odour and stain. It has got higher dimensional and colour stability. Thermoplastic nylon is a resin derived from diamine and dibasic acid monomer. Nylon exhibits high physical strength, heat resistance and chemical resistance. Because of its inherent

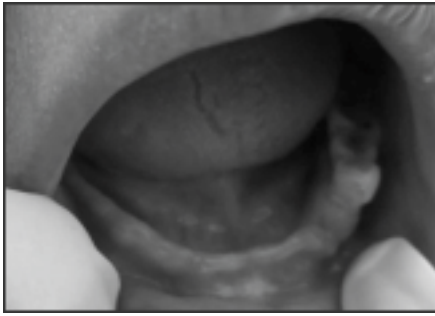


Fig.1 Shows Kennedy's class II

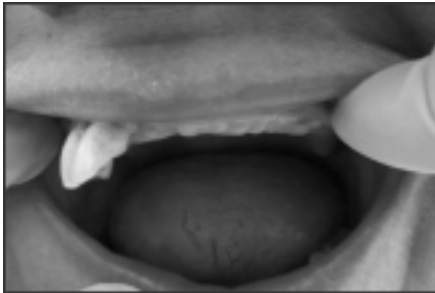


Fig.2 Shows Kennedy's class I



Fig.3 Shows maxillary and mandibular edentulous arches



Fig.4 Shows flexible dentures on casts



Fig.5 Shows maxillary and mandibular flexible dentures

flexibility, it is used primarily for flexible tissue borne partial denture .It does not have enough strength to use for occlusal rest seat ,and won't maintain vertical dimension when used in direct occlusal forces .Thermoplastic nylon is injected at temperature from 274 to 293 degree Celsius and has a specific gravity of 1.14 ,mould shrinkage amount to 0.014 inch\inch ,tensile strength is 11000 psi and flexural strength is 16000psi. Nylon is little more difficult to trim and polish. The resin is semi translucent and provide excellent aesthetic for flexible tissue borne partial denture

Valplast is nearly unbreakable, is coloured pink like a gum, can be built quite thin, and can form not only the denture base, but the clasp as well. Since clasp are built to curl around the neck of the tooth, they are practically indistinguishable from gums that surrounds the teeth. Even though this denture dose not rest on the natural teeth like cast partial denture , the clasp rest on gum surrounding the natural teeth. This type of partial denture is extremely stable, retentive and elasticity of the clasp keeps them that way indefinitely. Flexite supreme's base component is copolyamide. It is easy to adjust and polish. Flexite is used to fabricate removable partial denture, TMJ disfunction, bruxism, anti- snoring device, sport mouth guards, tooth coloured clasp. Flexible thermoplastic materials is available in three tissue shades. The material is monomer free, unbreakable, light weight and impervious to oral fluids. Flexite plus may also combine with a metal frame work to eliminate the display of metal labially

Summary

Flexible dentures fabricated by using Valplast nylon resin are derived from diamine and dibasic acid monomer. Valplast exhibits high physical strength, heat resistance and chemical resistance. It has got good stiffness and wear resistance but it cannot be used as an occlusal rest as in cast partial denture. It is used primarily as a tissue borne flexible partial denture. Valplast is slightly difficult to adjust and polish. In this case teeth are present unilaterally, so better option was flexible partial denture by using wrap around distal clasp . The denture had a better retention and stability.



Fig.6 Shows maxillary denture in patient's mouth



Fig.7 Shows maxillary and mandibular dentures in patient's mouth



Fig.8 Shows maxillary and mandibular dentures in occlusion

Conclusion

Whenever there are unilateral teeth remaining with minimal undercuts, by using wrap around clasp we can fabricate a good flexible partial denture. As the patient was very old and medically compromised implant was not considered. In this case there was a good retention, light weight, better esthetics and comfortable to the patient comparable to cast partial denture.

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