

THE SANDWICH TECHNIQUE AND ITS SIGNIFICANCE IN MODERN DENTISTRY**Nurullayev Jahongir Jo'rabek ogli**

Faculty of Medicine, Dentistry Department,

Asia International University

Khalilova Laziza Ravshanovna

Scientific advisor:

Lecturer, Department of Clinical Medicine

Asia International University

Email: xalilovalaziza5@gmail.com**<https://doi.org/10.5281/zenodo.15693477>**

Abstract. This article explores the sandwich technique, which is widely used in modern conservative dentistry. It provides detailed information about the origin of the method, technological aspects, material combinations, clinical advantages, and areas of application.

Modifications of the technique that meet modern standards, as well as its pros and cons, are also analyzed. The article may be beneficial for general practitioners, clinical dentists, and students.

Keywords: sandwich technique, glass ionomer cement, composite materials, dental restoration, biocompatibility, aesthetic filling, RMGIC, bulk-fill technology.

Introduction

The field of dental restoration requires continuous innovation in search of ideal materials and techniques. Each period introduces new methods and scientific approaches that contribute to the development of dentistry. One such technique is the 'sandwich method,' first recommended in the 1980s by McLean and Wilson.

This technique is based on the combination of glass ionomer cement (GIC) and composite materials. GIC is notable for its biocompatibility, fluoride release, and excellent bonding with dentin. Composite materials offer superior aesthetics, strength, and a wide range of shades. The sandwich technique combines the clinical advantages of both materials to produce optimal restorations.

There are two main variants of this method mentioned in the literature:

- Open sandwich technique – where GIC is partially exposed to the oral cavity.
- Closed sandwich technique – where the GIC is entirely covered by composite material.

Each approach has its unique advantages and disadvantages, chosen according to the patient's condition.

Main Body**Relevance of the Sandwich Technique**

Today, the loss of dental tissues due to caries, especially in fracture-prone areas (e.g., near fracture lines), demands strong, aesthetic, and biologically compatible restoration solutions.

In such situations, the sandwich technique is considered the most appropriate.

The sandwich technique involves layering one material over another to achieve high clinical performance. It is especially effective in Class II cavities and in areas where the cervical margin lies on cementum.

Advantages:

- Biocompatibility: GIC bonds well with dental tissues, releases fluoride, and helps prevent secondary caries.

- Mechanical strength: The composite layer provides an aesthetic appearance and withstands chewing forces.

- Thermal stability: Resilience to temperature changes.

- Prevention of marginal leakage: This method helps prevent leakage between the tooth and the filling material.

Disadvantages:

- Technological complexity: Requires skill to select and apply both materials correctly.

- Bonding interface issues: If the bond between GIC and composite is weak, cracks or leakage may occur.

- Material quality matters: Low-quality GIC or composite can lead to failure over time.

Technique Improvements

Modern dentistry has introduced improved variants of the sandwich technique. One such improvement is the use of resin-modified glass ionomer cements (RMGIC), which offer enhanced mechanical and elastic properties and bond better with composites. Another innovation is the use of bulk-fill composites to make the top layer faster and more efficient, saving time and reducing layering errors.

Conclusion

The sandwich technique is an effective and scientifically grounded method used in dental practice. Its primary benefit lies in combining the clinical strengths of different materials. The biological advantages of glass ionomer cements and the aesthetic and mechanical properties of composites make it one of the most widely used techniques.

Modern modifications, such as RMGICs and bulk-fill technologies, increase the reliability and versatility of the sandwich technique. In the future, bioactive materials and nanotechnology are expected to lead to even more advanced sandwich restorations.

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