

## Smile Makeover by Veneers – Case Report.

Sonrisa mejorada por carillas dentales - Reporte de un caso.

Ravi Gupta.<sup>1</sup>  
Suma Bharadwaj.<sup>2</sup>  
Amith Singh.<sup>3</sup>

**Affiliations:** <sup>1</sup>Department of Conservative Dentistry and Endodontics, Melaka Manipal medical college, Manipal Academy of Higher Education, Manipal, India. <sup>2</sup>Consultant Endodontist and Aesthetic Specialist, Bangalore, India. <sup>3</sup>Department of Prosthodontics, Manipal College of Dental Sciences, Manipal Academy of Higher Education, Manipal, India.

**Corresponding author:** Ravi Gupta.  
Manipal -576104, India. Phone: (95) 90038 858. E-mail: ravigupta641@gmail.com

**Receipt:** 12/31/2018 **Revised:** 05/17/2018  
**Acceptance:** 06/03/2019 **Online:** 10/07/2019

**Cite as:**

Gupta R, Bharadwaj S & Singh A. Smile Makeover by Veneers - Case Report. J Oral Res 2019; 8(4):351-354.  
Doi:10.17126/joralres.2019.052

**Abstract:** Ceramic veneers have evolved in the last few years as an aesthetic restoration in the field of aesthetic dentistry. It is a conservative option as compared to full coverage crowns for improving the patients smile. Ceramic veneers are widely used for smile designing in patients with fluorosis, midline diastema, hypoplastic teeth, and peg shape laterals. Clinical relevance: This article highlights the smile designing of a young patient with fluorosis using ceramic veneers, which not only improves the smile of the patient but has positive psychological benefits.

**Keywords:** Dental veneers; fluorosis, dental esthetics, composite resins; ceramics; tooth discoloration.

**Resumen:** Las carillas de cerámica han evolucionado en los últimos años como una restauración estética en el campo de la odontología estética. Es una opción conservadora para mejorar la sonrisa de los pacientes en comparación con las coronas de cobertura total. Las carillas de cerámica se usan ampliamente para el diseño de sonrisas en pacientes con fluorosis, diastema de la línea media, dientes hipoplásicos, o laterales en forma de clavija. Relevancia clínica: este artículo destaca el diseño de la sonrisa en un paciente joven con fluorosis utilizando carillas de cerámica, que no solo mejora la sonrisa del paciente sino que entrega beneficios psicológicos.

**Palabras Clave:** Coronas con frente estético; fluorosis dental; estética dental; resinas compuestas; cerámica; decoloración de dientes.

### INTRODUCTION.

The search for a perfect, brilliant white smile is one of the leading reason patients seek dental treatment.<sup>1</sup> Fluorosis results in tooth discoloration that occurs due to excessive ingestion of fluoride during the initial stages of tooth development.<sup>2</sup> Usually it is due to high levels of fluoride in drinking water (0.5-1.5mg/l).<sup>3</sup>

Fluorosis manifests as surface hypermineralization and a subsurface hypomineralized porous area. Fluorosis appears as small localized brownish pitting of the labial surface of anterior teeth to large white opaque areas that are more generalized.<sup>4,5</sup> Ceramic veneers have become the popular material of choice for the management of discolored anterior teeth due to fluorosis.

With the advancement of the field of adhesive dentistry, the use of ceramic veneers has increased dramatically. Smile designing requires an integration of the facial and the dental composition, which can be achieved by the use

of ceramic veneers. Ceramics veneers offer numerous advantages like wear resistance, excellent color stability, are biocompatible, have excellent aesthetics, and allow for the conservation of the tooth structure.<sup>6-8</sup>

The clinical success of ceramic veneers depends on various factors like treatment planning, case selection, tooth preparation, veneer fabrication and cementation.<sup>9</sup>

### CASE.

A 23-year-old female patient reported to our dental department with a chief complaint of an unattractive smile due to discolored upper anterior teeth.

A complete history of the patient as well as preoperative photographs were taken. Intraoral examination revealed dental fluorosis involving the central incisors. (Figure 1A)

The diagnosis was done by using Dean's Fluorosis Index, and oral prophylaxis was done. Radiographic examination and tooth vitality tests were performed and were positive.

