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From Stained to Stunning: A Case Report on Smile Makeover

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ABSTRACT

Smile is an integral part of a person's appearance, and it serves as a gateway to the world. Various dental concerns, such as stains and open embrasures, can affect the aesthetic and functional value of the teeth, which in turn causes disharmony of the perfect smile. Patient with such concerns feel insecure, conscious, and dissatisfied with their appearance. This case highlights the transformation of unesthetic teeth through meticulous planning and precise treatment execution, showcasing the power of a comprehensive approach in achieving a beautiful and confident smile.

Keywords: *Smile Designing, Bleaching, Veneers*

1. INTRODUCTION

An individual's smile is the most critical element of their facial aesthetics and expression. It plays a crucial role in communication, self-confidence, and overall aesthetics. A well-balanced, harmonious smile not only improves facial attractiveness but also contributes to psychological well-being [1]. Several dental conditions, such as malocclusion, fractured teeth, tooth staining, tooth wear, gingival recession, and black triangles, affect a person's smile, making it less appealing and also creating a sense of insecurity for the person [2]. These oral issues affect the aesthetics, hamper the confidence of the patient, and may lead to discomfort due to functional difficulties.

Tooth staining is one such common dental concern which is an aesthetic challenge to the patient [3]. Dental stains are intrinsic or extrinsic. Treatment modalities for tooth discoloration are bleaching, enamel micro abrasion and porcelain veneers which may be used individually or in combination depending on the etiology and severity of the case [3].

Open gingival embrasures or black triangles are embrasures cervical to the interproximal contact of teeth that are not filled by gingival tissues [4]. These, negatively affects the smile and cause retention of food debris, which can negatively affect the health of the periodontium. The treatment approach varies in each case and can be of surgical and nonsurgical type [5].

This case highlights the design of a smile, keeping in mind the principles of aesthetics, function, and patient satisfaction. The smile design in the case was done considering various factors such as tooth proportion, tooth staining, dark triangles, tooth alignment, and lip dynamics. The primary aim of the case was to create a smile that enhances both the beauty and confidence of the patient.

2. PATIENT INFORMATION

A 25-year-old female patient came to the OPD of the Department of Prosthodontics, D.Y. Patil University, School of Dentistry, Nerul, Navi Mumbai, with a complaint of black triangles between the maxillary and mandibular anterior teeth. The patient had undergone orthodontic treatment in the past. Still, the patient complained of feeling under-confident and conscious about her smile because of dissatisfaction with the shade of her teeth. The patient requested aesthetic treatment to enhance her smile. On general examination, the patient was conscious, co-operative, and well-oriented.

3. CLINICAL FINDINGS

On examination, yellowish extrinsic stains were seen on the surface of the teeth. Additionally due to plaque and tartar, periodontal inflammation was noted which caused slight recession in the upper and lower anteriors which led to the formation of black triangles.

4. THERAPEUTIC INTERVENTION

On a meticulous treatment plan, it was decided that the patient needs a comprehensive smile design approach incorporating prophylaxis, bleaching, and lithium disilicate veneers. Five phases of treatment were decided.

Phase one of the treatment consisted of prophylactic scaling and polishing of the teeth. This helped reduce the tartar and plaque on the teeth. The next step included taking a primary impression with putty and light body (Zhermack), and a diagnostic cast was fabricated.

Phase two included a shade selection for the veneers to be fabricated. Post shade selection, isolation of the teeth, and application of the bleaching agent were done. Bleaching was done to remove the extrinsic stains on the teeth and lighten the shade of the teeth. Phase two of the treatment is depicted in Figure 1.

