

Esthetic Restorative Treatment Planning for Dental Professionals: An Overview

Asra Sabir Hussain, BDS^{1*}

¹*Independent Researcher, Jeddah, Saudi Arabia*

***Corresponding Author:** Asra Sabir Hussain, Independent Researcher, Jeddah, Saudi Arabia.

E-Mail: dr.asrasabir@gmail.com

Received: November 02, 2017; **Published:** November 09, 2017

Abstract

Esthetics restorative dentistry has reached a new spectrum with the advancement in modern technology. Therefore, one of the reasons why patients are concerned to seek dental treatment is to improve their dental appearance. The objective of this review is to highlight the importance of visual assessment tools, patient's psychology, selection of restorations and oral self-care instructions, while considering esthetic restorative treatment planning for dental professionals in their practice. According to the reviewed articles, the success of restorative esthetic treatment depends on dentist's ability to plan the treatment indicated for each case and to inform the patients regarding possible treatment outcome. Effective patient communication and essential records are required in the treatment planning stage to reduce problems. Nevertheless, Oral self-care instructions and regular dental appointments should be advised to these patients which help in the long-term clinical predictability of esthetics restorations.

Keywords: *Esthetic Dentistry; Treatment Planning; Dental Professionals; Cosmetic Dentistry*

Introduction

Esthetics restorative dentistry has reached a new spectrum with the advancement in modern technology. Therefore, one of the reasons patients seek dental treatment nowadays is to improve their dental appearance. The main target for the dental professionals of this era is to have a clear understanding of patient's perception of esthetic dental treatment and to reach their satisfaction level with appropriate treatment plan. A study by Mon Mon Tin- Oo., *et al.* illustrated the patient's perception of dental appearance and the treatment they prefer to improve aesthetic outcome. The results revealed that most patients were dissatisfied with their dental appearance. Females comparatively outnumbered males. Tooth color was the most significant cosmetic element.

They were concerned to have much whiter teeth. Authors concluded that the esthetic dental treatment has broad scope in modern dentistry world. For a successful aesthetic outcome, patient's perception of dental appearance was the most crucial factor that contributed to play a significant role for the dentists to reach optimum satisfaction level [1]. On the other hand, the successful restorative esthetic treatment solely based on the skills of a dental professional. Dentist must use their best professional judgment to plan and understand each case individually. Effective patient communication is often required with the use of diagnostic records in the treatment planning stage that relatively result in reducing problems afterwards [2]. However, esthetic restorative treatments planning criteria was somewhat controversial [3].

The aim of this review was to highlight the significance of visual assessment tools, patient's psychology, choice of aesthetic restorations and oral self-care instructions, while considering esthetic restorative treatment planning for dental professionals in their practice.

Overview/Discussion

Visual Assessment tools

In order to get the best possible outcomes, while considering treatment planning for esthetic restorations, various diagnostic tools and techniques have been established. Simulated shape design was one of the techniques used that involves trial shapes of tooth at chair side. This technique was beneficial in visualizing the possible treatment outcome both esthetically and functionally [4]. However; complex restorative cases often need multidisciplinary approach. In such cases esthetic templates therefore were relatively considered excellent tools in managing complex cases [5]. For a successful esthetic restorative treatment, periodontal health must not be jeopardized, while determining the position of prosthetic margin. Therefore, diagnostic casts were found beneficial in studying the anterior soft tissue anatomy [6].

A diagnostic wax-up can enhance the predictability of treatment outcome both esthetically and functionally [7]. The introduction of permanent diagnostic provisionals were useful in evaluating the esthetics, phonetics and function by the patients [8]. Conventional diagnostic wax-up and mock-up were used that enabled both patient and clinicians to agree on a treatment outcome. On the other hand, it was considered a time consuming procedure. With the advancement in technology, digital technology might offer better predictability in diagnostic treatment step [9].

Currently, dental professionals besides conventional means also use Digital Smile Design to most recent 3D Digital Smile Designs in the treatment planning stage that might help the patient to visualize and analyze their esthetic dental appearance more comprehensively. Case report by Lin WS., *et al.* demonstrated that contemporary digital photo- assisted virtual smile design principle, Intraoral Digital impression and CAD/CAM fabricated ceramic veneers in maxillary anterior teeth rehabilitation correspond to increase effective communication among clinician, patient and lab technician [10].

Another case report with a two years of follow- up supported the use of Digital Smile Design (DSD) aided effectively in improving diagnoses, professional/patient communication and predictability of treatment through an esthetic analysis of the dento-facial relations [11]. Indeed DSD found to eliminate communication barrier that increases the predictability of the treatment outcome [12]. Recently, the new total 3D digital planning technique has been introduced that is promising in terms of providing pre-visualization therapy for patients [13].