A mock-up was performed and treatment was planned. Veneer preparation was done for the discolored

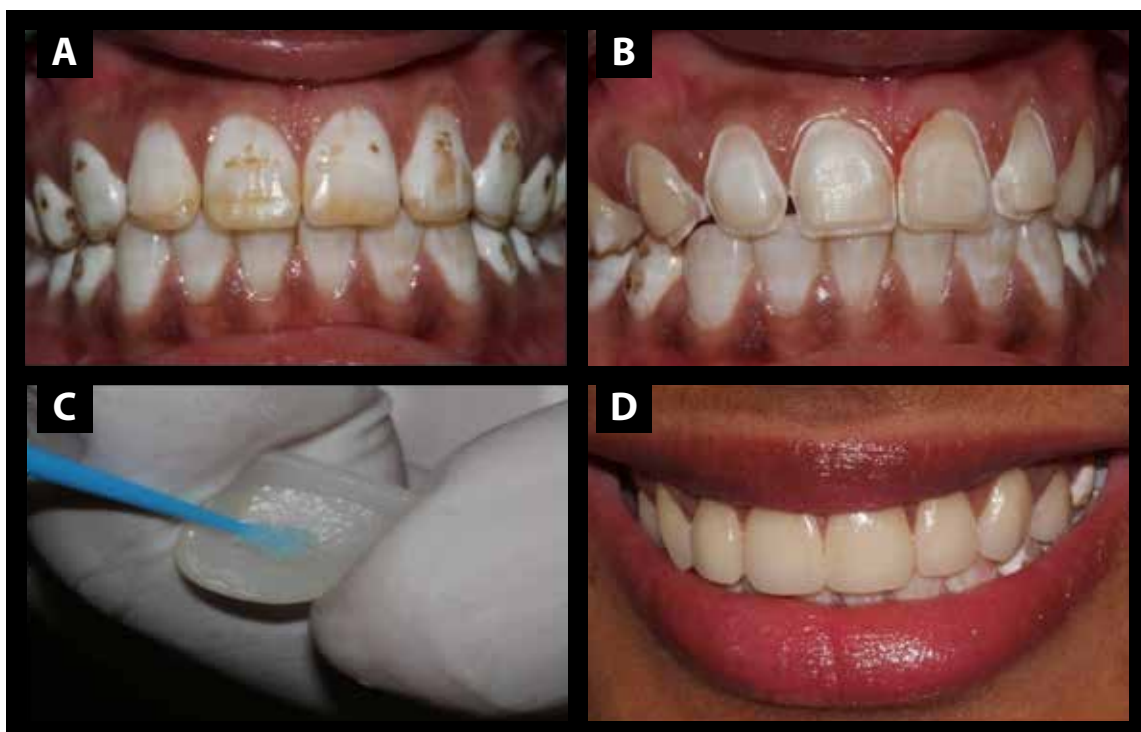
upper anterior teeth. (Figure 1B)

Lithium disilicate veneers were fabricated via CAD/CAM procedure. During bonding, dual-cure resin cement (Calibra esthetic resin cement, Dentsply Sirona) with appropriate shade was selected. The teeth surfaces were cleaned and etched for 15sec with 37% phosphoric acid (Ultra-etch, Ultradent USA) and rinsed off. The internal surface of veneers was treated with hydrofluoric acid (Porcelain Etchant 9.5%, Bisco Inc., Schaumburg, IL, USA). Saline coupling agent (Monobond Plus, Ivoclar Vivadent) was then applied. The prepared surfaces of the teeth were coated with the bonding agent (Ambar, FGM, Joinville, SC, Brazil) and polymerized, and the resin cement was then applied to the veneers. (Figure 1C)

Veneers were cemented on the teeth and cured. Excess cement flash was removed, and proximal contacts were flossed, and occlusion was checked. (Figure 1D)

The patient visited every two months for checkups. The 6 months follow-up showed good gingival health without any debonding, pain or secondary caries.

Figure 1. Veneer application and placement.



A. Pre operative view. B. Veneer preparation . C. Application of resin cement to veneer D. Post operative.

## DISCUSSION.

Dental fluorosis mainly affects upper and lower anterior teeth resulting in a poor smile and low self-esteem. Numerous treatment options are available for the management of mild to the moderate cases including bleaching, microabrasion, and direct composite veneer.<sup>10-12</sup>

But in case of moderate to severe fluorosis these treatment options are not of much use. A ceramic veneer is the best option for the management of such more severe cases. A veneer is a thin layer of dental restorative material, usually ceramic that replaces enamel.

