

Different treatment approaches for the localized gingival overgrowths: Case series

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ABSTRACT

Localized gingival overgrowths belong to a common group of lesions designated as focal reactive overgrowths. They occur in response to chronic, low-grade irritation caused by plaque or any other irritant. They have multifactorial etiopathology but exhibit similar clinical features with slight variations in patient complaints. Success of the lesions' management depends on formation of healthy contours of the surgical area after excision of lesion and absence of a recurrence. The purpose of case series is to present 6 different cases of localized gingival overgrowths and their management with the following techniques: nonsurgical periodontal treatment, gingivectomy, flap surgery, free gingival graft, gingival unit, and connective tissue graft.

Key words: Free gingival graft, gingival overgrowth, gingivectomy

INTRODUCTION

The localized gingival overgrowth is the accepted terminology for increased size of gingiva that may occur as a result of a response to varied stimuli and/or interactions with the host and the environment. Although the etiology is still unknown, presence of caries, plaque, calculus, defective restoration, foreign bodies such as food impaction or toothbrush bristle, hormonal imbalances, or systemic-induced manifestation may be the cause of localized gingival overgrowths.^[1] These gingival overgrowths can adversely affect speech, mastication, tooth eruption, esthetics, and maintenance of routine oral hygiene.^[2]

Most of these lesions have similar clinical findings such as sessile or pedunculated nodule with color variations from pale pink to erythematous in different sizes. The lesions can be located in interdental papilla, palatal area, marginal, or attached gingiva. The lesions

are generally painless unless traumatized during tooth brushing, flossing, or mastication.^[3]

A treatment protocol consisted of nonsurgical periodontal treatment (NSPT) and when required surgical excision of lesion with/without reconstruction of remained periodontal tissues was performed for each patient. By NSPT, lesion is usually converted from edematous to fibrotic structure with elimination of potential causative factors. Moreover, dimensions of lesion can be regressed or completely disappeared.^[4] If the excision of lesion is required, clinician should consider all possibilities for the rehabilitation of remained tissue. Various surgical approaches such as gingivectomy, flap surgery, free gingival graft (FGG), and connective tissue graft (CTG) with coronally advanced flap (CAF) can be performed according to location of localized gingival overgrowths, amount of

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keratinized tissue, or relation of them with alveolar bone. The removed tissue should be analyzed histologically.

The histological changes found in localized gingival overgrowths are nonspecific, consisting, regardless of the etiological factor, of fibrosis present in varying degrees associated with an inflammatory process. These lesions can be neoplastic or nonneoplastic lesions. Neoplasms can have benign or malignant characteristics with progressive autonomous growth. Nonneoplastic lesions are generally inflammatory. Nevertheless, they occur as a response to irritation or minor trauma. The localized gingival overgrowths usually show nonneoplastic pattern.^[5]

These case series describe six different therapeutic approaches of remained tissue after NSPT and surgical excision of localized gingival overgrowths.

CASE REPORTS

There are six patients with different localized gingival overgrowths in location, size, duration, and histologic features. Patients do not have any contributed medical conditions or abusive habits. A treatment strategy was planned for all patients that aimed resolution of existing inflammation by NSPT including oral hygiene instructions, scaling and root planing (SRP), and surgical excision of the lesion 6 weeks after SRP. Only one of them was completely treated with NSPT; the other lesions along with surrounding tissues were excised with precision to prevent recurrence. Each excised lesion was sent for a histopathological evaluation. Five different surgical treatment options were applied to the surgical sites as described below.

Case 1 – Nonsurgical periodontal treatment

A 36-year-old female patient with a gingival overgrowth nonpedunculated, hyperemic and located in the interdental area of the teeth #22 and #23 [Figure 1a] was applied to our clinic. Following

clinical and radiographic [Figure 1b] examinations, the patient was diagnosed with gingivitis. Three weeks after NSPT, the lesion was regressed, and it completely disappeared after 6 weeks. No recurrence occurred in the follow-up period of 6 months [Figure 1c].

