Dental Filling

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Introduction

Dental caries remains out of the most prevalent chronic diseases globally. When untreated, caries can lead to significant tooth damage, infection, and loss. Dental fillings are restorative treatment used to repair damage caused by decay or minor fractures. They help re-establish normal tooth shape and function, preventing the progression of disease. Over the years, dental material and techniques have evolved significantly to enhance durability, aesthetics, and patient comfort.[1]

Figure 1: *Dental Filling.*[10]

Types Of Dental Filling Materials

Several types of material are used for dental fillings, each with unique properties that suit different clinical situations:

1. Amalgam Fillings:

Amalgam is a silver – colored filling material composed of mercury and metal alloys. It has been widely used for over a century due to its strength, low cost, and ease of placement. However, its metallic appearance and mercury content have led to decrease usage in modern practice.

2. Composite Resin Fillings:

Composite resins are made of a synthetic resin matrix and fine glass practices. They are highly aesthetic, bonding directly to tooth surfaces and matching the natural tooth color. Composite materials are ideal for both anterior and posterior restorations.

3. Glass Ionomer Cement:

GICs are used for their fluoride-releasing properties, which can help prevent further decay. They bond chemically to tooth structure and are often used in non-load bearing areas or pediatric patients.

4. Ceramic Fillings: Ceramic or porcelain restorations are often used for inlays and crowns. These materials provide excellent aesthetics and durability, though they are more expensive and require multiple visits if not done using CAD/CAM technology.

5. Gold Fillings:

Gold has excellent longevity and biocompatibility but is rarely used today due to its cost and less natural appearance. Gold restorations may last 20 years or more with proper care.[2,3,4]

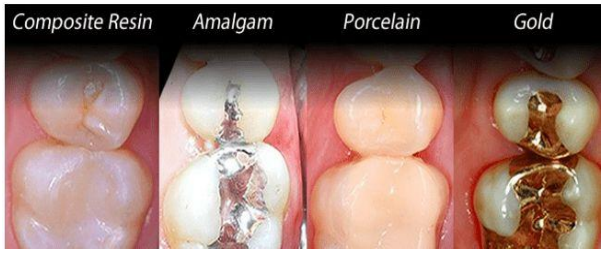

Figure 2: *Types of Dental Filling.*[11]

Procedure For Dental Fillings

The procedure begins with the removal of decay tooth material under local anesthesia. The cavity is cleaned and prepared, and the filling material is placed, shaped, and hardened. Composite and ceramic materials are light- cured using a curing light, while amalgam sets over time. Finishing and polishing ensure proper bite alignment and smoothness.[5]

Recent Advances

Modern advancement in dental fillings focus on improving material properties and treatment techniques:

Nanocomposites offer enhanced mechanical strength, wear resistance, and polish retention.

Bioactive materials are being developed to promote remineralization and offer antibacterial properties.

Digital Dentistry, including CAD/CAM system, allows for same-day ceramic restorations with high precision and minimal discomfort.

These innovations are making dental restoration more conservative, durable, and aesthetically pleasing.[6,7]

Conclusion

Dental fillings are fundamental in restorative dentistry, providing effective treatment for carious lesions and structural damage. The selection of the appropriate material depends on clinical factors such as location, functions, cost, and aesthetic considerations. Advances in materials and technology continue to improve outcomes, ensuring better durability, patient satisfaction, and oral health.[8,9]

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Main body

References: Line spacing in this section will be 1.0. annd font arial narrow, size 10. **Vancouver style**

1. 1
2. 2