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of thernational	Original Research Paper	Dental science
	MULTIDISCIPLINARY AESTHETIC REHABILITATION IN A PATIENT WITH ENAMEL HYPOPLASIA POST FIXED ORTHODONTIC TREATMENT	
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ABSTRACT Interdisciplinary approach helps the specialists of contributing disciplines immensely in diagnosis, treatment planning, execution of planned treatment and problem solving for any untoward complication. Orthodontic treatment may be adjunctive to periodontal therapy or vice versa. Periodontal problems might lead to occlusal abnormalities which may require orthodontic correction. Of equal importance is that treatment should not induce damage to the periodontal structures. It is imperative that periodontal tissues are healthy before prosthodontic treatment commences, and additional periodontal treatment is commonly indicated to facilitate improved prosthodontic treatment outcomes.

KEYWORDS : Periodontics, Orthodontics, Prosthodontics, Interdisciplinary management.

INTRODUCTION

Today's dentist does not just repair teeth to make them better for chewing but increasingly his or her work involves esthetics. With patients demanding more attractive teeth, dentists now must become more familiar with the formerly independent disciplines of orthodontics, periodontics, restorative dentistry, and maxillofacial surgery.(Spear & Kokich, 2007)

In today's interdisciplinary dental world, treatment planning must begin with well-defined esthetic objectives. By beginning with esthetics, and taking into consideration the impact on function, structure, and biology, the clinician will be able to use the various disciplines in dentistry to deliver the highest level of dental care to each patient. (Alam & Sabir, 2015)

The appearance of teeth contributes to the overall picture of the facial aesthetics. Thus, dentistry continuously seeks to meet the aesthetic demands of finding a perfect harmony between the white and pink architecture mainly in the anterior area which must be pleasant in order to boost both patient confidence and satisfaction. (Baia et al., 2018)

The equilibrium of the dento-gingival relationship is a major factor in the constitution of an aesthetic smile and may be related to the extent of the exposed gingival tissue. Esthetic periodontal surgeries such as gingivoplasty are usually indicated for resolving these problems. (do Amaral et al., 2020)

Enamel hypocalcification is a defect in the mineralization; the teeth are often stained yellow to dark brown. The enamel may show a chalky dull color or a cheesy consistency and may rapidly break down. Hypocalcified teeth have a normal shape when they erupt but have an abnormal color and dull appearance. Loss of enamel from wear and staining tend to

increase with age. Hypoplasia is a defect in the formation of the enamel matrix.(Rada & Hasiakos, 1990)

Therefore, the entire enamel of primary as well as permanent teeth is affected, the teeth may or may not be discolored and often there is considerable occlusal wear. The disorder may create unaesthetic appearance, dental sensitivity and attrition. Amelogenesis İmperfecta cases can tax the skills of the clinician, numerous treatments have been described for rehabilitation of amelogenesis imperfecta in adults and children. (Nel et al., 1997)

The paper aims to present a clinical case report of esthetics rehabilitation of a patient, through the integration of different specialties (Orthodontic, Periodontics and Prosthodontics).

Case Report

A 25-year-old female patient with a chief complaint of unaesthetic smile was referred to the Department of Periodontology and Implantology, Subharti Dental College and Hospital, Meerut, Uttar Pradesh. On taking complete history, it was known that the patient had previously received compensatory orthodontic treatment for correction of a class II malocclusion. Patient's medical history did not reveal any relevant pathology. On extraoral examination, no positive findings were noted. On intraoral examination, gingival hyperplasia covering one third of the crowns was seen with respect to maxillary anterior teeth. Bleeding on probing was also positive. Periodontal examination revealed generalized probing depth was not more than 2 mm.

Initially, Phase I therapy was carried out and then the patient was recalled after 1 week **(Fig.1)**. For surgical phase, gingivoplasty was planned to treat gingival hyperplasia and frenectomy with respect to maxillary labial frenum as it was found to be aberrant by performing tension test.



Fig. 1-Pre-Operative View

Application of local infiltration anesthesia of Articaine (Septanest with Adrenalin 1/100,000; Septodont) was done. The gingival zenith of central incisor (21) was marked with haematoxylin pencil taking the gingival zenith of canine as reference (Fig. 2). After this, gingivoplasty was done with the help of an electrosurgery unit (Fig. 3a &3b).



