Journal of Dentistry Research

ISSN 2688-5549

Case Report

Esthetic Rehabilitation of a Discolored Maxillary Canine Tooth with a Porcelain Laminate Veneer

Ozdiler Arda[1], Bilhan H[2] and Yagci H[3]*

[1]*Depatment of Prosthodontics, Istanbul University, Turkey*

[2]*Depatment of Prosthodontics, Okan University, Turkey*

[3]*Portek-Dent Dental Laboratory, Turkey*

Abstract

Esthetic rehabilitation of a discolored single tooth in the esthetic zone presents major challenges for the clinicians. Due to the advances in dental materials, various conservative and minimal invasive treatment options are available in such cases. The application of the most appropriate treatment option is very important in terms of meeting the aesthetic demands of the patients. Thus, clinical success of rehabilitation depends on the exact identification of a case and the decision of the appropriate treatment option. This article narrates the esthetic rehabilitation of a maxillary canine tooth due to fluorosis discoloration with a porcelain laminate veneer restoration.

Introduction

Porcelain laminate veneers are done of the most conservative techniques applied in order to improve or reestablish the dental aesthetics [1-4]. These veneers are better in longevity and the resistance than the other veneer materials [5,6]. Porcelain laminate veneers can be applied in various cases such as discoloration, surface defects, diastema and malformation [1]. The current case report narrates the esthetic rehabilitation of a maxillary canine tooth due to fluorosis discoloration with a porcelain laminate veneer.

Case Presentation

A-25-year-old female patient reported her discontent with a discoloration at her maxillary left canine tooth (Figure 1). On the clinical examination of the patient, fluorosis related discolorations were observed at the labial medium 2/3 and the insical part of her left maxillary canine tooth. Radiographic and clinical examination did not reveal any caries or periapical pathological condition. Occlusion was in a class 1 relationship, oral hygiene was good and the gingival tissues were healthy. As a result of the examinations, all appropriate treatment options for this case were described to the patient. CAD/CAM manufactured and individualized by cut-back method porcelain laminate veneer was accepted by the patient as a treatment option.

Figure 1: Discolorations at left maxillary canine tooth.

At the next clinical appointment tooth preparation was performed with in minimally invasive approach followed by the final shades election by utilizing a chromascop shade guide (Vita Tooth guide 3D-Master, Vita, Zahnfabrik, Bad Sackingen, Germany). Final impressions were made using a polyvynil-siloxane impression material (Elite-HD, Zhermack, Badia Polesine, Italy) by Putty-Wash technique. Temporary restoration was prepared with a self-curing composite material (Structure Premium, A2, VOCO, Cuxhaven, Germany) and cemented on the tooth surface by applying single point bonding technique (Single Bond, 3M ESPE, St Paul MN, USA).

Porcelain laminate veneer was manufactured by CAD/CAM method (Sirona X5 Scanner - SironaInlab 3D Software - Sirona MCX5 Milling Machine, Sirona Dental Systems, Germany; Vitablocs Triluxe Color 1M2, Vita Zahnfabrik, Bad Sackingen, Germany). Individualizations were made in cut-back technique to achive the proper aesthetic result (Vita VM 9 Porcelain, Vita Zahnfabrik, Bad Sackingen, Germany). The coherence and the fit of the laminate veneer were verified both individually and collectively on the prepared tooth. The patient was satisfied with the form, shade and adaptation of the restoration. Final cementation was done with dual-cure resin cement (Variolink Esthetic Neutral, Ivoclar-Vivadent, Schaan, and Lichtenstein) (Figure 2). The occlusion and contact correction with final polishing and finishing process was applied after 24 hrs of cementation. Post-operative photos were taken and a night guard oral appliance was performed in order to prevent any trauma on the veneer caused by the Para-functional habits (Figure

Citation: Arda O, Bilhan H, Yagci H. Esthetic Rehabilitation of a Discolored Maxillary Canine Tooth with a Porcelain Laminate Veneer. J Dent Res. 2018; 1(1): 1002.

Publisher Name: Medtext Publications LLC

Manuscript compiled: September 06th, 2018

***Corresponding author:** Ozdiler Arda, Department of Prothodontics, Istanbul University, Millet Street, Capa Faculty of Medicine Campus, Fatih/Istanbul, 34097, Turkey, Fax: 00902124513721;

E-mail: ardaozdiler@gmail.com

3). One year post-operative evaluation did not reveal any fracture or discoloration of the veneer restoration (Figure 4). Patient was pleased with the conformity and esthetics of the restoration.

