

## Esthetic Reconstruction of Partially Edentulous Maxilla with Traumatic Gingival Hyperplasia: A Clinical Report

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### Abstract

The pathogenesis of gingival overgrowth is uncertain and the treatment is still largely limited to the maintenance of an improved level of oral hygiene and surgical removal of the overgrown tissue. This case report describes the interdisciplinary approach to restore function and esthetics of an edentulous area with gingival overgrowth in the premaxilla region. The periodontal treatment plan included oral hygiene instructions, mechanical debridement and gingivectomy procedures. Coordinated prosthetic, endodontic and periodontal treatments with careful consideration of patient's expectations and requests were critical for a successful outcome and patient satisfaction. Team approach in the evaluation and treatment planning is necessary to improve the esthetic and functional outcomes in patients with localized gingival hyperplasia in esthetic zones. Therefore the importance of the preprosthetic surgical and endodontic interventions is emphasized.

**Keywords:** Gingival hyperplasia; Edentulous maxilla; Gingivectomy; Preprosthetic surgery

### Introduction

Gingival hyperplasia can occur as an isolated form or part of a syndrome. Complications associated with gingival overgrowth may include retained primary teeth, delayed eruption of permanent teeth, increased distal spacing, drifting of teeth, poor plaque control, poor mastication, affected speech, esthetics, and malocclusion [1-4]. Several etiologies have been reported including drug-induced, hereditary, hormones-related (pregnancy, growth-hormone), inflammation, systemic (leukemia, neurofibromatosis), idiopathic, trauma induced and syndrome associated. Depending on the cause, the overgrowth may vary in clinical presentation, severity, onset, and duration [5]. Whatever may be the cause of overgrowth, localized gingival hyperplasia in anterior edentulous areas is of esthetic concern.

This case report describes the interdisciplinary approach to restore function and esthetics of anterior edentulous area with mobile hyperplastic tissue by means of metal ceramic restorations after surgical removal of the overgrowth and bone remodeling.

### Clinical Report

A 21-year-old female was self-referred to Department of Prosthodontics, M. M. College of Dental Sciences and Research, Mullana, Ambala. The patient's chief complaints were masticatory and speech

difficulty, poor esthetics and compromised periodontal health and she wanted replacement of missing teeth. Prior to treatment, a detailed dental, medical and social history was obtained. The patient was in good general health and the medical history was noncontributory. Her dental history revealed traumatic extraction of her front upper teeth 2 weeks back from a local dental practitioner. An extensive clinical examination was performed. The periodontal examination revealed compromised periodontal status with plaque accumulation and gingival hyperplasia in upper anterior edentulous area (Figure 1).

Several treatment alternatives were explained to the patient. Based on the patient's expectations, cost considerations, and the diagnostic information, the treatment of choice was a fixed partial denture for the edentulous area. But the presence of mobile hyperplastic tissue in the edentulous area was of concern from both esthetic and prosthetic point of view.

So the patient was referred to the Department of Periodontics for further investigations before doing any prosthetic treatment.

A thorough intraoral examination was done and it was found that the gingival overgrowth was firm, dense, fibrous, and painless enlargement with normal gingival color. On radiographic examination it was observed that the teeth were malaligned with minimal alveolar bone loss. In the light of patient past dental history, and these clinical observations, a provisional diagnosis of traumatic extraction induced gingival hyperplasia was made. Functional and esthetic disability indicated a need for surgical intervention which was carried out under local anesthesia after informed consent was obtained from the patient's husband. The treatment consisted of an external bevel gingivectomy of the hyperplastic tissue using scalpel and electrocautery followed by osteoplasty of the underlying bone. Postoperative bleeding did



Figure 1: Gingival overgrowth (labial view).

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**Figure 2:** Clinical view after gingivectomy and osteoplasty.



**Figure 3:** Clinical view of the definitive restoration.

not occur. Postoperatively, the patient was advised to continue the antibiotic (amoxicillin-500 mg thrice daily) for 5 days, analgesic (ibuprofen 400 mg) as and when needed and to use 0.2% chlorhexidine digluconate mouth rinse for 1 week postoperatively. The postsurgical healing was excellent as the patient maintained good oral hygiene. (Figure 2) Sutures were removed on seventh day of surgery. Patient reported back to the Department of Prosthodontics for replacement of the missing teeth. When proper healing of the surgical site was confirmed diagnostic impressions were made and cast was poured.

