

## **TEMPORARY PLASTIC CROWNS IN PROSTHODONTIC DENTISTRY: CLINICAL AND MATERIAL ASPECTS OF MODERN PROVISIONAL RESTORATIONS**

*Nabieva Sevda*

*Tashkent State Medical University*

*Department of Prosthodontics*

### **Abstract**

Temporary crowns are an essential component of fixed prosthodontic treatment, providing protection of prepared teeth, maintenance of occlusal function, and preservation of aesthetic appearance during the interim period before definitive prosthetic restoration. The present study analyzes clinical and material aspects of temporary plastic crowns, including their fabrication techniques, biomaterial properties, and associated complications. Special attention is given to acrylic and bis-acrylic resin systems, as well as CAD/CAM-based provisional materials. Clinical evaluation indicates that bis-acrylic materials demonstrate improved mechanical strength, superior marginal adaptation, and enhanced aesthetic outcomes compared to conventional acrylic resins. Proper fabrication protocols significantly reduce the incidence of complications such as gingival inflammation, crown dislodgement, and marginal leakage. The findings confirm the clinical importance of high-quality provisional restorations in achieving long-term success in fixed prosthodontic therapy.

### **Introduction**

Fixed prosthodontic treatment requires precise clinical protocols to ensure long-term functional and aesthetic success. One of the critical stages of this process is the use of temporary crowns following tooth preparation.

After tooth reduction, the exposed dentin becomes highly sensitive to thermal, mechanical, and chemical stimuli. In addition, prepared teeth are at risk of positional changes, occlusal instability, and pulpal irritation. Temporary crowns serve as protective restorations that maintain tooth position, support periodontal health, and preserve aesthetic appearance during the fabrication of permanent prostheses.

Modern prosthodontics emphasizes not only functional restoration but also biological preservation of dental tissues. Therefore, the selection of appropriate materials and fabrication techniques for provisional restorations is of significant clinical importance. The aim of this study was to analyze clinical effectiveness, material properties, and fabrication methods of temporary plastic crowns in contemporary prosthodontic practice.

### **Materials and Methods**



This study is based on a comprehensive literature review of scientific publications, clinical guidelines, and experimental studies related to provisional restorations in fixed prosthodontics.

The analysis included evaluation of:

- mechanical properties of acrylic and bis-acrylic resins
- clinical performance of temporary crowns
- direct and indirect fabrication techniques
- CAD/CAM-based provisional systems
- complication rates associated with temporary restorations

### **Materials Used for Temporary Crowns**

#### **Acrylic resins (PMMA-based materials)**

Low cost, easy manipulation, but limited fracture resistance and color stability.

#### **Bis-acrylic composite resins**

Higher strength, better marginal adaptation, improved aesthetics.

#### **CAD/CAM materials**

High precision, excellent fit, reduced clinical time.

### **Fabrication Techniques**

#### **Direct technique**

Fast and cost-effective, but may show marginal inaccuracies and heat generation.

#### **Indirect technique**

Better fit and anatomical accuracy, but requires laboratory steps and more time.

### **Clinical and Laboratory Stages**

#### **Clinical stages:**

- patient examination
- tooth preparation
- impression taking
- occlusal registration
- temporary crown placement

#### **Laboratory stages:**

- model fabrication
- wax-up or digital design
- polymerization or milling
- finishing and polishing

### **Results (Literature Analysis)**

Bis-acrylic resins show superior clinical outcomes compared to conventional acrylic materials, including better marginal adaptation, higher fracture resistance, and improved patient comfort.

CAD/CAM temporary restorations demonstrate the highest precision and predictability, especially in complex prosthodontic cases.

### **Discussion**

Temporary crowns function not only as interim restorations but also as diagnostic and therapeutic tools. They allow evaluation of occlusion, gingival response, and aesthetic parameters.

Complications may include gingival inflammation, dislodgement, marginal leakage, and discoloration. These issues are mostly related to fabrication errors, prolonged use, or poor oral hygiene.

### **Conclusion**

Temporary plastic crowns are a fundamental component of fixed prosthodontic treatment. Modern materials such as bis-acrylic resins and CAD/CAM systems significantly improve clinical outcomes by enhancing strength, aesthetics, and marginal accuracy. Proper clinical protocols reduce complications and improve long-term success of prosthodontic therapy.

### **References**

1. Rosenstiel S.F., Land M.F., Fujimoto J.
2. Shillingburg H.T. Fundamentals of Fixed Prosthodontics.
3. Christensen G.J. Clinical use of provisional restorations.
4. Journal of Prosthetic Dentistry studies.
5. Clinical Prosthodontics literature on provisional materials.