Case 2 – Gingivectomy

The present case was observed in a 29-year-old female with a complaint of gingival bleeding while tooth brushing or eating, especially in the maxillary anterior teeth. Intraoral examination revealed a sessile gingival overgrowth interproximally between the teeth #12 and #13 [Figure 2a], and no bone loss was observed in the radiograph [Figure 2b]. NSPT was applied, and after 6 weeks, a significant decrease in the dimensions of lesion was observed. Since the lesion did not disappear completely, surgical excision [Figure 2c and d] followed by gingivectomy and gingivoplasty [Figure 2e and f] was performed in the area. Anti-inflammatory drug and chlorhexidine mouthwash were prescribed for 3 and 7 days, respectively. Uneventful healing occurred after operation. The lesion was diagnosed as “gingival fibroma” in histopathological evaluation [Figure 2g]. No recurrence was observed over a follow-up period of 6 months [Figure 2h].

Case 3 – Flap surgery

A 30-year-old male patient arrived to our clinic with pain complaint in slow-growing gingival enlargement for 1 year in maxillary anterior region. In intraoral examination, nonpedunculated and fibrotic-localized gingival overgrowth which reached to occlusal level was observed, completely covering buccal site of tooth #12 [Figure 3a]. Radiographic view showed minimal crestal bone loss [Figure 3b]. Six weeks after NSPT, lesion became fibrotic with a little change in size [Figure 3c]. Lesion was excised [Figure 3d and e] and mucoperiosteal flap was reflected [Figure 3f]; osteotomy and osteoplasty procedures were performed to the affected bone [Figure 3g]. Primary closure was achieved with CAF [Figure 3h]. The patient was prescribed anti-inflammatory for

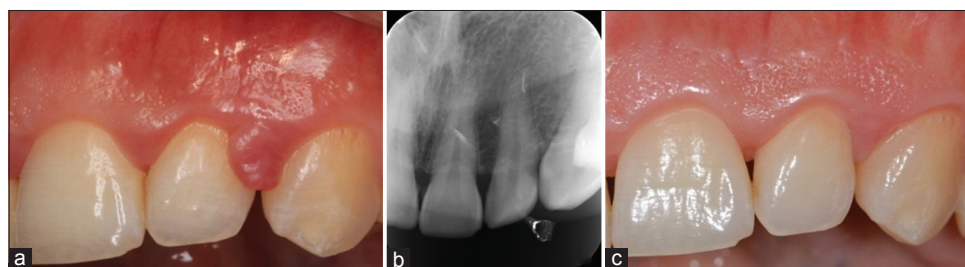


Figure 1: Case 1 (a) initial intraoral appearance of localized gingival overgrowth between teeth #22 and #23, (b) no bone destruction in radiographic view, (c) no occurrence of the lesion 6 months after nonsurgical periodontal treatment

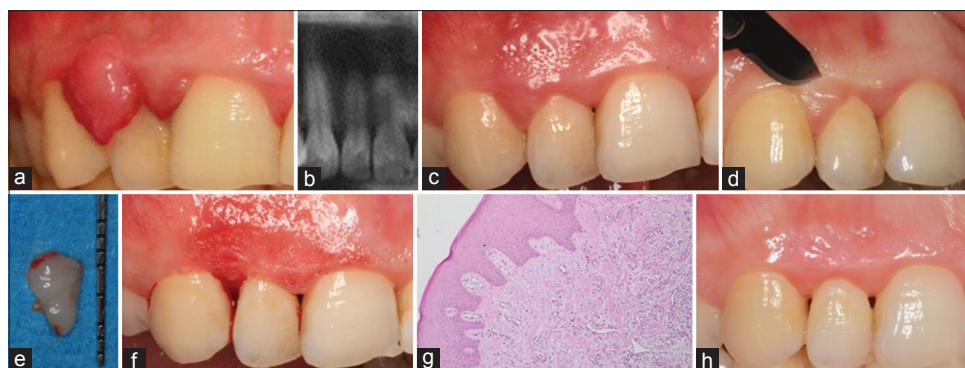


Figure 2: Case 2 (a) initial intraoral appearance of localized gingival overgrowth between teeth #12 and #13, (b) no bone destruction in radiographic view, (c) significant regression of the lesion 6 weeks after nonsurgical periodontal treatment, (d) gingivectomy and gingivoplasty were performed by scalpel to slight lesion between teeth #11 and #13, (e) the excised lesion, (f) aspect of the physiological gingival structure at conclusion of the surgical procedure, (g) histologic view of the lesion, (h) clinical appearance at 6-month postoperative

