

# Aesthetic Rehabilitation of Discoloured Anterior Teeth with Direct Composite Veneers

Dr. Karishma<sup>1</sup>, Dr. Ashish Sharma<sup>2</sup>

<sup>1</sup>Department of Endodontics, Post Graduate Institute of Dental Sciences, Rohtak

<sup>2</sup>General Dentist, Tarasha Dental Care

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## ABSTRACT

**The interest in aesthetic dental treatments has risen notably in recent years, driven by patients seeking less invasive and affordable ways to enhance their smiles. Direct composite veneers offer a flexible, conservative, and practical solution for restoring the aesthetics of anterior teeth. This article discusses two case studies that demonstrate the application of direct composite veneers for aesthetic restoration, emphasizing their effectiveness, adaptability, and potential to deliver outstanding clinical results.**

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## INTRODUCTION

Restoring patients self-confidence and improving their quality of life depend much on aesthetic restoration of anterior teeth. Direct composite veneers are a popular method because of their fast results, affordability, and conservative nature. Direct veneers are made chairside, giving dentists more control over the finished product and eliminating the need for laboratory operations, in contrast to indirect restorations. Recent developments in composite resin materials have greatly enhanced their strength, durability, and optical qualities, making them an excellent option for addressing a variety of functional and cosmetic dental conditions<sup>(1)</sup>

The aesthetic harmony of the anterior dentition was restored in two clinical situations described in this study using direct composite veneers. The clinical workflow, including diagnosis, treatment planning, material selection, and application procedures, is demonstrated in both cases.

## CASE REPORT 1

A 24-year-old male patient presented with concerns about the appearance of her upper anterior teeth, having yellowish discoloration. Upon clinical examination, fluorosis discoloration of the maxillary central incisors were observed from right canine to left canine. During the first appointment a complete photographic documentation was collected. Patient was given treatment options of both composite and ceramic veneers after explaining about pros and cons of both the treatment options. Due to economical reasons, treatment with composite veneers was planned. A shade-matching session was conducted to select the appropriate composite resin material.

## PROCEDURE

The teeth were cleaned, and minimally invasive enamel preparation was performed to ensure optimal bonding. Supragingival margin with butt joint incisal edge was given using medium grit (100  $\mu$ m) and fine grain (30  $\mu$ m) diamond burs. All the teeth surfaces were finished using stone burs (based on a micrograined aluminum oxide grit; Dura-white stones, Shofu Dental GmbH, Ratingen, Germany) and polishing disks (Sof-Lex Extra Thin (XT) disks). Preparation area was isolated using cotton rolls. small gingival retraction cord was inerted in gingival sulcus (number 00 Ultrapak, Ultradent Inc.) to prevent sulcular fluid contaminating the preparation and obtaining adequate gingival displacement. Teeth were then etched for 30 seconds with 37% phosphoric acid (Tetric-N-etch), washed for 20 seconds with water spray, and gently dried. Total etch adhesive agent (Tetric- N- Bond) was applied in thin layers with a brush to prepared tooth surfaces and polymerized for 20 seconds with a light-curing device (Woodpecker Lux curing light). Translucent matrix bands were cut and interdentially put around the mesial and distal borders before being fastened with wedges of the right size. Tetric-N-Ceram shade A1 composite was applied gradually and cured for 40 seconds. Polishing discs (Ultra Gloss Composite Polishing System, Axis, USA) were used to complete and polish the restoration. The patient received information on routine recalls and encouragement to maintain good dental hygiene. Every six months, recall exams were performed, and no discoloration or sensitivity was found. Oral prophylaxis was performed, the restorations were polished, and minimal debris was observed on them during the 1-year recall check-up.



Figure 1- Pre treatment photograph showing flourosed incisors and canines



Figure 2: Tooth preparation for direct composite veneers



Figure 3- Finished and polished direct composite veneers



Figure 4- 1 year follow up

## CASE REPORT 2

A 24-year-old female patient presented with severely discoloured upper front teeth from past several years. No relevant past dental and medical history reported. On intraoral examination, the patient had generalized moderate fluorosis (Dean's Grade III) in relation from right and left maxillary central. lateral incisors (11,12,21,22) and left and right maxillary canines (23,13).The treatment plan was to perform direct composite veneering on anterior teeth due to economical reasons. The initial shade was measured with VITA shade guide (VITAPAN Classical). The tooth preparation involved partial preparation with chamfer on the facial surfaces. The surface was acid etched with 37% phosphoric acid (D-Tech Etching Gel, Kerr, USA) for 15 s, rinsed for 10 s, and dried. A bonding agent (Adper Single Bond, 3M ESPE, USA) was applied on the prepared enamel and light cured for 10 seconds. For the purpose of rebuilding the enamel, increments of enamel shade composite A1 (Filtek Z350 XT, 3M ESPE, St. Paul, MN, USA) were applied, and light activated for 20 seconds. The incisal adjustment was carried out using fine and extra fine flame-shaped diamond burs, 3168 F and 3168 FF (KG Sorensen, Brazil). The patient was instructed to maintain oral hygiene, and recall visits were planned every six months. At the conclusion of the one year follow-up, no discolorations or disintegration were found.



Figure 1- Pre treatment photograph showing flourosed incisors and canines



**Figure 2: Tooth preparation for direct composite veneers**



**Figure 3- Finished and polished direct composite veneers**



**Figure 4- 1 year follow up**

## DISCUSSION

Direct composite veneers offer numerous advantages, including minimal tooth preparation, cost-effectiveness, and immediate results. The success of these restorations depends on careful case selection, precise shade matching, and meticulous application techniques.<sup>(1-2)</sup> Direct veneers are an excellent option for many patients due to economic reasons and faster procedure due to their completion in a single procedure, repair and replacement rates are less.<sup>(3,4)</sup>

Both Case1 and case 2 had moderate fluorosis. The hyper mineralized layer was removed by grinding the fluorosed enamel surface. It is recommended that highly fluorotic enamel be etched for 30 seconds, whereas healthy enamel and mildly fluorotic enamel be etched for 15 seconds. Prior to phosphoric acid treatment, the outer layers of fluorosed enamel may be removed by microabrasion, which could improve the enamel surface and increase the retention of the adhesive bond. Advances in composite materials have enhanced their ability to mimic natural teeth's optical properties, providing long-lasting aesthetic and functional results.<sup>(5-7)</sup>

While they are cost effective and aesthetic, they require a high level of technical skill and attention to detail from the clinician. Proper finishing and polishing are crucial for achieving a natural appearance and ensuring longevity. Additionally, patient education on maintaining oral hygiene and avoiding habits such as nail-biting or bruxism is essential to preserve the restoration's integrity.<sup>8</sup>

The case reports presented demonstrate the versatility and effectiveness of direct composite veneers in addressing a range of aesthetic and functional challenges. With careful planning and execution, this technique can deliver predictable and satisfying results for both patients and clinicians.

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