Discussion

Dental fluorosis is a common disorder affecting the name information at the time of mineralization process. The clinical view exhibits a spectrum of change. Lusteless white lines or diffuse opacities are present in its mild form, while in the more severe forms generalized opaque and chalky appearance with confluent pitting and staining of hypo mineralized tissue may be seen [7]. Fluorosis distrupse namel significantly and affects appearance quite adversely which can cause adverse psychological effects on the individual. The treatment of enamel fluorosis usually ranges from ceramic veneer to direct bonding restorations and bleaching [8]. Although vital bleaching does improve the esthetics to certain extent it has only met with partial success in regard to moderate to severe fluorosis [9]. Porcelain veneers provide precise color match and translucency to the natural tooth and fulfill the need for adequate retention [10]. Veneers are considered to be a more conservative treatment approach compared to full-crown restorations because much less structure is removed from the tooth during the preparation of the veneers. For these types of restorations, the preparation does not cause the reduction of axial walls resulting in preservation of tooth structure and the surrounding hard and soft tissue architecture [11]. Thus, porcelain veneers are an appropriate type of restoration for young adults who have large pulp chambers close to the enamel. Preference of porcelain veneers to re-establish the esthetics in the anterior zone is considered as a satisfactory treatment option. Years of experience with both the technique and the materials utilized offer satisfactory, predictable, and lasting results [12]. Porcelain veneers restore the mechanical behavior and microstructure of the intact tooth in vitro even when they are bonded to an extensive dentin surface using an optimized application mode of dentine adhesives [13].

Figure 2: Clinical view after cementation process.

Figure 3: The occlusion and contact correction with final polishing and finishing process was applied after 24 hours of cementation.

Figure 4: One year post-operative view.

Conclusion

Veneering a discolored tooth is one of the most appropriate treatment options in the anterior section. Advances in the manufacturing techniques, structural properties of ceramics and luting cements, made porcelain veneering the most acceptable treatment option for the esthetic correction of anterior teeth than the other treatment options. However, clinical process requires high attention to all details in preparation and application process. In addition, adhesion, polishing and occlusion corrections are crucial for clinical success. Current case report presents the esthetic rehabilitation of a discolored maxillary canine tooth with a porcelain laminate veneer.

References

1. Stappert CF, Stathopoulou N, Gerds T, Strub JR. Survival rate and fracture strength of maxillary incisors, restored with different kinds of full veneers. J Oral Rehabil. 2005;32(4):266-72.
2. Gresnigt M, Özcan M. Esthetic rehabilitation of anterior teeth with porcelain laminates and sectional veneers. J Can Dent Assoc. 2011;77:b143.
3. Choi YS, Cho IH. An effect of immediate dentin sealing on the shear bond strength of resin cement to porcelain restoration. J Adv Prosthodont. 2010;2(2):39-45.
4. Peumans M, De Munck J, Fieuws S, Lambrechts P, Vanherle G, Van Meerbeek B. A prospective ten-year clinical trial of porcelain veneers. J Adhes Dent. 2004;6(1):65-76.
5. Wiedhahn K, Kerschbaum T, Fasbinder DF. Clinical long-term results with 617 Cerec veneers: A nine-year report. Int J Comput Dent 2005;8(3):233-46.
6. Kelly JR, Nishimura I, Campbell SD. Ceramic in dentistry: History and historical roots and current perspectives. J Prosthet Dent 1996;75(1):18-32.
7. Fejerskov O, Johnson NW, Silverstone LM. The ultrastructure of fluorosed human dental enamel. Scand J Dent Res. 1974;82(5):357-72.
8. Nazirkar G, Meshram S. An Evaluation of Two Modern All-Ceramic Crowns and their comparison with Metal Ceramic Crowns in terms of the Translucency and Fracture Strength. Int J Dental Clinics. 2011;3(1):5-7.
9. Sherwood IA. Fluorosis varied treatment options. J Conser Dent. 2010;13(1):47-53.
10. Ishikawa-Nagai S, Yoshida A, Sakai M, Kristiansen J, Da Silva JD. Clinical evaluation of perceptibility of color differences between natural teeth and all-ceramic crowns. J Dent. 2009;37 Suppl 1:e57-63.
11. Chen YW, Raigrodski AJ. A conservative approach for treating young adult patients with porcelain laminate veneers. J Esthet Restor Dent.2008;20(4):223-36.
12. McLean JW. Evolution of dental ceramics in the twentieth century. J Prosthet Dent. 2001;85(1):61-6.
13. Magne P, Douglas WH. Porcelain veneers: Dentin bonding optimization and biomimetic recovery of the crown. Int J Prosthodont. 1999;12(2):111-21.