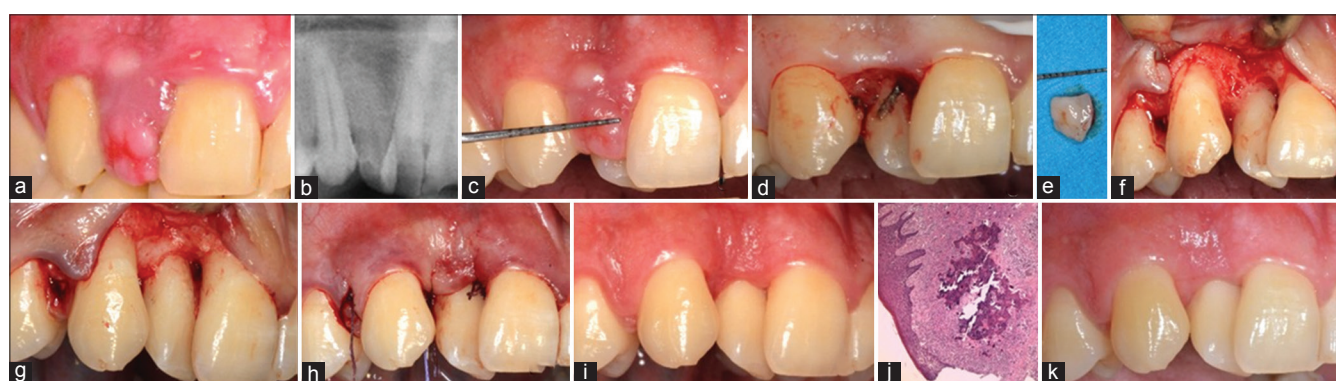


Figure 3: Case 3 (a) initial intraoral appearance of localized gingival overgrowth buccal site of #12, (b) minimal crestal bone loss in radiographic view, (c) regression of the lesion 6 weeks after nonsurgical periodontal treatment, (d) appearance of calculus after excision of lesion with scalpel, (e) the excised lesion, (f) mucoperiosteal flap was elevated showing the bone defect, (g) correction of bone around tooth #12 by the ostectomy and osteoplasty, (h) suturing buccal and palatal flaps, (i) clinical appearance at 3-month postoperative, (j) histologic view of the lesion, (k) no occurrence of the lesion 6 months after treatment

3 days; antibiotic and clorhexidine mouthwash for 7 days. Sutures were removed after 1 week, and healing was found to be satisfactory 3-month postoperatively [Figure 3i]. The excised lesion was diagnosed histopathologically as an “irritation fibroma, focal osseous metaplasia” [Figure 3j]. Follow-up after 6 months demonstrated no recurrence [Figure 3k].

Case 4 – Free gingival graft

A 37-year-old male patient complained about a gingival overgrowth in maxillary anterior region. In intraoral examination, pedunculated and hyperemic lesion was observed between the teeth #24 and #25 [Figure 4a]. Horizontal bone loss was detected in the radiograph [Figure 4b]. NSPT was performed [Figure 4c and d]. Six weeks after the lesion was removed [Figure 4e and f], mucoperiosteal flap was reflected [Figure 4g]; ostectomy and osteoplasty procedures were performed. Since primary closure of flap could not be achieved [Figure 4h], FGG that was

harvested from ipsilateral site of the palate [Figure 4i] was applied to the interproximal exposed bone [Figure 4j]. Palatal surgical site was covered with periodontal dressing. Anti-inflammatory drug for 3 days and antibiotic and clorhexidine mouthwash for 7 days were prescribed. The sutures were removed 1 week following the operation. Uneventful healing was observed 3-month postoperatively [Figure 4k]. In histopathological examination, fibrotic and irregular tissue sample was diagnosed as “pyogenic granuloma” [Figure 4l]. No recurrence occurred at 6 months after operation [Figure 4m].

