

Greetings to the members of the American Academy of Cosmetic Dentistry (AACD).

As you know, a sisterhood agreement was concluded between the AACD and the Japan Academy of Esthetic Dentistry (JAED) at a signing ceremony held during the 26th Annual AACD Scientific Session in Texas on April 30, 2010.

In late August 2010, we were pleased to welcome AACD President Dr. Hugh Flax, AACD CEO Mr. Ed Simeone, and Dr. Wynn Okuda to the 21st Annual Meeting of the JAED, as a way to kick off academic exchange. Dr. Okuda offered a special lecture, titled "Cosmetic and Esthetic Dentistry: Understanding the Differences and its Application." In addition, we had the great pleasure of accepting an article, "Class IV Direct Resin Restoration," written by AACD President-Elect Dr. John Sullivan. This article was published in the *Shika shinbi* (JAED Academic Journal), Vol. 23 (1), 2010.

The JAED is composed of members who represent various professions and occupations, such as dentists who practice at universities or research institutes or who are engaged in private practice; as well as dental technicians, dental hygienists, and researchers for manufacturers. We hold scientific sessions and seminars with offerings that are intended to appeal to the entire composition of our membership.

I understand that the AACD also holds annual scientific sessions in which many members participate, and that these sessions provide occasions for exchanging information about the latest clinical skills and dental treatments using advanced techniques.

I hope our friendship and academic exchange will thrive and grow, with the shared aim of improving esthetic dentistry treatment skills, taking advantage of the characteristics of each Academy.

Sincerely,

Toru Sato, DDS, PhD  
President  
Japan Academy of Esthetic Dentistry



Dr. Hugh Flax and Dr. Toru Sato



In the Spring of 2010, the American Academy of Cosmetic Dentistry (AACD) and the Japan Academy of Esthetic Dentistry (JAED) formed a "sister relationship" for the purpose of sharing educational information. At the JAED's scientific conference in August 2010, Dr. Wynn Okuda delivered a lecture on esthetics and cosmetics in dentistry. At the 27th Annual AACD Scientific Session in Boston in May, Dr. Tomoyuki Tsubaki will present a lecture focusing on a whitening technique currently used only in Japan. These cross-cultural lectures are part of the ongoing relationship between the two organizations.

An exchange of journal articles is also part of the relationship agreement. AACD President-Elect Dr. John Sullivan's article on Accreditation Case Type IV was featured in the Volume 23, Issue 1 2010 edition of the *Shika shinbi* (*Journal of Esthetic Dentistry*, published by the JAED); and an article by Drs. Morihiro Miyamae and Takashi Nakamura appears in this issue of the *JCD*.

The goal of this relationship is to feature different global perspectives and approaches to cosmetic dentistry. Additional relationships will be created that will ultimately offer *JCD* readers a more comprehensive resource from which to evaluate and improve their own clinical skills.

# A Multidisciplinary Approach for Anterior Esthetic Trauma

## Complex Esthetic Treatment for a Patient Injured in a Traffic Accident

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Takashi Nakamura, DDS, PhD

### Abstract

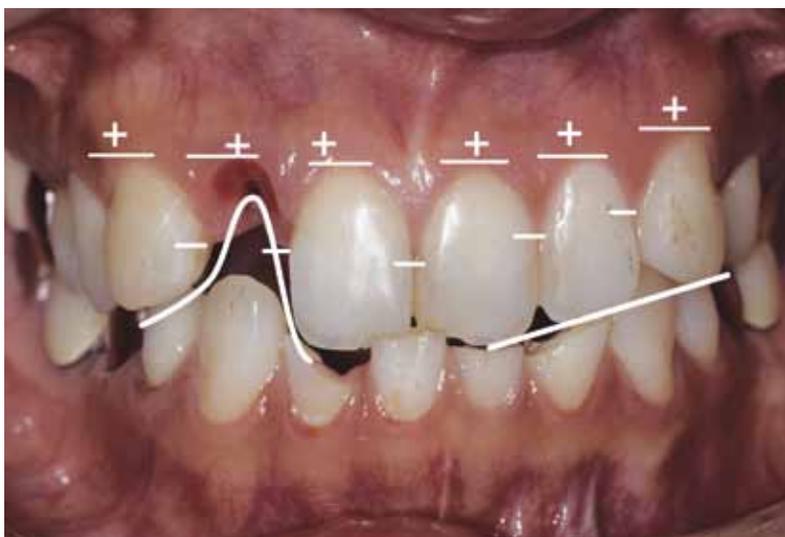
When a person suffers facial trauma, he or she often experiences mastication problems or reduced dental esthetics. In such circumstances, a combination of treatments is required, including periodontal, orthodontic, and prosthetic procedures, to restore the lost function and esthetics. This article reports on the case of a person who received a combination of multidisciplinary treatments for an anterior esthetic problem caused by a traffic accident.



