



Managing Excessive Gum Display Caused By Hyperactive Lip Movement with Coronally Placed Vestibulum (A Case Report)

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Abstract: An excessive gum display (EGD) refers to a smile that displays more than 2 mm of visible gingiva. Among dental patients, it is a prevalent aesthetic issue. It influences both psychological and aesthetic status since it typically lowers self-confidence. EGD is considered unaesthetic when smiling, thus many patients seek treatment to manage this condition. The etiology of EGD varies, with hypermobile upper lip (HUL) as the most predominant. HUL is defined as more than 8 mm of upper lip movement from rest to maximum smile. This article will discuss about the management of EGD caused by HUL, treated with coronally placed vestibulum. Case: A 28-year-old male patient came with a complaint of disproportionate gingival display. The patient felt that his gums were exposed too much when smiling. The patient was not confident with the condition. On maximum smile, 6 mm of gingiva was displayed due to hypermobile upper lip. The diagnose of excessive gum display was established. The treatment was coronally placed vestibulum, which done by relocating the attachment between the mucosa and the attached gingiva closer to the coronal. Follow-up results after 3 months showed a noticeable decrease in excessive gingival display. Discussion: Coronally placed vestibulum is performed on cases of EGD with the etiology of HUL. Through this procedure, the vestibule's limiting muscular pull is narrowed, reducing gingival display when smiling. Conclusion: Coronally placed vestibulum is a less-invasive treatment of choice for EGD caused by HUL.

1. INTRODUCTION

An excessive gum display (EGD) refers to a smile that displays more than 2 mm of visible gingiva. Although it is a non-pathological condition, many patients seek for treatment because of aesthetic issue. There are three levels of EGD severity: mild (2–4 mm), moderate (4–8 mm), and severe (>8 mm). It appears as a continuous band of gingival display in the anteroposterior direction in 88% of cases, yet in other cases, it might be localised to the anterior or posterior regions. In extreme cases, EGD can be exhibited even in the resting position of the lips [1,2,3].

Literatures have addressed a number of etiological variables for EGD, such as gingival enlargement, retroclination, low philtrum height, hypermobile upper lip, vertical maxillary excess, and supra-eruption of maxillary incisors. A vertical maxillary excess is associated with a skeletal issue. Incisal overeruption (anterior dentoalveolar extrusion), compensatory incisal eruption (incisal wear), and altered passive eruption are related dental issues. A hypermobile upper lip (HUL) is caused by the elevator muscles that lift the lip to a higher position. HUL is the most prevalent etiology among patients with EGD. Identifying the etiology is important to determine the treatment plan and outcome [1,4,5].

The prevalence of HUL in the general population is approximately 11%, whereas in individuals with EGD, it exceeds 85%. Treatment option for EGD caused by HUL can be surgical or non-surgical. Botulinum toxin injection is the most common non-surgical treatment, while the most popular surgical treatment is coronally placed vestibulum, or lip repositioning surgery [6]. This case report will discuss about the management of EGD caused by HUL, treated with coronally placed vestibulum.

2. RESULTS AND DISCUSSION

Case Description

A 28-year-old male patient came with a complaint of disproportionate gingival display. The patient felt that his gums were exposed too much when smiling. The patient was not confident with the condition and wanted his tooth and gum appearance to be fixed. On examination, 6 mm of gingiva was displayed on maximum smile. The measurement of upper lip movement from rest to maximum smile was 12 mm, indicating HUL. The diagnose of excessive gum display was established. The treatment initiated was coronally placed vestibulum.



Figure 1. Pre-operative condition (extraoral).



Figure 2. Pre-operative condition (intraoral).

Case Management

Disinfection for extraoral and intraoral was carried out using povidone iodine. Local anesthesia was administered into the vestibular mucosa between the maxillary right and left first molars. The incision lines were marked on the dried tissue. Incision along the incision line was done using blade no. 15 C. Muscle attachment was released and the vestibulum was repositioned. Coronally placed vestibulum was done by relocating the attachment between the mucosa and the attached gingiva closer to the coronal. The mucosa was sutured using non-resorbable sutures and periodontal pack was applied. The patient was given post-op medication of Amoxiclav and Sodium Diclofenac.



Figure 3. (a) Marking incision lines; (b) Incision using blade no. 15 C; (c) Muscle attachment release; (d) Suturing using non-resorbable suture.

Follow-ups were done on day 14, 30, and 90 post-operatives. At the first control, there was no complaints of pain. Inflammation and redness were still visible. The periodontal pack was removed five days after surgery. At the second control, the stitches were removed. At the third control showed a noticeable decrease in excessive gingival display.



Figure 4. Condition on day-90 follow up post-operative (extraoral).



Figure 5. Condition on day-90 follow up post-operative (intraoral).

Discussion

A smile is a complicated motion that includes the gingival border, oral tissue health, and lip posture. A smile has a significant impact on look and facial expression. Nowadays, a lot of people aspire to have a beautiful smile [7]. In this case, the patient's extensive gingival show resulted in an unattractive smile. The "cosmetic zone" should serve as the boundaries for this aesthetic adjustment. The gingival line, the incisal margins' location, and the face's midline are crucial landmarks in an aesthetic assessment of the dentogingival complex [8].

In this case, based on the examination, the etiology can be linked to hyperactive upper lip (HUL) related to the muscles that move the upper lip when smiling. The levator labii superioris, levator labii superioris alaeque nasii, zygomaticus major, zygomaticus minor, and depressor septii are among the muscles involved. The upper lip is pushed up to a higher position than usual due to this particular muscle hyperfunction [9,10].

Coronally placed vestibulum is broadly divided into 2; with and without myotomy. Coronally placed vestibulum with myotomy, which cuts certain muscles involved in lip lift during smiling, is more invasive than coronally placed vestibulum without myotomy, which decreases lip mobility by reducing the amount of vestibular mucosa available [11]. The less invasive method was chosen because myotomy could increase morbidity and paresthesia due

to aggressive tissue removal around the infraorbital nerve. To achieve more desirable result, this treatment can also be combined with other periodontal procedure such as gingivectomy or crown lengthening [3,9].

Coronally placed vestibulum typically follows a rule called the "twice the amount of gingival display rule". The degree of mucosal excision during surgery is determined by this criterion. It implies that almost twice as much mucosal tissue should be removed during the procedure as gingival tissue that has to be decreased. This guideline reduces the chance of problems or relapse while ensuring a sufficient reduction in gingival show. Not following this rule may lead to relapse of the condition [2,3].

The technique produced satisfactory short-term EGD correction results. However, despite being less invasive, given the high rates of relapse that have been documented, its efficacy is still debatable. There have been reports of acceptable stability with a minor recurrence after two to four years. Additionally, the data indicated that the treatment outcomes and predictability are improved when coronally placed vestibulum is used with other adjunct medicines. Botox injections or returning to the surgical site to cut additional mucosa can be used to treat relapses. Some articles recommend removing the muscle insertion to prevent the lip muscle from returning to its original place following the procedure. By doing this, the flap's strain during the suturing procedure may be reduced [12,13,14]

3. CONCLUSION AND SUGGESTIONS

Coronally placed vestibulum is a less-invasive treatment of choice for EGD caused by HUL. Combination with other periodontal procedure may be needed to reduce the possibility of relapse and achieve more desirable result.

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