Case 5 – Gingival unit

A 21-year-old female applied to our clinic with a complaint of asymptomatic swelling of gingiva unless traumatized during tooth brushing or eating. Intraoral examination revealed a localized gingival overgrowth extending from marginal gingival to mucogingival of tooth #44 [Figure 5a]. Radiographic view showed no bone loss [Figure 5b].

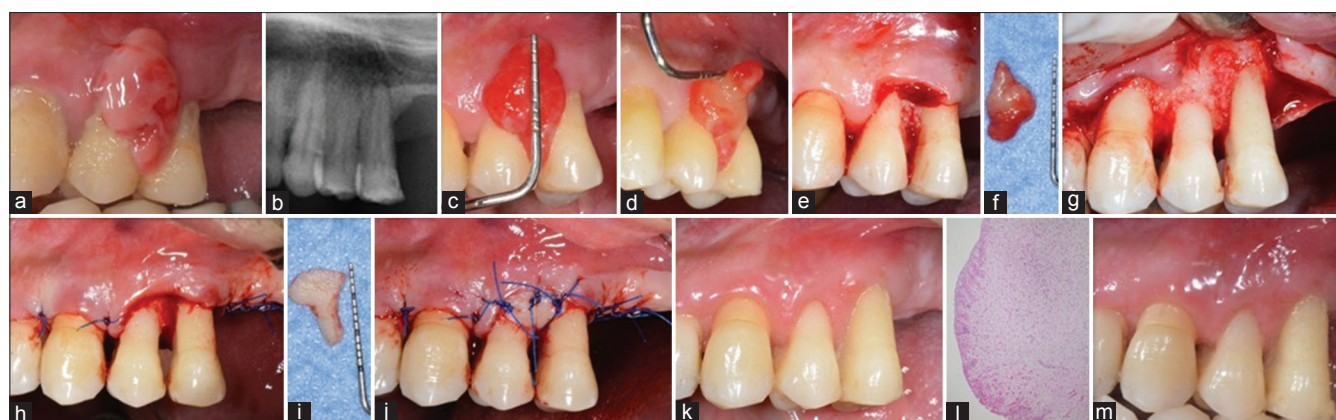


Figure 4: Case 4 (a) initial intraoral appearance of localized gingival overgrowth between teeth #24 and #25, (b) horizontal bone loss in radiograph, (c and d) regression of the lesion 6 weeks after nonsurgical periodontal treatment, (e) after excision of lesion with scalpel, (f) the excised lesion, (g) mucoperiosteal flap, (h) suturing buccal and palatal flaps, (i) free gingival graft, (j) free gingival graft sutured to the interproximal exposed area, (k) clinical appearance at 3-month postoperative, (l) histologic view of the lesion, (m) clinical appearance at 6-month postoperative

