

Case Report

Complex aesthetic treatment on anterior maxillary teeth with malposition

Febriastuti

Department of Conservative Dentistry
Faculty of Dentistry Airlangga University
Surabaya - Indonesia

ABSTRACT

Background: Complex aesthetic treatment on anterior teeth involves more than one caries tooth with malformed shape and malposition. **Purpose:** The purpose of this paper is to find the alternative treatment for anterior maxillary teeth with malposition. **Case:** In this case, a 25 year-old man with a peg shaped teeth and caries on several teeth and malposition can be treated with complex aesthetic treatment. **Case management:** Endodontic pulpectomy treatment on anterior maxillary teeth and post construction with splint porcelain fused to metal crowns on 11, 12, and 21, 22 to correct the shape and position into normal position. **Conclusion:** Malformed and malpositioned teeth with caries can be treated with complex aesthetic treatment.

Key words: malformed teeth, complex aesthetic, splint, porcelain fused to metal crown

Correspondence: Febriastuti, c/o: Departemen Konservasi Gigi, Fakultas Kedokteran Gigi Universitas Airlangga. Jl. Mayjend. Prof. Dr. Moestopo no. 47 Surabaya 60132, Indonesia. E-mail: febriastuti_drgkonservasi@yahoo.com

INTRODUCTION

Natural and convenient appearance constitutes an aesthetic shape are mostly desirable by everyone. Teeth and face disorder will affect someone's appearance and self confidence. Aesthetic in dentistry is aimed to acquire better and natural contour, shape and texture on teeth surface.¹ Factors influencing aesthetic are teeth shape and proportions, color, teeth position dimension, including smile and lips lines position, teeth relation, midline to face and lips midline relation.²

Esthetic problems on anterior teeth crowns are caused by color change, shape anomaly, attrition, caries, diastheme and fracture. These shall motivate someone to pay attention on his/her anterior teeth appearance, these could ambulate patients from one dentist to another to consult their dental treatment in order to get a natural appearance when smiling or talking. To get a good artificial look on the patient, a dentist should plan a good treatment with a prospect to achieve harmony among the teeth shape and color with the patient's face to achieve the desired aesthetic and cosmetic.

In the treatment, a dentist will need the teeth impression mould to be used as diagnostic and working model. A working model is used to afford the management's accuracy and success.³

Some techniques for treatment have been developed to overcome the aesthetic problem of anterior teeth by composite resin restoration, composite direct veneer or porcelain indirect veneer and porcelain crown.⁴ In the case of anterior teeth which involve more than one caries teeth with shape anomaly and position change or teeth situation needs a complex aesthetic restorative treatment, i.e. a corrective restoration towards teeth anomaly or more than one teeth defects so they will be in the correct and normal arch.

Panoramic and local roentgen photos and study specimens to support diagnosis and treatment plan are required in undertaking the treatment. Study specimens are also used to explain the patient about the treatment plan.

This article is aimed to bring a solution/restoration treatment alternative in the case of anterior teeth with peg shape, caries and malposition.

CASE

A 25 years old, male patient came to the Conservative Dentistry section of Airlangga University Dental Hospital asking his caries to be treated and his peg shape and malformed teeth to be corrected. The maxillary anterior tooth had caries, never been treated and had no pain.



Figure 1. The teeth condition before treatment.

In clinical observation, tooth number 11 was palatoversion and had caries media, vital, no pain on percussion and pressure, the treatment plan was pulpectomy and pin crown restoration. Teeth number 12 and 22 were peg shaped and labioversion, no caries, vital teeth, no pain on percussion and pressure: vital. The treatment plan was pulpectomy and porcelain pin crown restoration. Tooth number 21 was palatoversion, no caries, vital, no pain on percussion and pressure. The treatment plan was pulpectomy and porcelain pin crown restoration (Figure 1).

CASE MANAGEMENT

Prior to the treatment application, teeth were first impressed and casted to provide the working model and study model. Local and panoramic roentgen photo were conducted for diagnosis and treated planning purposes. After the new treatment planning for the crowns was done, the patient was illustrated about the treatment plan to be conducted using the study model. The working model was used for the fabrication of temporary crowns.

The next step, cavity treatment was applied towards teeth number 11, 12, 21, 22 in a single visit (Figure 2). Then aseptic working area was performed using rubber dam application. Cavity entrance, Diagnostic Wire Photo and work length measurement were applied. Afterwards, pulpal tissue extirpation, root canal space preparation were done with conventional technique using K-file confirm to the working length were done. In every file change, the root canal space was irrigated with 3% H₂O₂ and sterile aquadest. Then the trial gutta point and trial photo were applied. The root canals were filled with AH Plus paste and gutta point filler material using the single cone technique.

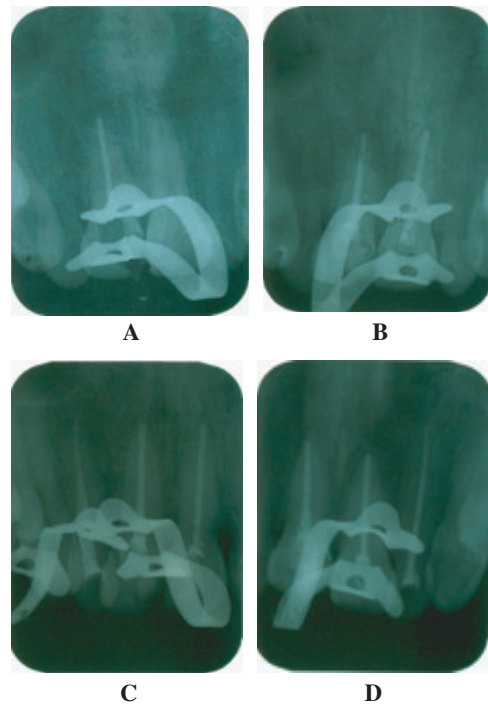


Figure 2. Radiographic photos on teeth after obturation. (A) tooth number 11, (B) tooth number 12, (C) tooth number 21, (D) tooth number 22.