Psychological Perspective

Messing MG introduced a terminology Smile architecture which is a process that guides a patient and dentist from chief complaint to case acceptance. Therefore, the goal of successful cosmetic dental treatment is to achieve both function and esthetic. Three elements play crucial roles which are: evaluation of patients' expectations, careful diagnosis and treatment planning, visualization of expected results [14].

The success of esthetic dental treatment requires an effective collaboration between the patient, dentist and the dental technician [15]. The patient and the dentist should share a common vision and perception of esthetic anterior restorations, which ultimately ended up in a successful outcome [16].

Clinical report by Reshad., *et al.* revealed that clinicians can overcome two main barriers to achieve maximum better esthetic results with least disappointments. The first is psychology and patients attitude towards the treatment. Secondly, the diagnostic wax up is the essential tool that is mandatory in esthetic restorative treatment [17].

Selection of esthetic restorations

Historically, wide variety of esthetic restorative treatment options have been available, such as direct and indirect composite veneers and indirect porcelain veneers to most conservative porcelain laminate veneers. A study by Nalbandian S., *et al.* was conducted to evaluate whether the choice of materials had an impact on patient's perception of cosmetic improvement or not. The study revealed that tooth conservative; time and repair costs were significant factors irrespective of the restorative materials [18].

With advancement in technology and techniques, more conservative approach is available to solve esthetic problems. Both direct and indirect techniques have been introduced. Indirect techniques using composite resin veneers were found to be useful in complex cases. Latest generation resin composites were aided in providing numerous benefits, such as excellent esthetic properties withstand mechanical stress and most importantly repaired intraorally [19]. Another study also discussed the improvement in prefabricated composite veneers which might be an option for anterior esthetic restoration [20].

Porcelain laminate Veneers were found to be one of the major modalities of treatment when conservative esthetic approach of anterior teeth is considered [21,22]. However, case selection and effective treatment plan are required to ensure best results [23]. Gurel G., *et al.* reported the clinical performance of porcelain laminate veneers bonded to teeth by the use of APT (Aesthetic pre-evaluation treatment) technique which was found to be effective in facilitating diagnosis, communication, preparation and also aided in providing the clinical predictability of esthetic restorative treatment. Authors concluded that if the preparation depth is confined to enamel surface this significantly increased the performance of laminate porcelain veneers bonded to teeth on the long term basis [24]. A study by Wells D concluded that “No prep” porcelain veneers were significantly higher in improving anterior esthetics as compared to traditionally prepared porcelain veneers for certain cases [25].

For cases such as previously treated with old composite restorations, veneers and full crowns made of heat-pressed lithium disilicate glass ceramic were found to be useful for esthetic rehabilitation of anterior discolored teeth. However, treatment planning is crucial for such cases [26].

Polishing of esthetic restorations

In spite of treatment planning, selections of appropriate restorations and bonding procedures, dentist must also consider unique polishing requirements for esthetic restorations and it must be included in the treatment planning stage. The surface integrity and texture of esthetic restorations is extremely important so the dental practitioners must be well aware of the dental materials that have been used. The esthetic materials also require polishing with the same polishing paste as used on the teeth but with a sequence completely different than the teeth to gain maximum benefit from polishing of the esthetic materials. Therefore, for a successful maintenance dentist should understand the materials itself.

Oral self-care instructions

Oral self-care instructions with emphasis on less abrasive tooth paste selection and regular dental appointments should be advised to these patients which help in long-term clinical predictability of esthetic restorations [27].

Conclusion/Clinical Recommendations

- The success of esthetic restorative treatment depends on effective coordination between a clinician, lab technician and the patient. Therefore, dentists must use their best professional judgment in diagnosis and treatment planning stage.
- Dental Professionals can acquire better visualization by the use of various diagnostic tools in their clinic which may result in achieving best treatment outcome.
- Nevertheless, the oral self-care instructions play an utmost role in long-term clinical predictability of esthetic treatment.

Acknowledgements

The authors extend their sincere gratitude to Dr. Yasser Yehia (BDS, PhD) for reviewing the article.

Conflict of Interest

The content of article has no conflict of interest.