Concepts regarding tooth preparation for ceramic veneers have changed drastically in the past few years. Presently there is an increasing demand for esthetic restoration by patients and which need to be provided by dentists. This requires meticulous treatment planning. Anterior ceramic veneers deliver a very satisfactory smile.<sup>13-14</sup>

The present concept suggested minimal tooth preparation. Materials which are used for the fabrication of ceramic veneers include sintered feldspathic porcelain and pressable glass ceramics.<sup>15,16</sup> Presently pressable glass-ceramic is the materials of choice, with CAD-CAM technology also being used. The dentist should select the material based on the aesthetic and functional requirements of the tooth and amount of the tooth preparation required.<sup>17</sup>

Pressable glass ceramics are an excellent option to be used as aesthetic restorative materials. Their superior mechanical and physical properties include increased fracture resistance and shock resistance. The pressable glass ceramics strength is enhanced by the addition of fillers such as aluminum, zirconia, and lithium disilicate crystals in the dispersed glass phase.<sup>18</sup>

These ceramics are reinforced by lithium disilicate crystals 70% to improve flexural strength. Hence, they are referred to as true glass ceramics.<sup>19,20</sup> These are the materials of choice in clinical situations when thin sections of ceramic are required. They can be placed in a thin margin of approximately 0.3mm.<sup>21</sup> Diagnostic wax-up plays a very important role and helps dentists in the visualization of the final treatment results.<sup>22</sup> In the present case pressable glass-ceramic (lithium

disilicate) was used and the “overlap” preparation was done. The preparation must follow the interdental papilla and must extend into the proximal contacts on both sides.<sup>23,24</sup>

The advantages of ceramic veneers include excellent aesthetics, biocompatibility, and superior strength. The ceramic veneers provide long-lasting restorations with an estimated survival probability of 93.5% over 10 years.<sup>25</sup> Satisfactory results were obtained in a case of fluorosed teeth restored with porcelain laminate veneers over a 6-year follow-up.<sup>26</sup>

Various studies have shown acceptable aesthetic outcomes with ceramic veneers in cases of moderate to severe fluorosis.<sup>27</sup> Although using direct composite provides excellent esthetics; the fracture resistance, wear resistance and color stability of composite resin is lower than indirect porcelain restorations.<sup>28</sup> Furthermore, bonding to the fluorosed enamel and dentin can be challenging,<sup>29,30</sup> making ceramic veneers the material of choice.

## CONCLUSION.

Management of discolored maxillary teeth with ceramic veneers in the present case results in an improvement in aesthetics and enhanced patient smile. Ceramic veneers not only enhance the smile but also improve the confidence of the patient as well as their emotional wellness. As such they are an investment in patients overall wellbeing. Ceramic veneers are a conservative option compared to previous treatment options like crowns or bleaching. Pleasing smiles are much more in demand not only among celebrities but among common people as well.

---

**Conflict of interests:** All authors declare that there is no conflict of interests.

**Ethics approval:** Patient gave informed consent

**Funding:** None.

**Authors' contributions:** All authors contributed to this manuscript.

**Acknowledgements:** None.

## REFERENCES.

1. Raghu R, Shetty A, Manjunath GP, Roy CKS, Puneetha P, G, Reddy SN. Smile rejuvenation: A case report. JCD. 2014; 17(5): 495-8.
2. Den Bestan PK. Dental fluorosis: its use as a biomarker. Adv Dent Res. 1994;8(1):105-10
3. Akpata ES. Occurrence and management of dental fluorosis.