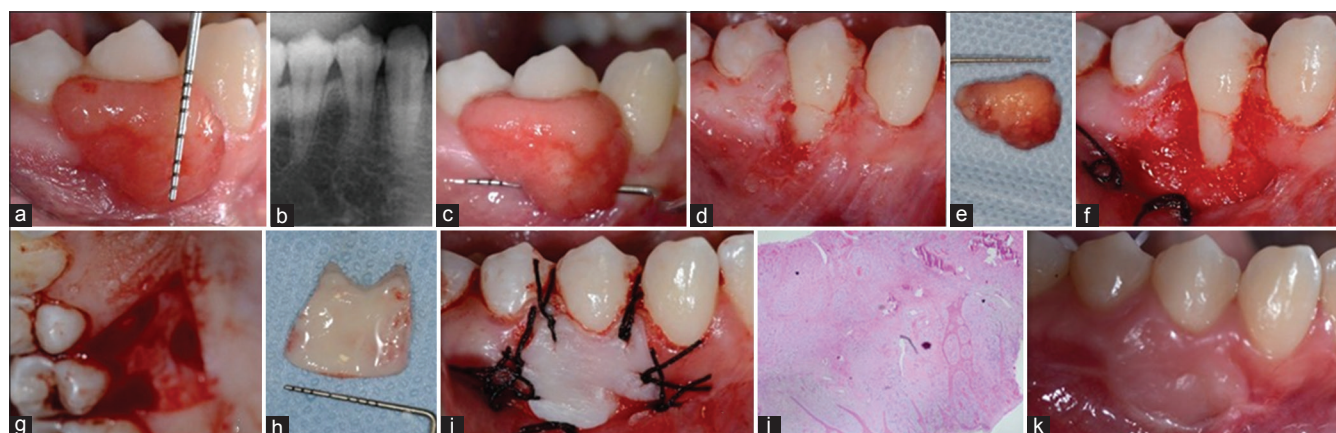


Figure 5: Case 5 (a) initial intraoral appearance of localized gingival overgrowth buccal site of #44, (b) no bone destruction in radiographic view, (c) the lesion 6 weeks after nonsurgical periodontal treatment, (d) after excision of lesion with scalpel, (e) the excised lesion, (f) prepared suprapariosteal recipient site, (g) donor site, (h) a gingival unit graft, (i) gingival unit graft sutured to recipient site, (j) histologic view of the lesion, (k) clinical appearance at 6-month postoperative

After NSPT [Figure 5c], excision of the lesion was planned. Since there was no sufficient amount and thickness of attached gingiva, the root surface of tooth #44 was exposed [Figure 5d and e]. Therefore, a gingival unit graft procedure^[6] was planned, and the recipient site was prepared [Figure 5f]. The graft was obtained from palatal area of tooth #14 [Figure 5g and h]. The graft unit was applied to the exposed tooth surface [Figure 5i]. The donor site was covered with periodontal dressing, and the patient was prescribed anti-inflammatory drug for 3 days and antibiotics for 7 days. The sutures were removed 1 week following the operation. Histologically, the lesion was diagnosed as “peripheral ossifying fibroma” [Figure 5j]. The patient was examined again after 1 month, and healing was found to be satisfactory. Follow-up after 6 months demonstrated no recurrence [Figure 5k].

Case 6 – Connective tissue graft

A 39-year-old female patient with a chief complaint of slow-growing lesion in the lower left anterior teeth noticed 1.5 years ago applied to our clinic. Intraoral examination revealed a pedunculated firm lesion buccal area of tooth #33, including marginal and attached gingiva [Figure 6a]. The lesion was painless. Radiograph showed slight horizontal bone loss [Figure 6b]. After NSPT [Figure 6c], the lesion was excised with precision [Figure 6d and e]. After the excision, the gingiva which was involved had no sufficient amount and thickness of attached gingiva. Therefore, a CTG procedure with CAF planned to the area in order to cover the root surface [Figure 6f]. The graft was obtained from left maxillary posterior palatal area [Figure 6g and h]. The donor site was covered with periodontal dressing. The graft was inserted and positioned [Figure 6i and j] covering the recessions in the recipient site. The patient was

