

Rehabilitation of Discoloured and Malaligned Maxillary Anterior Teeth

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Abstract:- This article contains the management of discoloured teeth using conservative approach of intracoronal bleaching and gradation method of tooth preparation for reducing the tooth shade and restoration of the prepared teeth with fixed dental prosthesis.

In this article a case report of management of discolored and malaligned maxillary anterior teeth have been presented.

Keywords:- Bleaching, Ceramic, Gingival porcelain, Tooth Preparation, Discolouration.

I. INTRODUCTION

Discoloration of tooth can occur because of various reasons such as trauma, road traffic accidents, developmental diseases, congenital factors, fluorosis, thermal injury and many more. Discoloration can be intrinsic as well as extrinsic in nature. Any kind of discoloration results into poor appearance and ultimately poor psychological effect.

Esthetic is of prime importance for any individual despite of any age group. To enhance esthetic outcome of the worst scenario various approaches has to be included. Bleaching is a treatment modality involving an alternative chemical that alters the light absorbing and light reflecting nature of material structure, thereby increasing its perception of whiteness [1].

Gradation method of tooth preparation depends upon the amount or number of shade has to be changed for particular tooth. With more amount of reduction more the change in shade can be obtained.

In this article will discuss about intracoronal bleaching for non vital tooth, gradation method for reduction in tooth shade followed by smile designing for maxillary anteriors.

II. CASE PRESENTATION

A. CASE HISTORY

A 23 years old male patient reported to the Dept. of Prosthodontics with the chief c/o of poor esthetic due to discolored teeth in upper front region of jaw since 1 year. He is co-operative follows mixed diet no habits fair oral hygiene and had normal expectations. Past history revealed history of trauma to face 4 yrs back.

Past dental history revealed extraction with 25, 15 years back and 46; 25-30 years back due to caries.

B. Extraoral examination:

Patient has square facial form, straight profile, no gross asymmetry, high smile line, adequate lip support and normal functioning of Temporomandibular Joint. Fig. 1.

C. Intraoral examination: Fig. 2.

Purplish discoloration seen with 11,21 and brown discoloration with 22 Root canal treatment done with 11,21,22 Restoration seen with 16,17,26,27,28,36,37,38,48 All metal crown with 47 Hypoplastic spot seen on 13,12,23.

D. Treatment Planning:

1. Intracoronal Bleaching with 11,21
2. Post and Core Build Up With 11,21,22
3. Smile analysis
Zirconia layered emax crown with 11,21,22 and
Lithium disilicate laminate with 12,13,23
4. Preparation type:
Radial shoulder margins for Full coverage crown and
Chamfer margin for laminates

E. Procedure:

After the final treatment plan was decided the shade obtained with 13, 12, 23, 22 was A2 with 11, 21 was C4.

2mm of coronal gutta percha was removed from canal of 11,21. Placement of 2mm of Glass Ionomer Cement was done into canal. Placement of mixture of Sodium perborate with hydrogen peroxide on labial surface. Fig.3. Intermediate restoration was done with Glass

Ionomer Cement [2]. After the recall of 3 weeks the shade for reduce to lower grade. According to Galip Gurel tooth preparation was done for laminates with 12, 13, 23 and for full coverage crown with 11, 21. Fig.4. Gingival retraction with 25% Aluminium chloride was done and final impression was made with addition silicone (Flexceed) technique [3]. Fig.5. To mask the colored of discolored tooth zirconia layered Emax crowns with 11,21 and lithium disilicate crown with 22 and laminates with 12,13,23 were fabricated. Addition of Gingival Porcelain was done with 21 for soft tissue defect. Final Cementation of zirconia crowns with 11, 21 done using resin cement. Final bonding of lithium disilicate crowns and laminates done with dual cure resin cement (Relyx). Fig.6. Resulted into a Happy and Smiling Patient. Fig.7.

III. DISCUSSION

Tooth discoloration is defined as any change in hue, color, translucency of tooth due to any causes [4]. Trauma to the tooth can result into the pulpal necrosis; degradation of haemoglobin into hemin, hematin, hematoiden and haemosidrin. Hydrogen sulphide produced by bacteria combines with hemoglobin & gives dark colour to tooth and can cause purple discoloration [5]. Bleaching is one of the treatment modality for discolored tooth. Various bleaching agent can be used. In this case sodium perborate with 30 to 35% hydrogen peroxide was used effectively.

For laminate tooth preparation Galip Gurel technique including Aesthetic pre- Recontouring and Aesthetic Pre-Evaluative Temporaries method was used [6].

Principles of tooth preparation includes Graded Tooth Preparation which states that Greater the color change greater the amount of tooth reduction. For moderate color change moderate preparation is done known as Universal Preparation. For profound color change upto three shades deeper biplanar facial reduction is done [7] for 11, 21.

Depending upon vitality and discoloration of tooth zirconia layered Emax crowns were fabricated was 11 & 21 with addition of Gingival Porcelain to 21 and fabrication of lithium disilicate laminates with 12,13,23 and lithium disilicate crown with 22 as they provide better esthetics.

IV. CONCLUSION

Smiling face is always a requirement for a confident life. Better the smile better is the life. Non vital tooth with traumatic history always require an interdisciplinary approach including root canal treatment, Bleaching and prosthodontic approach for restoration of the prepared tooth. Thus combination of methods can be used to enhance the final outcome of the discolored and malaligned teeth.

FIGURES

Figure 1



Fig.1 Pre Operative Extraoral Picture

Figure 2:



Fig. 2 Pre Operative Intraoral Picture

Figure 3



Fig.3 Intracoronal bleaching

Figure 4



Fig. 4 Galip Gurel Technique

Figure 5



Fig.5 Tooth Preparation with Gingival Retraction

Figure 6



Fig.6 Final cementation of crowns and bonding of laminates

Figure 7



Fig. 7 Post Operative Extraoral Picture

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