Bibliography

1. Mon Mon Tin- Oo., *et al.* "Factors influencing patient satisfaction with dental appearance and treatment they desire to improve aesthetics". *BMC Oral Health* 11 (2011): 6.
2. Holyoak M. "Smile design: rules, tools and strategies to help plan aesthetic restorative dentistry". *Primary Dental Journal* 2.4 (2013): 38-43.
3. Sadowsky SJ. "An overview of treatment considerations for Esthetic restorations: a review of the literature". *Journal of Prosthetic Dentistry* 96.6 (2006): 433-442.
4. Van Zyll and Geissberger M. "Simulated shapes design. Helping patients decide their Esthetic ideal". *Journal of the American Dental Association* 132.8 (2001): 1105-1109.
5. Lois DE., *et al.* "Esthetic Templates for complex restorative cases: rationale and management". *Journal of Esthetic and Restorative Dentistry* 20.4 (2008): 239-250.
6. Simeone P., *et al.* "Managing severe Periodontal esthetic challenges: The restorative- surgery connection". *International Journal of Periodontics and Restorative Dentistry* 36.1 (2016): 83-93.
7. Simon H., *et al.* "Clinically based diagnostic wax-up for optimal esthetics: the diagnostic mock-up". *Journal of the California Dental Association* 36.5 (2008): 355-362.
8. Gurel G. "Porcelain laminate veneers: minimal tooth preparation by design". *Dental Clinics of North America* 51.2 (2007): 419-431.
9. Sancho- Puchades M., *et al.* "Advanced smile diagnostics using CAD/CAM mock-ups". *International Journal of Esthetic Dentistry* 10.3 (2015): 374-391.
10. Lin WS., *et al.* "Predictable Restorative Work Flow for Computer-Aided Design/Computer-Aided Manufacture-Fabricated Ceramic Veneers Utilizing a Virtual Smile Design Principle". *Operative Dentistry* 40.4 (2015): 357-363.
11. Meereis CT, *et al.* "Digital Smile Design for Computer-assisted Esthetic Rehabilitation: Two-year Follow-up". *Operative Dentistry* 41.1 (2016): E13-E22.
12. Pimentel W., *et al.* "Predictable Outcomes with Porcelain Laminate Veneers: A Clinical Report". *Journal of Prosthodontics* 25.4 (2016): 335-340.
13. Cattoni F., *et al.* "A New Total Digital Smile Planning Technique (3D-DSP) to Fabricate CAD-CAM Mockups for Esthetic Crowns and Veneers". *International Journal of Dentistry* (2016): 6282587.
14. Messing MG. "Smile Architecture: beyond smile design". *Dentistry Today* 14.5 (1995): 74-79.
15. Romeo G., *et al.* "Diagnostic and technical approach to Esthetic rehabilitation". *Journal of Esthetic and Restorative Dentistry* 15.4 (2003): 204-216.
16. Mizrahi B. "Visualization before finalization: a predictable procedure for porcelain laminate veneers". *Practical Procedures and Aesthetic Dentistry* 17.8 (2005): 513-518.
17. Reshad M, *et al.* "Diagnostic mock- ups as an objective tool for predictable outcomes with porcelain laminate veneers in Esthetically demanding patients: a clinical report". *Journal of Prosthetic Dentistry* 99.5 (2008): 333-339.
18. Nalbandian S and Millar BJ. "The effect of Veneers on cosmetic improvement". *British Dental Journal* 207.2 (2009): E3.

19. Mangani F, *et al.* "Clinical approach to anterior adhesive restorations using resin composite veneers". *European Journal of Esthetic Dentistry* 2.2 (2007): 188-209.
20. Dietschi D, *et al.* "Prefabricated composite veneers: historical perspectives, indications and clinical applications". *European Journal of Esthetic Dentistry* 6.2 (2011): 178-187.
21. Wei SH, *et al.* "Laminate veneers for the aesthetic restoration of anterior teeth". *Annals of the Royal Australasian College of Dental Surgeons* 10 (1989): 148-159.
22. Toh CG. "Porcelain laminate Veneers considerations for a successful approaching the conservative treatment of aesthetic problems". *Asian Journal of Aesthetic Dentistry* 2.1 (1994): 11-17.
23. Gilmour AS, *et al.* "Porcelain laminate veneers: a clinical success?" *Dental Update* 20.4 (1993): 167-173.
24. Gurel G, *et al.* "Clinical performance of Porcelain laminate veneers: outcome of the aesthetic pre-evaluatory temporary (APT) technique". *International Journal of Periodontics and Restorative Dentistry* 32.6 (2012): 625-635.
25. Wells D. "Low- risk dentistry using additive only ("no- prep") Porcelain veneers". *Compendium of Continuing Education in Dentistry* 32.5 (2011): 50-55.
26. Prevedello GC, *et al.* "Esthetic rehabilitation of anterior discolored teeth with lithium disilicate all- ceramic restorations". *General Dentistry* 60.4 (2012): e274-e278.
27. Caren M Barnes. "Polishing Esthetic restorations material". *Dimensions of Dental Hygiene* 8.1 (2010): 24-28.

Volume 15 Issue 5 November 2017

© All rights reserved by Asra Sabir Hussain.