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# Case Report

## Pliable Dentures- An Alternate Denture Base Material- Case Reports

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***ABSTRACT:***
The use of thermoplastic resins for the denture base began around 1950s. Flexible removable denture prosthesis are also known as non-clasp, metal-free, or clasp free dentures. Flexible denture base material is a viable option to treat various partial and completely edentulous conditions. The current article describes the use of thermoplastic resin material as a treatment option for different clinical situations.
**Keywords: -** flexible dentures, Valplast, thermoplastic resin

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### INTRODUCTION

Dentures are a mode of treatment for replacing missing teeth since 700 BC. Improvement in the quality of materials used for fabricating dentures was a continuous process to meet the patient's demands and apply them for different clinical situations. Implants and Fixed partial dentures are more preferred and advantages over removable partial dentures but, in some clinical conditions, removable partial dentures may be the only treatment option. Other than a conventional removable dental prosthesis, flexible partial dentures are superior in terms of esthetics and comfort.

### COMPOSITION

It was first introduced as Valplast and flexiplast to dentistry in 1956 [(1, 2)]

| ***Component*** | ***Role*** |
|---|---|
| Polyamide nylon thermoplastic material | resin derived from dicarboxylic acid, diamine, amino acid and lactams transparency, high impact resistance, |
| Elastomeric resins | Flexibility |
| Glass fibres | Strength |

### ADVANTAGES

1. Soft and inherent flexibility.
2. Clinically unbreakable.
3. The translucency of the material picks up the tissue tone, making it almost impossible to detect in the mouth
4. Good biocompatibility: Because it is, free of monomer and metal.
5. Absorb small amounts of water to make the denture more soft and tissue compatible.
6. High impact resistance
7. Colour stability
8. High creep resistance

9. High fatigue endurance
10. Excellent wear characteristics
11. Good solvent resistance
12. No porosity, so bacteria cannot build up within it.
13. No biological material build up or odours.
14. Low water sorption & good dimensional stability
15. Monomer and metal free
16. The microcrystalline structure is easy to finish and polish.
17. Will not cause any sore spots as seen with rigid acrylic dentures.
18. Flexible dentures may be used as an alternative treatment plan in rehabilitating the anomalies such as Ectodermal dysplasia.
19. Free movement is allowed by the overall flexibility and can, therefore, be referred to as "a built in stress breaker".

**DISADVANTAGES**

1. Flexible prosthesis is difficult to reline and rebase
2. Prone to staining by various ingredients of food, tea and coffee if it is not appropriately polished and cleaned by the patient regularly.
3. Acrylic teeth do not bond chemically with flexible denture base material. They are mechanically retained by making T shape holes diatorics, into which denture base resin flows to retain teeth mechanically. This retention technique is known as Retento-Grip tissue bearing technique. [3]

**COMMERCIALLY AVAILABLE PRODUCTS:-**

Valplast, Duraflex, Flexite, Proflex, Lucitone, Impak.

**INDICATIONS :** [4]

1. Complete dentures, partial dentures, Bases and relines, in cases with
a. Bilateral in-operable undercuts when pre-prosthetic surgery is contraindicated.
2. Patients allergic to acrylic monomers
3. Used as an alternative treatment plan in rehabilitating the anomalies like Ectodermal dysplasia.

a. Special applications-
4. TMJ splints
5. As cosmetic veneers/gum veneers to mask gingival recession in periodontally involved teeth,
6. Mouth guards in sports,
7. Bruxisum splints/ Night guards
8. Obturators
9. Orthodontic retainers.

**COMPARISON WITH CONVENTIONAL ACRYLIC**

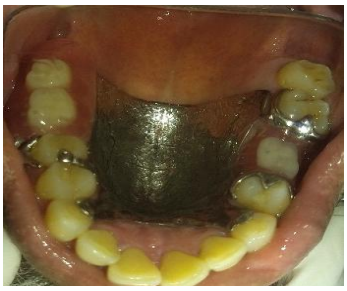
| Rigid denture base | Flexible denture base |
|---|---|
| Brittleness of PMMA, so frequent fracture occurs | Not brittle Clinically unbreakable |
| Monomer allergy | Good biocompatibility: because it is free of monomer and metal Allergy to MMA monomer |
| Irritation to mucosa | More comfortable, not irritant to mucosa Irritation of mucosa Soft and inherent flexibility |
| Rigid Difficult to insert in undercut areas | Ability to engage undercuts for retention |
| Less aesthetics, metal clasp | Better aesthetics, aesthetic clasps |
| Longer fabrication time | Shorter fabrication time |
| Chemical bond between acrylic teeth and acrylic denture | Mechanical retention between acrylic teeth and nylon denture. De-bonding is a major disadvantage |
| Can be relined and repaired | Usually cannot be relined and repaired |

**CASE REPORT 1**

A 58 years old male patient reported to the department of prosthodontics with a chief complaint of multiple missing teeth in the upper and lower arches. On examination there were multiple missing 17, 16, 26 in maxilla and missing 37,34,35,43,44,45,46 in the mandible (fig 1a, 1b, 1c). The denture bearing area was irregular in the mandible with bony undercuts hence, a flexible removable partial denture was advised and cast partial denture was advised for maxilla (fig 2a 2b). The dentures were fabricated and the patient was satisfied with the aesthetics and comfort of the dentures (fig 3,4).

1.a) intra oral frontal view b) intra oral right lateral view c) intra oral left lateral view


2.a) cast partial denture -maxilla b) flexible removable partial denture -mandible




3.a,b intra oral views after insertion of prosthesis


4.a,b intra oral lateral views after insertion of prosthesis

**CASE REPORT -2**

A 16 year old female patient reported to the department of prosthodontics with a chief complaint of multiple missing teeth. On intra oral examination 17,14,13,12,22,23,24,25,27,37,31,41,47.(fig 5a,5b,5c). Radiographic examination revealed the absence of teeth buds of missing teeth and the patient was susceptive of ectodermal dysplasia. To enhance comfort to the patient, as it can be built quite thin, a flexible removable partial denture (fig 6a, 6b, 6c) was suggested for maxilla till the patient achieved skeletal maturity after which the patient is suggested for implant therapy for missing teeth.



5a) intra oral frontal view b) intra oral right lateral view c) intra oral left lateral view

6 a,b) flexible denture b) intra oral view of denture

## CONCLUSION

Selection of an optimum prosthesis suitable for a clinical situation depends on the skill of the clinician. Partially edentulous condition can be rehabilitated using many advanced treatment options including implants. In challenging situations where there are tilted teeth and deranged occlusion, bony undercuts may complicate the treatment plan. Flexible dentures will fulfil the clinical demand of rehabilitation in such conditions. Flexible dentures were rarely opted by few patients and the clinician but nowadays it has become an elective treatment option.

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