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### RESEARCH ARTICLE

#### PERIOESTHETICS: PERIODONTAL APPROACH TO ESTHETIC DENTISTRY A CASE SERIES

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#### Abstract

Esthetic dentistry is evolving and so is its importance in periodontal treatment with increasing awareness. The harmony between lips, gums and teeth is the key to maintain facial esthetics. Multidisciplinary approach is important for acquiring an esthetic smile with periodontal treatment playing a vital role. Attention should be paid on maintaining an ideal and harmonious relationship between teeth and its supporting hard and soft tissue structures. This article presents a series of cases wherein periodontal treatment has played a vital role in improvising smile. This article aims to emphasize the role played by periodontal treatment in rehabilitating an esthetic smile.

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#### Introduction:-

A pleasant smile symbolizes beauty.<sup>[1]</sup> Right from the ancient times people have laid importance on aesthetics which is the science of sensory beauty. Harmony between teeth, lips and gums is key for maintenance of an esthetic smile.<sup>[2]</sup> Over the past few years with increasing awareness the desire for esthetics has risen in periodontal treatment. Different techniques were thus introduced with the objective of improving the esthetic outcome.<sup>[3]</sup> These include procedures like gingival depigmentation, esthetic crown lengthening, frenectomy, root coverage procedures, papilla reconstruction, lip repositioning and implant supported prosthesis.<sup>[4]</sup>

Current trends in field of dentistry focus on providing maximum benefit with minimal discomfort to patient.<sup>[5]</sup>

This article aims to present a series of cases to emphasize on role of periodontal treatment in rehabilitation of facial esthetics.

#### Case 1: Gingival depigmentation

A female patient aged 22 years visited with complaint of dark gums and malaligned teeth. Clinical examination revealed that she had deeply pigmented gingiva with DOPI scoring of 3 for maxilla and 2 for mandible. [fig 1] As the patient was systemically healthy and not under any kind of medication the condition was diagnosed as physiologic gingival hyperpigmentation. The patient insisted on receiving any treatment which could lighten up her gums and improve her smile. After taking consent of the patient it was planned to use scalpel and bur for depigmenting maxillary and mandibular gingiva respectively. Under all aseptic precautions local anesthesia was administered (Lignocaine with adrenaline in the ratio 1:100000 by weight). Scalpel with 15 no. blade was used in scraping motion for depigmenting maxillary gingiva and surgical bur used with feather light brushing strokes under continuous irrigation with normal saline for mandibular gingiva from premolar to premolar region [fig 2]. It was ensured that each bit of pigmented layer was removed as any remnant would lead to recurrence. Patient was

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prescribed antibiotics and analgesics postoperatively and was advised to rinse with chlorhexidine mouthwash twice a day. Patient was recalled at 1 month, 6 month and 1 year for follow up [fig 3,4]. The healing and health of gingiva was found to be satisfactory with no recurrence of pigmentation. The patient is currently undergoing orthodontic treatment.



**Fig.1:-** Preoperative clinical photograph.



**Fig.2:-** Gingival depigmentation using scalpel and bur technique.



**Fig.3:-** 1 and 6 month follow up.



**Fig 4:-**1 year follow up showing improvement in smile.

**Case 2: Altered passive eruption corrected with Esthetic crown lengthening**

A young female patient aged 18 years came with complaint of poor appearance of her upper front teeth. She gave a history of trauma to upper front teeth for which she received root canal treatment but failed to get the capping done. On oral examination it was observed that along with discoloured 11, 21 patient had smaller teeth than usual. Radiographic examination revealed teeth had completely erupted through bone and combining clinical & radiographic findings the case was diagnosed as altered passive eruption. Esthetic crown lengthening procedure was planned followed by crown placement for 11 and 21 following the principles of golden proportion as proposed by Levin 1978.<sup>[15]</sup>

After administering local anesthesia, internal bevel incisions were placed keeping in mind the ideal gingival zenith for each tooth, full thickness flap was then reflected and after placing crevicular and interdental incision the collar of tissue around the tooth were removed and bone reduction performed using surgical bur and copious irrigation with normal saline to maintain biologic width.

Flaps were then approximated using 4-0 reverse cutting nonresorbable suture.

Then patient was sent to department of prosthodontics for further treatment which involved capping with 11 and 21. Looking at the results patient agreed the treatment not only improved her smile but also boosted her self-confidence.