**Figure 1:** Pre-treatment, frontal view.



**Figure 2:** Pre-treatment, radiographs of the upper anterior region.



**Figure 3:** The gingival margin outline was asymmetric and had no parallelism. The zenith and papillae were misaligned.

## Introduction

The parallelism, symmetry, zenith, and papillae of the gingival margin line are important considerations when attempting to restore the esthetics of periodontal tissue in the anterior region.<sup>1</sup> First, restoring parallelism requires that the incisal edge line connecting both canines and the central incisors be made parallel to the outline of the lower lip. Second, symmetry requires that the cervical position of the maxillary central incisors, lateral incisors, and canines are symmetrical, and that the cervical positions of the lateral incisors are more coronal than those of the adjacent teeth. Third, the zenith should optimally be a bit distal to the center of the dental axis. Lastly, the longest papilla should be between the central incisors.

## Case Report

### Findings

The patient, a 37-year-old female, presented complaining of an anterior esthetic problem caused by a traffic accident. The accident damaged her maxillary anterior teeth, forcing them into a slightly eccentric palatal position (Figs 1 & 2). One month after receiving treatment at a hospital, she visited us because of dissatisfaction with her appearance and disturbed masticatory function.

In this case no parallelism was found in the gingival margin outline, there was considerable asymmetry, the zenith was misaligned, and so were the papillae (Fig 3).

Other problems were found, such as irregular anterior couplings and invaded biologic width for the maxillary right lateral incisor. However, no periodontal problems, such as bone defects or deep pockets, were observed.

## Treatment Plan

Taking into account the aforementioned problems, we made a treatment plan for the upper anterior region. After orthodontic extrusion, the esthetic treatment was performed by installing an all-ceramic crown and porcelain laminate veneers.

The treatment plan for the upper incisors was as follows:

- #12: root canal treatment
- ##13-23: orthodontics (#12: extrusion)
- #12: all-ceramic crown
- #11, #21, #22: porcelain laminate veneers.

No parallelism was found in the gingival margin outline, there was considerable asymmetry, the zenith was misaligned, and so were the papillae.

## Treatment

Tooth realignment was performed. The cervical line was aligned with the orthodontic extrusion and the desired biologic width was obtained. An orthodontic extrusion is an effective procedure for obtaining biologic width (Figs 4-6).

After the orthodontic treatment, the edge-to-edge occlusion caused by the traffic accident was repaired to restore normal tegmenta. Esthetic and functional anterior guidance was achieved (Fig 7). The positions of the gingival tissues became symmetric both on the maxilla and the mandible. However, the teeth were not yet improved to present optimal shape and appearance (Fig 8).

The shapes and positions of the teeth and gingival tissues were confirmed with a diagnostic wax-up (Fig 9) to lay the groundwork for an optimal definitive restoration. Since their incisal edges were fractured, we decided to restore three incisors with porcelain laminate veneers. When preparing laminate veneers, it is effective to make a jig from a diagnostic wax-up, using a silicone impression material (Figs 10 & 11).

Figure 12 shows the definitive restoration of the anterior incisors. Approximately one week after bonding the laminate veneers, we matched the color tones of the porcelain laminate veneers and resin-cemented them to the natural teeth. Then, an all-ceramic crown was cemented on the maxillary right lateral incisor (Fig 13). Harmony with the smile line was achieved (Figs 14 & 15). The mandibular incisors were treated in the same way, using all-ceramic crowns.

After treatment, the occlusion was stabilized and satisfactory results were achieved regarding parallelism, symmetry, zenith, papillae, and tooth shapes (Fig 16). This overall excellent result can be attributed to the combination of periodontal, orthodontic, and prosthodontic treatments.



