

# Management of Oral Contraceptive Induced Gingival Enlargement: A Clinical Case Report

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**Abstract:** *In dentistry, drug induced gingival enlargement is one of the most unwanted effects of any systemic medications. Over the years, immunosuppressants, calcium channel blockers and anti convulsants have been known to be the cause behind the enlargement. Hormonal contraceptive pills too have shown positive correlation with drug induced gingival enlargement. Hormones are specific regulatory molecules that affect the host of body functions. Sex steroid hormones like estrogen and progesterone have an effect on the periodontium. Oral contraceptives that contain estrogen and/or progesterone can cause gingival enlargement. This article's purpose is to present a clinical case of oral contraceptive induced gingival enlargement managed with surgical periodontal therapy.*

**Keywords:** Oral Contraceptives, Gingival Enlargement, Surgical Management, Ethinylestradiol, Levonorgestrel

## 1. Introduction

The impaired gingival state cannot be ascribed solely to an increase in the amount of bacterial plaque on the teeth (Silness and Loe, 1964). It must therefore be presumed that the increased concentration of chorionic gonadotropin, estrogen, and progesterone during pregnancy causes an altered reaction pattern of the periodontal tissues (Loe, 1965). (1)

In the 1960s, oral contraceptives were introduced. The first oral contraceptives introduced had high doses of estrogens (150 µg) and progestins (9.85 mg), as a result they were linked to high risk of cardiovascular events. Clinical reports of an increased prevalence of gingival (and possibly periodontal) disease associated with increasing levels of plasma sex steroid hormones have appeared on an intermittent basis in the dental and medical literature throughout the last century. (2) Many studies have been published since then that has shown a positive correlation between oral contraceptive pill and its effect on the

periodontium. Often as an aid to avoid or terminate pregnancy, women tend to intake these pills. If these pills are taken in prescribed dosage and time, they will not harm, however if taken in more than the required quantity or beyond the given time it shall have adverse effects on the individual's gingival and periodontal health. This case report presents the consequences and management of an oral contraceptive induced gingival enlargement in a young female patient who was in her childbearing age.

## 2. Case Report

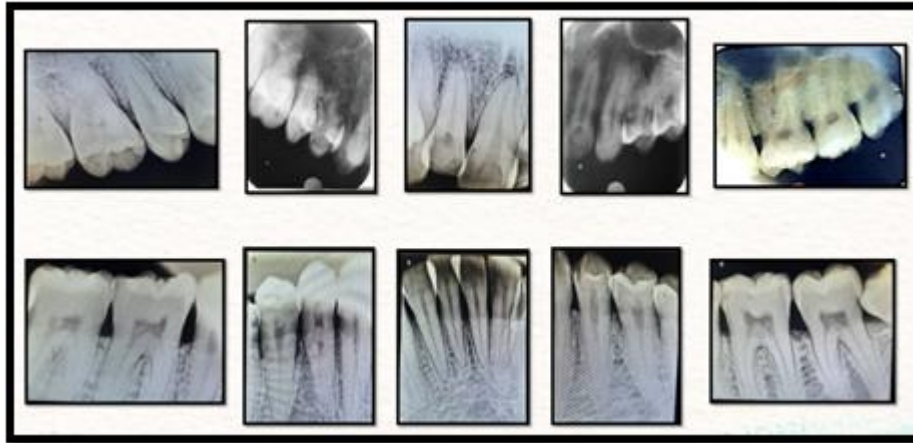
A 20 - year - old female patient reported to the department of periodontology with the chief complaint of spontaneous bleeding of gums from upper and lower front and back tooth region. Clinical examination revealed grade III gingival enlargement, which was reddish pink in colour (Fig.1). Anterior region of the gingiva was soft and edematous in consistency whilst the posterior region was fibrotic. There was bleeding on probing present.



**Figure 1:** Generalized Grade III Gingival Enlargement

History documented revealed that the patient was on contraceptive pill to avoid pregnancy. She had bought this drug from a local chemist without prescription which was a combination of ethinylestradiol (0.03mg), ferrous fumarate

(60.0 mg) & levonorgestrel (0.15 mg) for 6 months. When she reported to our department, she had already discontinued the drug as advised to her by a general dentist she had visited at her locality a week ago.



**Figure 2:** Full Mouth Intra Oral Peri - Apical Radiographs

Full mouth intra oral apical radiographs were taken as a part of investigation (fig.2). This radiographic examination revealed mild to moderate amount of bone loss.

Scaling and root planing was performed on day 1. Later, re-evaluation was done and based on the decision - making tree for management of gingival enlargement, the patient was scheduled for flap surgery.