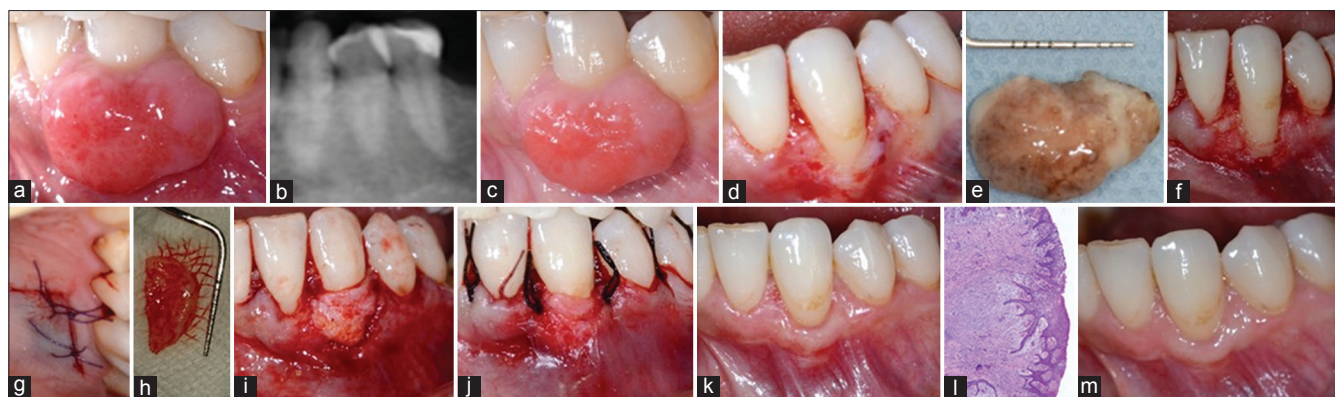


Figure 6: Case 5 (a) initial intraoral appearance of localized gingival overgrowth buccal site of #33, (b) slight horizontal bone loss in radiographic view, (c) appearance of the lesion 6 weeks after nonsurgical periodontal treatment, (d) after excision of lesion with scalpel, (e) the excised lesion, (f) periosteal flap was elevated, (g) donor site, (h) a connective tissue graft (i) inserted connective tissue graft on the recipient site, (j) stabilization and suture of the connective tissue connective tissue graft, (k) clinical appearance at 3-month postoperative, (l) histologic view of the lesion, (m) clinical appearance at 6-month postoperative

prescribed anti-inflammatory drug for 3 days and antibiotics for 7 days. Uneventful healing was observed 3 months postoperatively [Figure 6k]. The lesion was diagnosed as “irritation fibroma” in histological examination [Figure 6l]. No recurrence occurred in the follow-up period of 6 months [Figure 6m].

DISCUSSION

The localized gingival overgrowths are reactive gingival hyperplasia that develops due to interactions between the host and the various local stimuli. There were few reports of their treatment approaches. In the past, conventional treatment of gingival overgrowths was complete exeresis of the mass with extraction of the adjacent tooth or teeth to avoid recurrence. This treatment did not only have invasive nature but also caused gingival deformity, with very poor esthetic and functional outcomes. In this case series, six different therapeutic approaches of localized gingival overgrowths were presented. The plaque accumulation appears to be an etiological or a stimulating factor for localized gingival overgrowth.^[7] Therefore, plaque control is an essential aspect of management in these lesions. Regression or complete disappearance of the lesion is mostly expected by the NSPT. In our Case 1, the localized gingival overgrowth disappeared completely following NSPT in accordance with the previous report^[8] which used the NSPT combined with photodynamic therapy in the treatment of hyperplastic lesion. However, surgical excision should be considered for the lesions which did not disappear completely after NSPT. Appropriate surgical approach for the rehabilitation of the remained tissue should be planned according to the base of lesion, location of lesion such as

interdental papilla or labial surface of tooth, amount of keratinized tissue, and exposed alveolar bone. After excision of lesion if the alveolar bone is not exposed, gingivectomy and gingivoplasty can be applied to the related area to obtain physiological gingival structure as performed in our Case 2. If the base of the localized gingival overgrowth is attached to the bone and the bone is exposed after the excision of lesion, the mucoperiosteal flap should be elevated and the affected bone be removed. Primary closure of the flap is important to facilitate healing, and it discourages proliferative granulation tissue formation which heralds early recurrence.^[9] In the presence of adequate keratinized tissue, primary closure of flap can be achieved with CAF, as shown in our Case 3. Nevertheless, when there is an inadequate keratinized tissue with or without root surface exposure, FGG or CTG can be applied to the exposed bone surface.^[10] In our Case 4, primary closure of flap in interproximal site was provided with FGG. However, in Case 5, gingival unit was preferred since the lesion was localized on vestibule surface of a single tooth. CTG with CAF was performed in Case 6 because the surgical site was wider. No operative complications such as infection, bone resorption or gingival recession, and recurrence were observed in any cases in the 6-month follow-up.

CONCLUSION

Plaque control is an essential aspect in the management of the localized gingival overgrowth. Selection of the appropriate surgical technique following the excision of lesion, when it is required, and maintenance of patient have pivotal role in preventing recurrence. In this case series, we overviewed and presented some of these successful surgical approaches.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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