On studying the diagnostic casts various treatment options were discussed and explained to the patient. Maxillary left canine was found to be out of the arch. Patient was advised to go for orthodontic treatment. But due to financial constraints and patient's demand of immediate replacement of her teeth full coverage porcelain fused to metal crown and bridge was planned by taking 12, 23 as abutments. Intentional root canal treatment of 23 was planned considering the esthetic requirement. An informed consent was obtained. Single sitting root canal therapy was planned. Following access cavity preparation, the remaining vital pulp tissue was extirpated. The working lengths were estimated as being 1 mm short of the radiographic apices. The root canals were prepared with K files, irrigated with copious amounts of 2.25% sodium hypochlorite, and dried with paper points. Then, the root canals were obturated with gutta-percha using a lateral condensation technique.

After 1 week of root canal treatment tooth preparation was done to support five unit metal ceramic bridges with 12, and 23 as abutments. The crowns were prepared in a conventional manner using a flat end tapered fissure diamond bur with a convergence of approximately 2.0 degrees with the aim of obtaining a 6-degree convergence between

walls. Both teeth were prepared with shoulder margins, and all margins were placed at the gingival level. Occlusal reduction and the crown margins were prepared using a diamond bur (ISO no. 83).

Proper tissue management was done using impregnated gingival retraction cord (ULTRAPAK #00, Ultradent, South Jordan, USA) using double cord technique. Impressions were made with a silicone elastomeric impression material using a custom tray and immediately poured with a Type IV dental stone (Ultrarock, Kalabhai Karson, Mumbai, India). A full arch irreversible hydrocolloid impression of the opposing dentition was obtained and immediately poured with Type III dental Stone (Kalstone, Kalabhai Karson, Mumbai, India). A temporary resin crown was immediately adapted and cemented on the prepared tooth with zinc oxide eugenol based temporary cement. The maxillary and mandibular models were mounted in a semi adjustable articulator (Hanau series, Elite Dental Services, Inc, Orlando, Florida) by means of facebow transfer and centric relation records. Wax patterns of the metal substructure of the metal ceramic crowns were cast in Ni-Cr alloy (Ceraplus S, President, Munich, Germany) by conventional methods. The casting try-in was performed 3 days after the impression was made. After the casting try-in, the ceramic surfaces were fabricated by conventional methods. The crown and bridge were cemented 1 week after the casting try-in, using zinc oxide eugenol-based temporary cement (Temp Bond; Kerr). Two weeks after the temporary cementation, the bridge was removed and definitive cementation was performed with glass ionomer luting cement (GIC). Patient was recalled for follow-up appointments.

Definitive treatment outcomes in terms of function and esthetics satisfied the expectations of both the patient and the interdisciplinary team (Figure 3).

## Discussion

Team approach involving prosthodontists and periodontists is required to rehabilitate patients with severe complicated periodontal situations in the planning and treatment process.

The mechanism of gingival overgrowth was found to be the fibroblastic stimulation in the submucosa or increased production of the ground substance of collagen and extracellular matrix. The management of gingival overgrowth seems to be directed at controlling gingival inflammation through a good oral hygiene regimen. However in severe cases, surgical excision is the most preferred method of treatment, followed by rigorous oral hygiene procedures [6].

In this present case, gingival overgrowth was satisfactorily treated via initial periodontal therapy including oral hygiene instruction and motivation, followed with surgical gingivectomy. As the periodontal condition was under controlled, prosthesis was constructed in order to fulfill the function and aesthetic of the patient. The prosthesis was designed to minimize the plaque retention sites. The prosthetic treatment usually includes complete coverage metal ceramic crowns for functional and esthetic rehabilitation and protection of the remaining teeth. Coordinated prosthetic, endodontic and periodontal treatments with careful consideration of patient expectations and requests were critical for a successful outcome and patient satisfaction.

Supportive follow up is necessary in an effort to monitor her gingival/ periodontal status, to assess and reinforce oral hygiene and to periodically provide professional care thus prevent the recurrence of gingival overgrowth. A periodic maintenance care by Prosthodontist and Periodontist has to be conducted to enhance the success of prostheses and soft tissue after the prosthetic reconstruction. Therefore the

importance of the preprosthetic surgical and endodontic interventions was emphasized.

## Conclusion

This clinical case report describes a patient restored with metal ceramic fixed partial denture after surgical removal of the hyper plastic tissue and bone remodeling in anterior premaxilla. The results showed significant improvement in esthetics and function of the masticatory system. Team approach in the evaluation and treatment planning will be necessary to improve the esthetic and functional outcomes in patients with localized gingival hyperplasia in esthetic zones.

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