

# Diastema Closure with Direct Composite Bonding at Barleti University Hospital Dental Clinic

A 42-year-old female patient presented for the replacement of aging composite restorations and aesthetic enhancement of her smile. By employing a minimally invasive direct composite bonding technique, the diastemas in both the maxillary and mandibular anterior regions were closed while ensuring a natural and balanced aesthetic result.

## Introduction

Anterior diastemas are prevalent clinical findings that can adversely affect a patient's smile harmony and self-confidence. While treatment modalities range from orthodontics to indirect ceramic veneers, direct composite bonding offers a conservative, cost-efficient, and immediate alternative. Nevertheless, achieving predictable functional and aesthetic success with this method necessitates meticulous planning and advanced clinical proficiency.

This case report details the clinical steps involved in replacing failing restorations and the aesthetic rehabilitation of the anterior segment using a direct composite approach.

## Case Description

A 42-year-old patient travelled to Albania for a three-day period to replace old composite bondings on her upper central incisors and the lower inter canine sector. The patient's main concern was the aesthetic management of wide anterior diastemas.

We discussed three primary treatment options:

**Indirect Restorations:** Zirconia or lithium disilicate veneers.

**Orthodontics:** To close spaces through tooth movement.

**Direct Bonding:** A minimally invasive, cost-effective, and rapid solution.

The patient was informed of the risks associated with bonding, including potential staining and lower mechanical strength. It was also noted that diastema closure would result in wider tooth morphology. After evaluating these factors, the patient chose the direct bonding protocol.

## Diagnosis and Initial Phase

On day one, we performed a full medical/dental history and a digital panoramic X-ray. After capturing baseline clinical photographs (Figure1), the old composite material was carefully removed.



*Figure 1. Initial presentation showing old composite restorations before removal*

Following the removal of the old material, the natural teeth were photographed (Figure 2). Definitive impressions of the maxillary and mandibular arches were then taken using a two-stage polyvinyl siloxane technique (putty + light-body).



**Figure 2.** Natural teeth post-removal of old restorations.

### Laboratory Phase

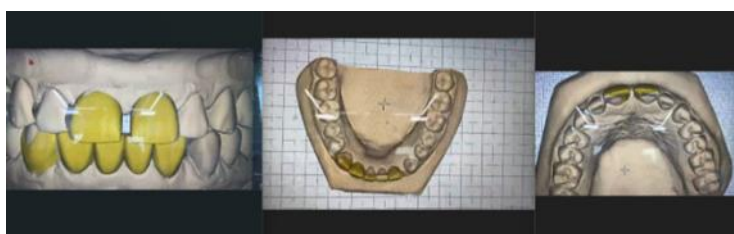
Impressions were sent to *The Lab Perfect Dent* for a digital diagnostic wax-up. The plan focused on achieving a harmonious balance between reducing the diastemas and maintaining anatomical proportions, per the patient's request for a natural look with no shade change.

### Clinical Preparation

A professional cleaning and interproximal stripping were performed on day two to remove all surface stains. Professional whitening was intentionally bypassed to maintain the patient's preferred natural shade.

### Aesthetic Execution

The patient approved the wax-up for teeth 11, 21, 43, 42, 41, 31, and 32. Maxillary and mandibular silicone keys were fabricated by the lab to serve as a guide for the direct bonding procedure.



**Figure 3.** Digital diagnostic wax-up.

### Restorative Phase

Direct bonding was performed on day two using a nano-hybrid composite (Olident Olirevo). Restorations were applied to the vestibulo-mesial aspects of teeth 11 and 21, and the mesial, distal, and vestibular surfaces of teeth 43 through 32.

The silicone keys ensured the faithful reproduction of the planned wax-up. A layering approach was used to control translucency, utilizing an OA2 interproximal shade and an A2 superficial shade for seamless aesthetic blending. The composite was finished and polished using diamond burs and discs, with special care taken to remove cervical overhangs and maintain a smooth transition to the natural tooth structure.

### Completion and Post-Operative Care

On day three, a final polishing session addressed the lingual and palatal contours, ensuring perfectly smooth interfaces. After capturing the final clinical photographs, the patient was educated on proper brushing and flossing techniques to maximize the longevity of the bonding and prevent future gingival inflammation.



**Figure 4.** Final clinical result.

### **Results and Conclusion**

The treatment successfully addressed the anterior diastemas, enhancing the overall balance of the smile while maintaining a natural look. Both the aesthetic and functional goals were met, with the patient expressing full satisfaction with the final result.

This case confirms that direct composite restorations represent a reliable, conservative alternative for aesthetic rehabilitation in the anterior segment when proper clinical protocols are followed.



**Figure 5.** Before and after comparison: Pre-treatment smile (left) versus the definitive aesthetic result following direct composite bonding (right).

**Signed & Approved by:**

*Maurizio Procaccini*

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15.04, 2026