On the day of surgery, local anaesthesia was administered. Sounding of the underlying alveolar bone was performed using a periodontal probe to determine the presence and extent of the osseous defects. Bleeding points were marked accordingly (fig.3 (b)). Further, using no 15 blade, initial reverse bevel incision was given on the buccal and lingual aspect 3 mm coronal to the mucogingival junction (fig.3 (c)). This included the creation of new surgical interdental papillae in each interproximal space. Similar blade was used

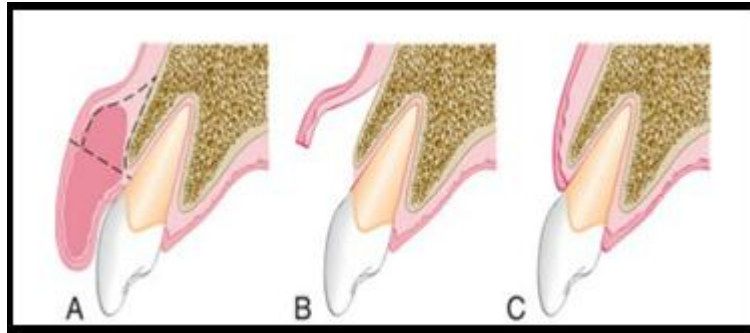
to thin the gingival tissue in a bucco - lingual direction to the mucogingival junction and it is at this moment, the blade was exposed to the alveolar bone. A full thickness flap because of this was elevated. Base of each papilla connection buccal and lingual incisions was released using an Orban's knife. Intrасulcular incisions were made to release the tissue collars. Marginal and interdental tissues were removed using curettes. Tissue tags were removed and once that was done, the roots of each tooth were thoroughly scaled and planed. Following this, in the end, flap was repositioned on the top of alveolar bone and sutured with 3 - 0 mersilk suture (fig.3 (c)). Patient was given instructions to use 0.2% clohex ADS mouthwash twice daily. She was asked not to brush on the surgical site. She was advised to not spit for 24 hours and consume a soft diet for one week with no chewing from the treated side. Antibiotics and painkillers were prescribed.



**Figure 3 (a):** Pre - Operative



**Figure 3 (b):** Bleeding Points Marked and Reverse Bevel Incision Given

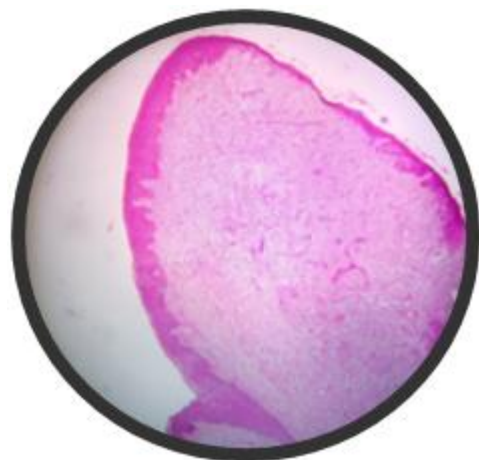


**Figure 3 (c):** Schematic Illustration For Periodontal Flap Treatment In Drug Induced Gingival Enlargement Case



**Figure 3 (d):** 3 - 0 MersilkSuture Taken

Histopathology revealed that throughout the connective tissue there was diffuse infiltration of chronic inflammatory cells chiefly comprising of lymphocytes which was suggestive of inflammatory gingival hyperplasia (fig.5 (a, b, c)).

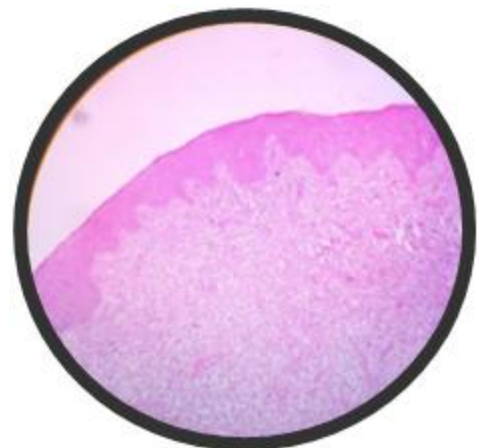


**Figure 5 (a):** Hyperplastic Parakeratinised Stratified Squamous Epithelium with Underlying Dense Connective Tissue Stroma

Patient was recalled after 1 week for suture removal and follow up. On 1 week, follow up the enlargement had subsided; however, there was still some bleeding present (fig.4 (a, b)).



