

# Aesthetic restoration of peg lateral incisors with direct composite resin

Numan Aydın <sup>1</sup>, Serpil Karaođlanođlu <sup>1</sup>, Tuggen Özcivelek Mersin <sup>2</sup>, Elif Aybala Oktay <sup>1</sup>, Funda Demir <sup>1</sup>

(1) University of Health Sciences, Faculty of Gulhane Dentistry, Department of Restorative Dental Treatment, Ankara, Turkey

(2) University of Health Sciences, Gulhane Oral and Dental Health Care Center, Department of Prosthodontics, Ankara, Turkey

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## Corresponding Author:

Numan AYDIN

Health Sciences University,  
Faculty of Gülhane Dentistry,  
Department of Restorative  
Dental Treatment, Ankara,  
Turkey  
dt\_numan@hotmail.com

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## ABSTRACT

“Conical tooth anomaly” is defined as those anomalies associated with volumes and shapes of the teeth, and as the malformation in which dental crowns are similar with cone and shape bluntly and in which mesiodistal crown size is smaller than cervical size. Although many treatment options are adopted for regaining the aesthetic structure and functions in such individuals, direct and indirect options are generally preferred. In this case report we have presented 3 patients presenting with “conical tooth anomaly” following the clinical and radiographical evaluation and diagnosis of those patients treated with direct composite resin.

## Introduction

Dental anomalies occur in the developmental stages of the tooth bud as a result of MSX1, PAX9 and AXIN2 gene mutations which are the consequences of hereditary or environmental factors (1,2). The type and severity of the anomaly is related with the germ layer's embryological period at the time of the development of the mutation (3). One of the anomalies related with the volume and shape of the teeth is “conical tooth anomaly” where the tooth crown has a blunt shape similar to a cone and the mesiodistal width of the crown is smaller than the cervical width (4).

Autosomal dominant hereditary anomalies may appear in different forms in different members of the same family. It is suggested that these anomalies may occur by environmental factors as well as inheritance and systemic factors (3).

Conical tooth anomalies cause aesthetic and orthodontic problems in individuals. There are various approaches in the treatment of conical shaped lateral incisor teeth (5). One of the options is to restore conical lateral incisor tooth morphology

by direct methods. Another one is using indirect methods such as laminates, crowns or fixed partial dentures. Other extreme approaches include extracting lateral tooth, repositioning the neighbouring canine by orthodontic treatment and recontouring it as lateral or replacing extracted lateral tooth with a single osseointegrated implant. In our case series; we present three patients with “conical tooth anomalies” and the treatment of peg-shaped lateral incisor teeth by direct method. Since the first and second case presented were siblings they display the diversity of clinical appearance in the same family.

## Presentation of cases

### Case 1.

A twenty-year-old female patient who had anterior teeth malformation admitted to the University of Health Sciences, Gülhane Faculty of Dentistry with complaints about her dental appearance. Patient's history revealed no systemic disease but she mentioned about her sibling also having non-aesthetic appearance in her anterior teeth. At the radiographic and clinical examination bilateral conical lateral incisors were detect-

ed (Case 1A). Recontouring of the conical lateral incisors and closure of diastemas were managed with direct method using composite resin. Procedure was explained to the patient and an informed consent was signed in by the patient.

### Case 2.

A 22-year-old female patient had admitted to our clinic with unaesthetic appearance of her teeth as the main complaint. While her anamnesis did not reveal any systemic disorder diastemas due to bilateral conical lateral incisor teeth were detected in radiographic and clinical examination (Case 2A). After clinical and radiological evaluation of the teeth, it was decided to treat the conical shaped lateral incisor teeth directly with the composite resin. The patient was informed about the treatment planning and informed consent form was signed.

### Case 3.

Twenty-seven-year-old male patient who applied to our clinic with aesthetic concerns had bilateral conical lateral incisors and midline diastema (Case 3A). Following clinical and radiological evaluation direct composite resin restoration was planned and informed consent form was signed in by the patient.

Prior to the treatment procedures isolation of the teeth from saliva was provided with rubber dam. Fine-grained (yellow) diamond burs (Diatech, Switzerland) were used to roughen the surfaces of conical lateral incisor teeth. After application of 37% orthophosphoric acid (Scotchbond™ acid, 3M-ESPE, USA) for 30 seconds, teeth were rinsed for 15 seconds with water spray and air dried for 5 seconds. A universal bond (Singlebond™ Universal, 3M ESPE, USA) was applied and polymerized for 20 seconds utilizing LED light source (DTE LUX E, Germany, 1200 mW / cm<sup>2</sup>). For the restoration of the teeth, dentin and enamel nanocomposites (Filtek™ Ultimate Universal, 3M-ESPE, USA) in A2 colour shade was used by layering technique. Finally finishing diamond burs (Diatech, Switzerland) and polishing (Sof-Lex contouring and polishing disks, (3M-ESPE, USA) procedures were performed. (Case 1B,2B and 3B).

### Discussion

Conical shaped dental anomalies was reported to show inheritance and autosomal dominant transition (3). In this case series, it was observed that the peg-shaped lateral incisors were not related to any syndrome or disease but first two cases were siblings.

The prevalence of conical dental anomalies varies according to ethnicity, gender and region (6). In a study on hereditary dental anomalies, it was stated that conical dental anomalies were one of the most frequent one among the observed anomalies (7). The prevalence of this anomaly was found to be between 0.4% and 1.7% in studies (6,8-11).

The distribution of these anomalies with respect to gender was evaluated and they were reported to be 1.35 times more frequent in females than males (12). In this case series, two patients out of three were female.

Reports on the unilateral or bilateral appearance of conical dental anomalies in the mouth varies in the literature (13,14). In this case series all the three patients had bilateral conical dental anomalies.



**Figure 1.** Views of three cases. (A) Before treatment, (B) After treatment with composite resins by direct method.

Conical tooth anomalies lead to both aesthetic and functional loss due to diminution of the size of the incisor teeth and diastemas on the midline. Direct and indirect methods are generally preferred as treatment options in restoration of aesthetics and function in individuals. Indirect methods include porcelain laminate veneers, metal-ceramic restorations and full ceramic crowns. Direct composite veneer applications are not only the minimally invasive treatment approach, but also the fastest treatment option that has the most important advantage of obtaining desired aesthetic results in a single appointment. Walls et al. reported the composite veneers to be aesthetically and functionally appropriate treatment options for discoloration and hypoplasia in anterior teeth in a 2-year clinical trial (15).

### Conclusion

In this case series, in order to protect the tooth structure with a minimally invasive technique the restoration of the teeth was completed by direct composite veneers. At the one year follow up there was no staining, fracture or periodontal problems in the restored teeth of the patients. Contemporary developments in composite restorative resin materials facilitate to achieve desired aesthetic results in the restoration of the conical lateral incisors with direct techniques.

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### Conflict of Interest

The authors declared they do not have anything to disclose

regarding conflict of interest with respect to this manuscript.

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