**Fig. 5:-** Preoperative photograph and radiograph.



**Fig.6:-** Internal bevel Incision.



**Fig.7:-**Full thickness flap reflection.





**Fig. 8:-** Bone reduction.



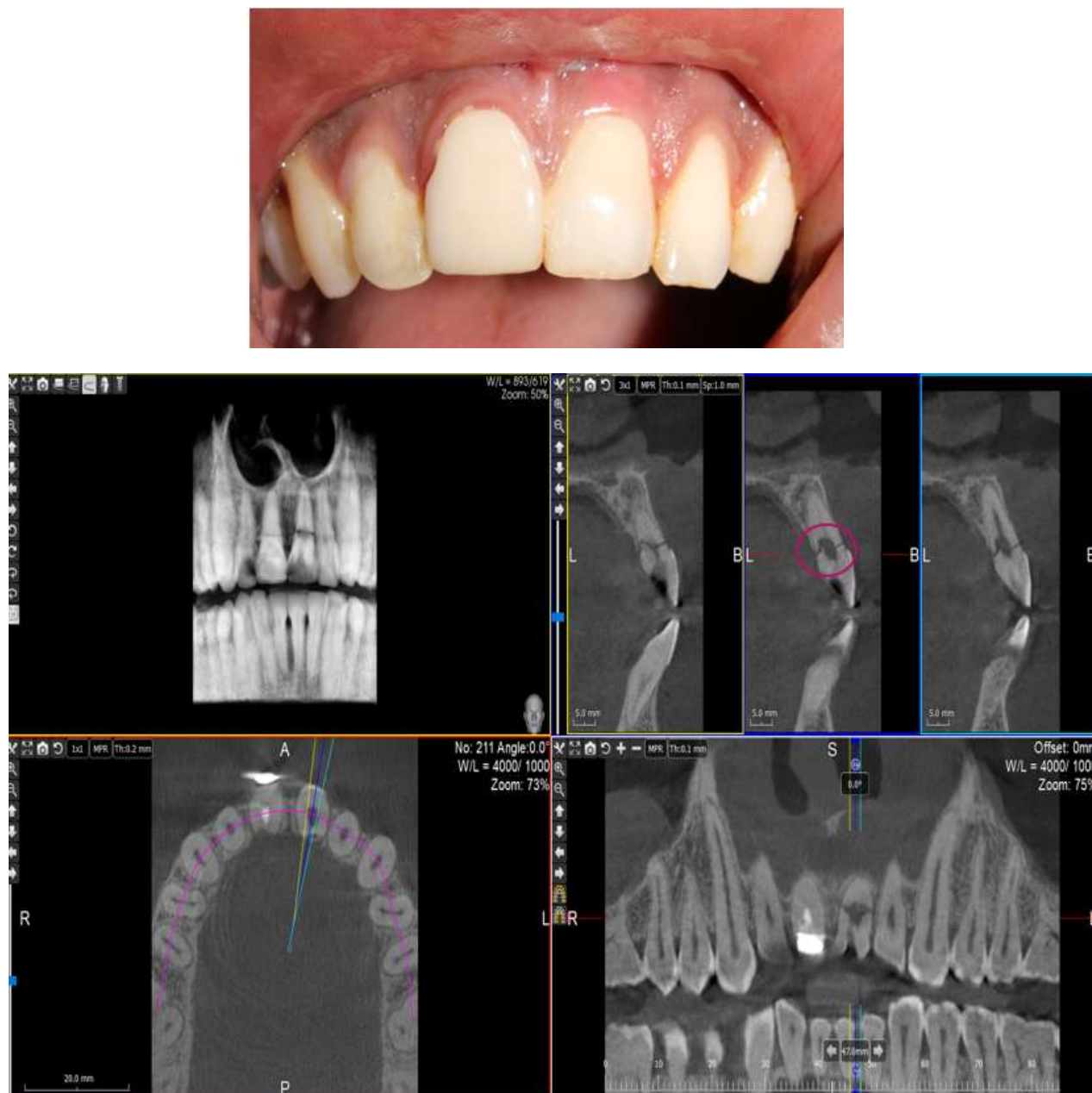
**Fig.9:-**One year follow up showing improvement in patient's smile.