Fig. 2- Marking Done with Fig.3a- Electrosurgery Unit Haematoxylin Pencil Tip



Fig. 3b- Gingivoplasty Done

For the conventional frenectomy, the frenum was grasped with a straight haemostat inserted into the depth of the vestibule. The frenum was excised using #15 scalpel blade (Fig. 4).



Fig.4-Frenum Excised Using #15 Blade

After the triangular resected portion of the frenum was removed with the haemostat, muscle dilatations were performed using curved forceps on the submucosa of the lateral walls of the cavity formed after the excision of the frenum (Fig. 5).



Fig.5-Triangular resected portion of frenum was removed

At the end of the surgery, the wound was closed with 5.0 silk sutures (Fig. 6).



Fig.6-5.0 Silk Sutures Was Done

The patient was advised antibiotic (Tab. Amoxicillin + clavulanic acid 625mg 8 hourly for 5 days) and analgesic (twice daily for five days), after food. The patient was instructed to rinse with a 0.12% chlorhexidine solution for 2 weeks. The patient was instructed to be cautious while mastication and to avoid toothbrushing at the surgical site for 14 days. The sutures were removed two weeks after the surgery and healing was satisfactory. After that, patient was referred to the Department of Prosthodontics and crown and bridge for laminate veneering. The patient successfully and satisfactorily received the laminate veneers as shown in Fig. 7.



Fig.7-Laminate Veneers Delivered

DISCUSSION

In the present clinical case, the patient was unsatisfied with her smile, even though orthodontic treatment had improved the overbite and overjet as well as her facial profile. It has been noticed that in a great number of cases, an aesthetically acceptable outcome cannot be obtained through an isolated orthodontics approach. Generally adjunctive periodontal and prosthetic procedure are required to accomplish an ideal result. Thus, gingivoplasty and frenectomy was planned to accomplish the desired aesthetic clinical outcomes.(Vinod et al., 2012)

A gingival smile is caused by excessive tissue partially covering the anatomical crown of the teeth, or by altered passive eruption. Gingival surgery is recommended in order to position the gingival margin more apically, without exposing the root surface, observing the amount of keratinized gingiva and the relationship between the cementoenamel junction, gingival margin and the crest of the alveolar bone. Gingivoplasty leads to excellent results, quickly restoring the dentogingival aesthetic sought by the patient, through a simple and ambulatory procedure, with local anaesthesia.(Storrer et al., 2014)

In the era when esthetics is given prime importance, more conservative and precise techniques are being adopted to create more functional and aesthetic results. The presence of an aberrant frenum being one of the etiological factors for creating a pull on the marginal gingiva, the focus on the frenum was essential. The aberrant frenum can be treated by frenectomy or by frenotomy procedures. The soft tissue laser is now a viable alternative to the scalpel in soft tissue surgery.(Fiorotti et al., 2004)

A number of studies have demonstrated that orthodontic treatment can improve the periodontal situation in patients with pathologic migration by providing good function and improved aesthetics after realignment. It is generally

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recommended that orthodontic treatment should be preceded by periodontal therapy, based on the belief that orthodontic treatment when there is inflammation can lead to irreversible breakdown of the periodontium. (Cardaropoli et al., 2004)

There are a number of alternatives for the treatment of anterior teeth affected by amelogenesis imperfecta. For many years the most predictable and durable aesthetic restoration of anterior teeth has been achieved with complete crowns. However, as this approach requires the removal of substantial amounts of tooth structure, it is more invasive. The popularity of porcelain laminate veneers has increased since being introduced because tooth preparation is conservative, and the restorations are esthetic. (Ozturk et al., 2004)

In addition, patient acceptance of porcelain veneers has been shown to be high in clinical studies. The percentage of patients completely satisfied with the porcelain veneers varied from 80% to 100%. However, an in vitro study has described some disadvantages, such as marginal adaptation and bonding problems. Patients and dentists should discuss the advantages and disadvantages of treatment options in deciding the best treatment plan.(Ong et al., 1998)

(Arun et al., 2021) stated that electrosurgery is one such treatment modality which is simple, cost effective and yields good predictable results, along with patient satisfaction.

(Sharma et al., 2021) concluded that the electrosurgery can be used as an alternative to conventional surgery in gingivectomy and gingivoplasty procedures. Successful results can be obtained with careful usage and having proper knowledge.

As in our case excellent results were achieved with uneventful healing. For the management of such cases, regular professional oral prophylaxis and patient compliance is also necessary.