On teeth number 11, 12, 21 and 22 teeth pin crowns were made by reducing the gutta point as two thirds of the root canal space using peeso reamer and crown decapitation and then the double impression technique applied. Bite record and temporary crown application with normal relation were made. The cores and pin crowns were made in The Dental Technology Laboratory of Airlangga University.



Figure 3. Pin crowns installation.

The cast post were inserted to teeth number 11, 12, 21 and 22 using type I glass ionomer cement, and then the crowns were prepared by scrapping the labial and lingual up to 1mm below the gingiva coincidentally (Figure 3). Slicing to mesial part of tooth number 13 and 23 was done as the gap between 11 and 12 teeth, and 21 and 22 were narrow.

Those teeth crown preparation casted with double impression material. Before it was casted, a tissue

management using hemostat liquefied retraction thread to gingival was applied so the preparation result will be clearly visible on the cast product. Antagonist teeth were casted using alginate materials, bite, and color matched. Then temporary crown was inserted.

On the next visit, porcelain fused to metal crown trial insertion were done after the color and shape were fitted. Contact to antagonist teeth were also checked. Porcelain fused to metal splint crowns were made on teeth number 11, 12, 21, and 22 teeth. As there was no more premature contact, the porcelain fused to metal crowns were permanently inserted using type I glass ionomer cement (Figure 4). Control was done in the next week and there was no pain after insertion.



Figure 4. After treatment.

On the first control (a week after treatment) there was no pain complains, normal gingival color, no swelling, good radiographic photo showed no periapical anomaly. On the second control (six months after insertion) there was no lamentation on anamnesis, on intraoral percussion and pressure examination, gingival mucosa was normal.

DISCUSSION

To improve teeth malposition by minimum modification, dental conservation also has an important role i.e. by complex aesthetic treatment. Complex aesthetic treatment is a dental treatment by improving the shape, position and inclination which covers several teeth so better and natural contour, shape and teeth surface texture can be achieved.¹ In this case the patient had no self confidence when he smiled therefore an aesthetic treatment was needed to improve the shape and position of his carious anterior teeth with malposition. Prior to treatment, the dentist explained about the therapy using study model and panoramic photo, since communication and cooperation between patient and dentist are important keys achieve a successful treatment.⁵

In this case, a one-visit-pulpectomy root canal treatment with crown and post restoration was applied on vital teeth

number 11, 12, 21 and 22 vital teeth was applied as to achieve good aesthetic an inclination improvement is needed. Post type was chosen to correct the position, core dimension, and inclination.⁶

Slicing the mesial part of teeth number 13 and 23 was done because the gaps between 11 with 12 and 21 with 22 were narrow. The purpose to apply slicing is to get enough space for teeth number 12 and 22 teeth in the dental arch.

Gingival margin retraction was needed in the preparation to cover the ceramic restoration to teeth transition so a good aesthetic restoration could be achieved, to get an entrance and to avoid soft tissue damage during the preparation procedure. Gingival retraction prior to casting was done to open the gingival and facilitate the double impression materials to enter into the gingival and cast the marginal part accurately.⁴ The gingival retraction material used was alum cord with yellow color to facilitate the identification. The alum functioned as stiptic, obstructed local bleeding and at the same time compressed the gingival edge.⁷

The porcelain fused to metal crown fitted to the surrounding teeth in perception of color, dimension, shape, arch position, age and sex to get natural and artistic appearance.⁸ Porcelain fused to metal splint crowns were applied to teeth number 11,12 and 21, 22 teeth, because the gaps were narrow.

The treatment was applied in order to get the normal shape of teeth number 11, 12, 21 and 22, harmonic and fitted to the normal dental arch by endodontic treatment and post and porcelain fused to metal crown insertion. Cooperation and understanding between patient and dentist is one of the success key of a therapy. It can be concluded that malposition and malformed teeth with caries can be restored by complex aesthetic treatment.

REFERENCES

1. Fellippe LA, Baratieri LN. Direct resin composite veneer: Masking the dark prepared enamel surface. *J Quintessence Int* 2000; 31: 557-62.
2. Qualtrough AJE, Burke FJT. A look at dental esthetics. *J Quintessence Int* 1994; 25(1):7-9.
3. Goldstein RE, Haywood VB. *Esthetics in dentistry*. 2nd ed. London: BC Decker Inc; 2002. p. 525-30.
4. Dale BG, Aschheim KW. *Esthetic dentistry a clinical approach to techniques and materials*. Philadelphia: Lea and Febiger; 1993. p. 101-12.
5. Roger L. The challenge of esthetic dentistry and elective services. *J Am Dent Assoc* 2005; 136:515-6.
6. Mount GJ, Hume WR. *Preservation and restoration of tooth structure*. Mosby International Ltd; 1998. p. 218-23.
7. Baum L, Phillips RW, Lund MR. *Textbook of operative dentistry*. 3rd ed. Philadelphia: WB Saunders Company; 1995. p. 494-514.
8. Soetanto S. Perawatan estetika konservatif untuk menanggulangi cacat fasial gigi. *Maj. Ked. Gigi (Dent J)* 2001; 34(4):756-9.