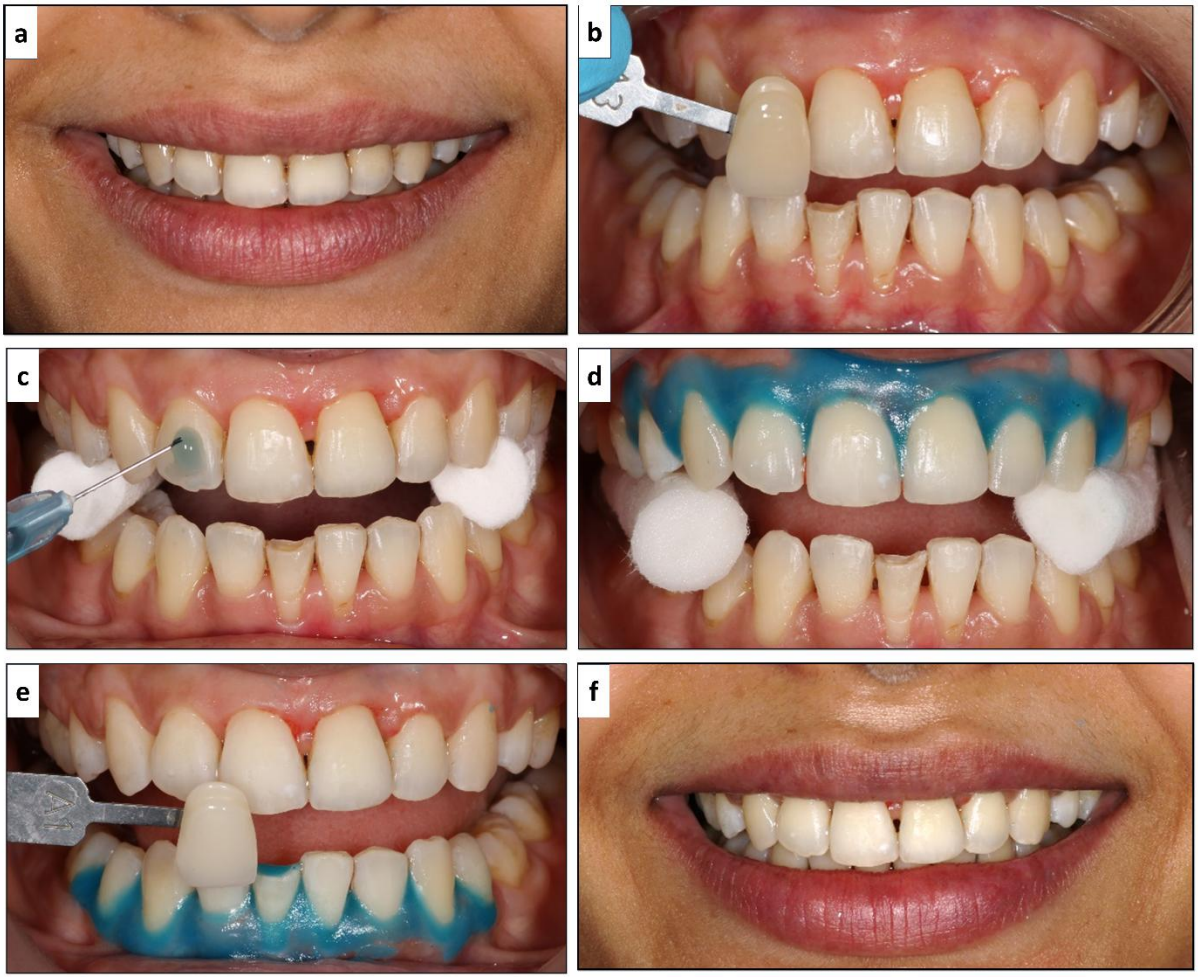

Figure 3: (a) Pre-operative smile (b) Shade selection, (c) Etching (d) and (e) Isolation and application of bleaching agent, (f) Post-bleaching smile

Phase three included wax-up on the cast to visualise the final shape, size, and alignment of the veneers to be fabricated. A putty index was then made on the wax-up. This index was then transferred to the patient in the form of Temporization. This was done with chairside temporary material (Coltene Cool Temp). Once the patient approved the temporaries, provisions for the final veneers were made.

Phase four included tooth preparation according to the putty leaf index, followed by a final impression taken as a two-stage impression, using putty followed by light body (Zhermack addition silicone) on a metal perforated tray. Gingival retraction was done using 000 gingival cord before taking the final impression. The procedures of phase four and end-temporization outcome are demonstrated in Figure 2.

Figure 2: (a) and (b) Wax-up, (c) and (d) Preparation of putty index, (e) Gingival retraction, (f) Temporization

Face bow records were taken and transferred to the Hanau articulator along with the final casts. The final prosthesis was fabricated in lithium disilicate (E max). The final and phase included luting of the veneers (Figure 3). Post-operative instructions were given to a patient which included basic oral hygiene instructions such as brushing of teeth twice a day and using modified bass technique, using of floss to clean interproximal areas, using mouth wash periodically to flush out any bacteria, avoid biting on hard foods and sticky foods, strict ban on using teeth for bottle opening or tearing packets, limiting ingestion of foods causing stain, and avoiding food of extreme hot temperatures.