Int Dent J. 2001; 51: 325–33

4. Denbesten P, Li W. Chronic fluoride toxicity: dental fluorosis. *Monogr Oral Sci.* 2011; 22: 81–96.

5. Fejerskov O, Larsen MJ, Richards A, Baelum V. Dental tissue effects of fluoride. *Adv Dent Res.* 1994;8(1):15–31

6. Kim J, Chu S, Gürel G, Cisneros G. Restorative space management: Treatment planning and clinical considerations for insufficient space. *Pract Proced Aesthet Dent.* 2005;17:19–25

7. McLaren EA, WhitemanYY. Ceramics: rationale for material selection. *Compend Contin Edu Dentl.* 2010;31(9):666-8.

8. McLaren EA, LeStage B. Feldspathic veneers: what are their indications? *Compend Contin Edu Dent.* 2011;32(3):44-9.

9. Radz GM. Minimum thickness anterior porcelain restorations. *Dent Clin.North Am.* 2011;55(2):353-70.

10. Calamia JR, Calamia CS Porcelain laminate veneers: reasons for 25 years of success. *Dent Clin N Am.* 2007;51:399-417.

11. Donovan T. Factors essential for successful all-ceramic restorations. *J Am Dent Assoc.* 2008;Suppl I39:I4S-I8S.

12. Spear FM, Kokich VG, Mathews DP. Interdisciplinary management of anterior dental aesthetics. *J Am Dent Assoc.* 2006;137:160–9.

13. Dua VS, Brar LS. Beauty in a smile: How to perceive it? *Int J Contemp Dent.* 2011;2:149–54

14. Pontes DG, Correa KM, Cohen-Carneiro F. Re-establishing esthetics of fluorosis-stained teeth using enamel microabrasion and dental bleaching techniques. *Eur J Esthet Dent* 2012;7:130-7

15. Celik E, Tildiz G, Yazkan B. Comparison of enamel microabrasion with a combined approach to the esthetic management of fluorosed teeth. *Oper Dent.* 2013;38:e134-43

16. Knösel M, Attin R, Becker K, Attin T. A randomized CIE lab evaluation of external bleaching therapy effects on fluorotic enamel stains. *Quintessence Int.* 2008;39(5):391-9.

17. Soares CJ, Soares PV, Pereira JC, Fonseca RB. Surface treatment protocols in the cementation process of ceramic and laboratory-composite restorations: a literature review. *J Esthet Restor Dent.* 2005;17(4):224-35.

18. Spear F. Holloway J. Which all-ceramic system is optimal

for anterior for anterior esthetics? *J Am Dent Assoc.* 2008;139 Suppl:19S-24S.

19. Guess PC, Schultheis S, Bonfante EA, Coelho PG, Ferencz J, Silva NRFA. All ceramic systems: laboratory and clinical performance. *Dent Clin North Am.* 2011;55(2):333-52.

20. Giordano R, McLaren EA. Ceramics overview: classification by microstructure and processing methods. *Compend Contin Educ Dent.* 2010;31(9):682-4

21. Kelly JR, Benett P. Ceramic materials in dentistry: historical evolution and current practice. *Aust Dent J.* 2011;56 Suppl 1:84-96.

22. Pierre L, Cobb DS. Enhancement of aesthetic treatment planning and communication using a diagnostic mock-up. *Cosmetic Dent.* 2012:20–4.

23. Della Bona A. Bonding to Ceramics. *Scientific Evidences for Clinical Dentistry.* Sao Paulo: Artes Medicas: 2009

24. Korkut B, Yanıkoğlu F, Günday M. Direct Composite Laminate Veneers: Three Case Reports. *J Dent Res Dent Clin Dent Prospects.* 2013;7(2):105-11.

25. Beier US, Kapferer I, Burtscher D, Dumfahrt H. Clinical performance of porcelain laminate veneers for up to 20 years. *Int J Prosthodont.* 2012;25(1):79–85.

26. Aljazairy YH. Management of fluorosed teeth using porcelain veneers: a six-year recall case report. *Saudi Dent J.* 2001;13:106–113

27. Sherwood IA. Fluorosis varied treatment options. *J Conservative Dent.* 2010;13(1):47–53.

28. Peumans M, Van Meerbeek, Lambrechts P, Vanherle G. Porcelain veneers: a review of the literature. *J Dent.* 2000;28: 163–77

29. Ermis RB, De Munck, Cardoso MV, Coutinho E, Van Landuyt, Poitevin A, et al. Bonding to ground versus unground enamel in fluorosed teeth. *Dent Mater.* 2007; 23:1250–125.

30. Weerasinghe DS, Nikaido T, Wettasinghe KA, Abayakoon JB, Tagami J. Micro-shear bond strength and morphological analysis of a self-etching primer adhesive system to fluorosed enamel. *J Dent.* 2005; 33: 419–26.