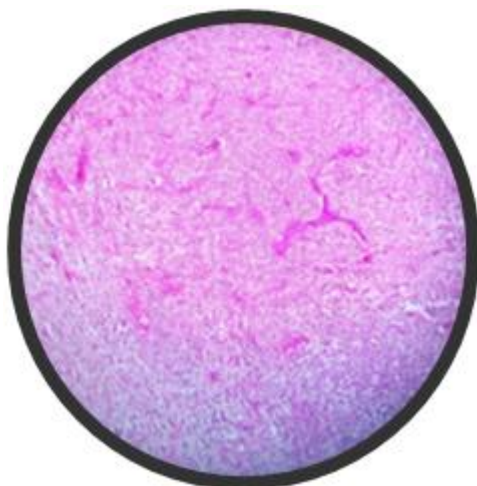
**Figure 4 (a):** Suture Removal after One Week



**Figure 5 (b):** Dense Infiltration of Lymphocytes In Connective Tissue



**Figure 4 (b):** Healing after One Week



**Figure 5 (c):** Numerous Blood Capillaries Seen in Stroma

Patient's chief complaint of enlarged gingiva and spontaneous bleeding had resolved on 4 months follow up (fig.6). She had adhered to all the post - operative oral hygiene instructions. We advised her to undergo an orthodontic treatment as plaque accumulation was taking place due to malalignment of the teeth.



**Figure 6:** Four Months Follow Up

### 3. Discussion

Gingival enlargement or gingival overgrowth are two words, which are often used interchangeably with hyperplasia, hypertrophy and fibrosis. Gingival enlargement is simply an increase in the size of gingiva. This can be either inflammatory, drug induced, hormonal induced or neoplastic. Depending on their extent and severity, this condition can lead to speech alteration, difficulty in mastication, aesthetic concern and even psychological problem.

It is well established that inflammatory conditions of the gingiva are aggravated during pregnancy (Loe and Silness, 1963), thus, it seems important to analyse the effect of regular sex hormone therapy on the state of the gingivae in fertile women. The greatest relative increase in gingivitis during pregnancy occurred around the anterior teeth, the interproximal areas being by far the most frequent sites of gingivitis (Loe and Silness, 1963). (1)

Combined pill is the most popular, most efficacious OC agent and one of the most widely used classes of drugs in the world. Nonetheless, OCIPs are relatively scarce in recent

decades, perhaps due to current low dose OC formulations, alternate withdraw/choice of contraception methods, good plaque control. An understanding of the etiology of periodontal endocrinopathies is essential for the prevention and/or treatment of sex steroid hormone induced periodontal diseases.

Gingival changes are related to the stimulation of specific populations of fibroblasts by estrogen, increased vascular permeability and proliferation. Both the sex hormones decrease gingival immune response to plaque bacteria. Inflamed gingival tissues are capable of metabolizing sex hormones to active metabolites at higher rate; thus, local irritants may exaggerate OC induced gingival changes. Therefore, the response of the periodontium in OCIPs is probably multifactorial in nature where dose, duration of pill usage, dental plaque and sex hormone - sensitive cells are the key modifying factors. Literatures reported gingival changes with the use of high - dose OC compositions ( $\geq 50$   $\mu\text{g/day}$  estrogen and  $\geq 4\text{mg}$  progesterone/day) prior to the 1980s but rare with current low dose formulations. (3)

The periodontium would appear to be an odd target of OCs. In gingival tissues, estrogen is responsible for keratinization and proliferative changes in epithelium and increased fibroblastic activity. Progesterone increases proliferation, dilatation, tortuosity and permeability of gingival microvasculatures, facilitates bone resorption, decreases collagen production; thus, promoting tissue catabolism and delaying repair. Hence, estrogen and especially progesterone in OC can contribute to periodontal changes similar to pregnancy. (4)

Lindhe J et al, 1967 studied the gingival conditions of women before and during 12 months of regular use of contraceptive preparations in the mesial aspects of 5 maxillary incisors and canines, wherein 2 kinds of contraceptive was used, Delpregnin and Gestadyral. This showed that regular use of contraceptive pills for twelve months increases the amount of exudate obtainable from the gingival pockets of the anterior regions. The increase in exudation was statistically significant in both the Delpregnin group and the Gestadydraigroup. (1)

Surajit Mistry et al reported a case of a female patient complaint of bleeding gums followed by swelling of gingiva for the last four years due to combined pill Lynestrenol 2.5 mg plus Ethinyl oestradiol 50  $\mu\text{g}$ , intake whereas tooth mobility appeared after 3.5 years. She underwent Phase - I therapy following withdrawal of OC six months ago that resulted in improvement of bleeding tendency only, then surgical intervention was planned for correction of enlarged gingiva to prevent progressive periodontal breakdown. This resolved the lesion and there was no recurrence. (4)

Mahajan A et al in 2017 had reported a case of swelling of gingiva with bleeding gums in mandibular anterior region; she was on oral contraceptive pill since 2 years. Non - surgical periodontal therapy and discontinuation of drug had resolved the lesion. (5)

In our case, the individual was on oral contraceptive pill and had some amount of deposits. Looking at her status and

referring to the decision - making tree we opted for surgical intervention. This had not only resolved the lesion but also there was no recurrence found.

#### 4. Conclusion

Females on oral contraceptives fall under the risk group of gingival enlargement. Timely non - surgical and surgical periodontal therapy can not only resolve the lesion but proper maintenance can also prevent the recurrence.

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