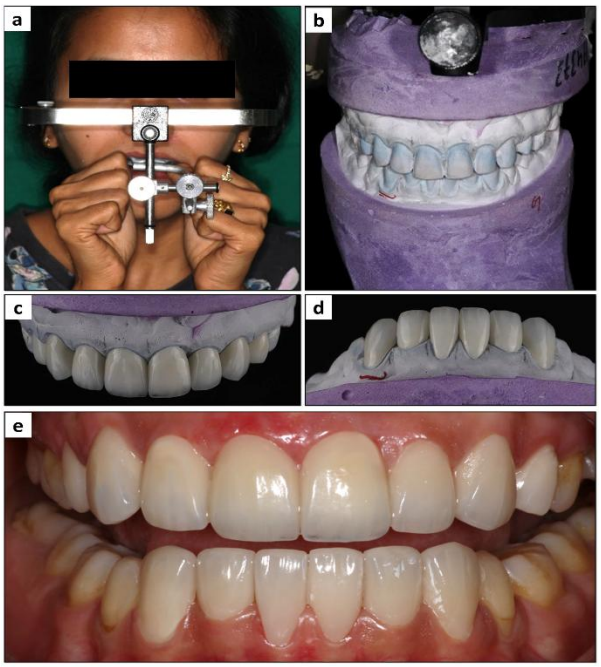

Figure 3: (a) Facebow record and (b) Transfer of jaw relation to casts mounted on articulator, (c) and (d) Final prosthesis, (e) Gingival retraction, (f) Post-cementation view of final prosthesis

5. FOLLOW-UP AND OUTCOMES

Follow-up was done in a week as an initial check to assess the patient for any high points that may cause discomfort; also, the gingival response was checked. No adjustments were needed. Then, 1 1-year follow-up was done to assess the maintenance of the prosthesis. Complete evaluation of the prosthesis was done, and no adjustments were needed. The patient was very satisfied with treatment outcomes.

6. DISCUSSION

Aesthetic dentistry has evolved over the years, offering advanced treatment modalities to address common concerns such as tooth discoloration, black triangles, and overall smile harmony. Smile designing is one such patient-centred approach. Smile designing not only aims to improving tooth colour but also involves careful assessment of tooth proportion, alignment, gingival health, and facial aesthetics [6].

This case demonstrated a comprehensive approach to smile designing. This involved prophylaxis to reduce the build-up on the teeth, followed by bleaching and also a prosthetic veneer fabrication.

Bleaching is a process in with oxygenating agents help to reduce stains or discolorations from any surface [7]. This helps reduce the shade of the tooth. Although it is a conservative treatment, bleaching is commonly associated with post-treatment tooth. Also, reports of significant relapse rate in tooth shade associated with this procedure are seen, necessitating a re-treatment [3]. Thus, the decision of using a veneer laminate for the case can be considered excellent, keeping in mind the long term efficacy of the treatment. Other concern such as the black triangle, which is caused due to the lowering of gingiva is to be considered in the case. In the discussed case veneers were strategically designed to close these black triangles while maintaining a natural emergence profile, preventing excessive bulkiness.

The most basic non-surgical approach to this case is veneers. Veneers have been used since ages as a minimally invasive restorative approach. Reports indicate a high success rate and longevity of such restorations [3]. Materials most commonly used are porcelain and lithium disilicate . Lithium disilicate (Emax) can be fabricated with either a minimal cut-back or bi-layered technique [3]. This is determined by the intensity of the underlying stain, the amount of desired translucency, and the clinician’s preference. Tooth preparations for veneers are conservative and remain limited to enamel for higher bond strength, and thus, there is reduced risk of post-treatment sensitivity.

But while veneers provide excellent results, long-term success depends on factors such as proper case selection, technique-sensitive procedures, and patient compliance with oral hygiene. Also, future advancements in digital dentistry, such as CAD/CAM-designed veneers, could further enhance precision and efficiency in smile makeovers.

7. CONCLUSION

The smile designing process, including bleaching, tooth preparation, Facebow transfer, and meticulous veneer fabrication to help successfully enhanced the patient's smile aesthetics and confidence. Follow-up evaluations confirmed the stability and longevity of the restorations, with no need for adjustments. Also the patient reported satisfaction with the treatment and transformation of their smile, which helped them to feel significantly more confident in social and professional settings.

8. CONSENT

Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

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