### **Case 3: Rehabilitation of fractured teeth with implant supported prosthesis**

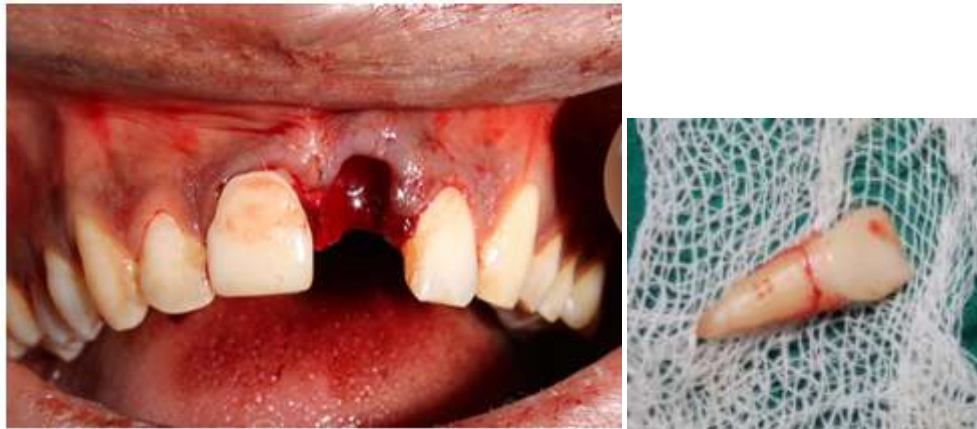
A male patient aged 25 years reported with complaint of mobile front teeth. He reported trauma to his upper teeth 1 year back for which he visited private clinic where he received root canal treatment alongwith prosthesis. On oral examination it was observed that 21 was grade 2 mobile. Radiographic examination revealed a root fracture of 21 with internal resorption [fig 10]. It was informed to patient that tooth had poor prognosis and extraction was indicated.

As the patient desired a fixed prosthesis tooth supported and implant supported prosthetic rehabilitation treatment options were given to the patient. The patient chose the latter option for which consent was taken. Under all aseptic precaution local anaesthesia (Lignocaine with adrenaline in the ratio 1:100000 by weight) was administered to the patient and 21 atraumatically extracted [fig 11].

As the radiograph revealed close proximity to nasopalatine canal, its contents were curetted out to avoid postoperative discomfort to patient. Implant osteotomy was then carried out and immediate implant placed. Guided bone regeneration was performed with DFDBA and collagen membrane and healing abutment attached to fixture[fig 12]. Flaps were approximated using 4-0 reverse cutting nonresorbable suture. Definitive prosthesis was delivered to the patient after 3 months.



**Fig.10:-** Preoperative clinical and radiographic view [CBCT].



**Fig.11:-** Post extraction.



**Fig.12:-** Guided bone regeneration and placement of healing abutment.



**Fig.13:-** Immediate postoperative IOPA.



**Fig.14:-** Clinical and radiographic view of prosthesis.

### **Discussion:-**

The combination of both art & science is important for restoring facial esthetics for it to be durable and help preserve form, function & biology.

An appropriate balance needs to be maintained between “white” & “pink” component of the mouth.<sup>[6]</sup>

Proper treatment planning is required to foresee the desired outcome. Periodontics helps to provide proper maintenance of restorative structure with healthy hard tissue maintaining integrity of soft tissue.<sup>[7]</sup>

Gingival hyperpigmentation is of concern especially in patients of high smile line. There are different techniques for gingival depigmentation which include both surgical [scalpel, laser abrasion, bur abrasion, electrocautery, cryosurgery, radiosurgery, gingival grafting procedures] and nonsurgical [chemical cauterization].<sup>[14]</sup>

Ezzat et al [2018] evaluated recurrence rate following gingival depigmentation using scalpel and obtained stable esthetic outcome.<sup>[8]</sup> Wendy et al [2016] used scalpel technique combined with gingiva abrasion using carbide bur for treating gingival hyperpigmentation of maxilla and mandible and obtained good esthetic results.<sup>[11]</sup>

Altered passive eruption occurs due to cessation of passive eruption after phase 2 of eruption process. Pablo et al [2015] performed esthetic crown lengthening procedure for treatment of short clinical crowns and termed it as a viable option.<sup>[12]</sup>

Kirsten et al 2014 in a systematic review evaluated the rate of implant survival, peri-implant tissue changes, patient response for immediate implants in esthetic zone and concluded that immediate implants provide an excellent treatment option with minimal soft and hard tissue changes.<sup>[9]</sup>

### **Conclusion:-**

Esthetic dentistry has evolved over last few decades. It should be managed through multidisciplinary approach where periodontal treatment should play a vital role. More attention should be paid to establishment of ideal and harmonious relation between the teeth and its supporting hard and soft tissue in provision of esthetic smile.<sup>[7]</sup>

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