Figure 4: A gingivectomy was conducted before orthodontic extrusion.



Figure 5: Orthodontic treatment of the upper teeth.



Figure 6: Radiographs before and after orthodontic extrusion.



**Figure 7:** Lateral views at the first visit and eight months after the start of orthodontic treatment.



**Figure 8:** Frontal view of the anterior region after orthodontic treatment.



**Figure 9:** A diagnostic wax-up was made.



**Figure 10:** A jig made using a silicone impression material is effective for preparation.



**Figure 11:** Porcelain laminate veneer preparation for three incisors.



**Figure 12:** Definitive restorations for the anterior incisors.

## Discussion

All-ceramic restorations have excellent biocompatibility and reproduce a visual appearance close to that of natural teeth. However, in an actual clinical setting, there arise cases for which all-ceramic restorations alone cannot sufficiently restore the function and esthetics of the teeth and mouth. The patient in this report had a distorted cervical line and rotated axes of anterior teeth due to a traffic accident, and needed orthodontic treatment prior to the prosthetic treatment. In addition, the patient had a damaged lateral incisor with a remaining root. This lateral incisor could have been extracted and treated with an implant. However, an orthodontic extrusion was selected instead of removing the lateral incisor, because a sufficient amount of sound tooth structure and a long root were still available.<sup>2</sup> The orthodontic extrusion made it possible to lift not only the tooth but also the bone. This choice also has the advantage that, if it needs to be extracted for any reason, the lateral incisor can be treated later with an implant.

All-ceramic restorations have excellent biocompatibility and reproduce a visual appearance close to that of natural teeth.

After orthodontic extrusion, the abutment was constructed for the lateral incisor using a fiber post, which is believed to prevent the creation of large stresses at the root that might cause tooth fracture.<sup>3</sup> After that, a glass ceramic crown was delivered. The other incisors were restored with porcelain laminate veneers. Laminate veneers have a thinner layer of tooth-colored porcelain material than crowns and thus offer limited color-matching ability. For this reason, each laminate veneer was first fitted in place. After the shade settled down, a crown with a shade matching the veneer was placed.

About three-and-a-half years have passed since the patient received the treatment, without any special problems arising (Fig 17). This leads to the conclusion that multiple treatments using prosthodontic, orthodontic, and prosthetic procedures in combination can be effective in stabilizing mastication and restoring the functions and esthetics of badly traumatized mouths.



Figure 13: Post-treatment, radiographs of the upper anterior region.



Figure 14: Post-treatment, frontal view.



Figure 15: Post-treatment, lateral view.

## References

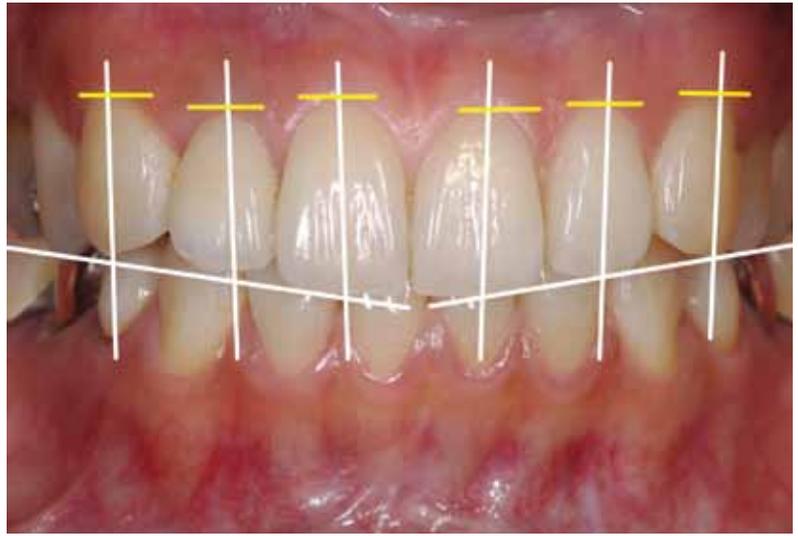
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**Figure 16:** Parallelism, symmetry, zenith, and papillae of the gingival outline were considerably improved.



**Figure 17:** Frontal view three-and-a-half years after treatment.