SUMMARY

This clinical report described an interdisciplinary approach with the use of orthodontic treatment, periodontal plastic surgery and porcelain laminate veneers of a patient's malocclusion due to amelogenesis imperfecta. Coordinated orthodontic, periodontic and prosthodontic treatments, with careful consideration of patient expectations and requests, were critical for a successful outcome and patient satisfaction.

REFERENCES

- Alam, M. N., & Sabir, M. (2015). Multidisciplinary Approach in Modern Dentistry: An Innovation in Advance Dental Care. 6.
- Arun, A., Kaushik, M., Singh, R., & Tomar, N. (2021). Surgical correction for gingival depigmentation using electrosurgery-a case report. 10, 1–2.
 Baia, J. C. P., Ortiz, M. I. G., Brandão, G. A. M., Pereria Neto, A. R. L., Araújo, J. L.
- Baia, J. C. P., Ortiz, M. I. G., Brandão, G. A. M., Pereria Neto, A. R. L., Araújo, J. L. N., & Silva, C. M. (2018). Multidisciplinary aesthetic rehabilitation: Case report. Rev. Cient. CRO-RJ (Online), 37–41.
- Cardaropoli, D., Re, S., Corrente, G., & Abundo, R. (2004). Reconstruction of the maxillary midline papilla following α combined orthodontic-periodontic treatment in adult periodontal patients. Journal of Clinical Periodontology, 31(2), 79–84. https://doi.org/10.1111/j.0303-6979.2004.00451.x
- do Amaral, B. A., Gondim Filgueira, A. C., da Silva-Neto, J. P., & de Lima, K. C. (2020). Relationship between normative and self-perceived criteria for orthodontic treatment need and satisfaction with esthetics and mastication in adolescents. American Journal of Orthodontics and Dentofacial Orthopedics: Official Publication of the American Association of Orthodontists, Its Constituent Societies, and the American Board of Orthodontics, 157(1), 42-48.e2. https://doi.org/10.1016/j.ajodo.2019.01.025
- 48.e2. https://doi.org/10.1016/j.ajodo.2019.01.025
 Fiorotti, R. C., Bertolini, M. M., Nicola, J. H., & Nicola, E. M. D. (2004). Early lingual frenectomy assisted by CO2 laser helps prevention and treatment of functional alterations caused by ankyloglossia. The International Journal of Orofacial Myology: Official Publication of the International Association of Orofacial Myology, 30, 64–71.
- Nel, J. C., Pretorius, J. A., Weber, A., & Marais, J. T. (1997). Restoring function and esthetics in a patient with amelogenesis imperfecta. The International Journal of Periodontics & Restorative Dentistry, 17(5), 478–483.
- Ong, M. A., Wang, H. L., & Smith, F. N. (1998). Interrelationship between periodontics and adult orthodontics. Journal of Clinical Periodontology, 25(4), 271–277. https://doi.org/10.1111/j.1600-051x.1998.tb02440.x
- Ozturk, N., San, Z., & Ozturk, B. (2004). An interdisciplinary approach for restoring function and esthetics in a patient with amelogenesis imperfecta

and malocclusion: A clinical report. The Journal of Prosthetic Dentistry, 92(2), 112–115. https://doi.org/10.1016/j.prosdent.2004.04.013

- Rada, R. E., & Hasiakos, P. S. (1990). Current treatment modalities in the conservative restoration of amelogenesis imperfecta: A case report. Quintessence International (Berlin, Germany: 1985), 21(12), 937–942.
- Sharma, A., Singh, S., Kaushik, M., & Khattri, S. (2021). Puberty Induced Gingival Enlargement: A Clinical Case Report. 9, 126–130.
- Spear, F. M., & Kokich, V. G. (2007). A multidisciplinary approach to esthetic dentistry. Dental Clinics of North America, 51(2), 487–505, x-xi. https://doi.org/ 10.1016/j.cden.2006.12.007
- Storrer, C. L. M., Valverde, F. K. B., Santos, F. R., & Deliberador, T. M. (2014). Treatment of gummy smile: Gingival recontouring with the containment of the elevator muscle of the upper lip and wing of nose. A surgery innovation technique. Journal of Indian Society of Periodontology, 18(5), 656. https://doi. org/10.4103/0972-124X.142468
- Vinod, K., Reddy, Y. G., Reddy, V. P., Nandan, H., & Sharma, M. (2012). Orthodontic-periodontics interdisciplinary approach. Journal of Indian Society of Periodontology, 16(1), 11–15. https://doi.org/10.4103/0972-124X. 94597