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Diode Laser Assisted for the Excision of Focal Epithelial Hyperplasia. Case Report

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Abstract:- Fibro-epithelial hyperplasia is a proliferative fibrous reactive inflammatory lesion of the gingival tissue that hinders function and aesthetics. This article discusses an unusual case of unilateral fibro-epithelial hyperplasia in a 75 year old patient. The reason for the enlargement was local irritation caused by plaque and calculus. Various Literatures is replete with numerous case reports wherein diode lasers were highly successful in the excision of localized reactive lesions of the Gingiva. The advantages of laser over conventional surgical methods includes the maintenance of sterile conditions, good estimation of cutting depth, no need for suturing, post operative pain reduction, promotion of wound healing. Hence in this article fibroepithlial lesion was treated with Diode Laser.

Keywords:- *Fibro-Epithelial Hyperplasia, Laser, Diode Laser.*

I. INTRODUCTION

The gingival swelling is a frequent finding in the clinical practice with a diverse aetiology. The Gingiva overgrowth provides a significant proportion of the diagnostic workload of any oral pathology practice. Clinically, it often presents diagnostic challenges as they mimic various groups of pathologic processes.

Localized reactive gingival enlargements are commonly found in the oral cavities which includes focal fibrous epithelial hyperplasia, pyogenic granuloma, peripheral giant cell granuloma and peripheral ossifying fibroma.[1]

These localized progressive, proliferation of the oral mucosa can be seen in response to any local irritation from dental plaque, calculus, fractured teeth, trauma, jagged edge of grossly decayed teeth, and improper fitting dental prosthesis.[2]

According to Daley et al, the term, focal fibrous hyperplasia implies a reactive tissue response, to any reactive inflammatory circumstances. Commonly found in 1.2% of adults, and it is the most common oral mucosal mass submitted for biopsy and is composed of Types I and III collagen.[3,4]

Surgical excision is the treatment of choice. It can be done with a traditional method by using scalpel blade or it can be treated with the recent treatment modalities like cryosurgery, and laser surgery implemented in the treatment for excision. Scalpel to electro cautery can show a varying degrees of success.[5]

Traditional surgical excision can be used but laser applications are being widely used in dentistry. It relatively provides precise incisions, bloodless surgical and minimal post surgical benefits with minimal swelling and scarring with less discomfort to patients have made them a preferred treatment option for several soft tissue lesions. Hence we have used Diode laser in this case.

This paper presents a 75 year old male patient reported to the department of periodontics at Navodaya dental college and hospital, Karnataka with a chief complaint of a swelling in lower aspect of front region of mouth since 3 months. He noticed a gradual increase in size over period of time. The medical history revealed the patient was known diabetes mellitus type 2 and was on medication: Glybenglamide tablet 50mg, Metformin tablet 100mg per day.

On clinical evaluation a solitary sessile reddish growth was revealed on the labial aspect of lower left central and lateral incisor involving the marginal gingival and the interdental papilla, extending from mesial aspect of 31 to distal aspect of 32. Superiorly and inferiorly from incisal edge of 31 and 32 and 1 cm away from vestibular area measuring of 1x2cm. (fig 1) almost covering half of the crown portion. Lesion was erythmatous. It showed firm in consistency, non compressable, blanching was seen, easily retractable; tender on palpation, bleeding on probing with

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exudation was noticed. The mentioned tooth was vital but had grade I mobility. IOPAR was advised and radiograph showed slight amount of bone loss on mesial and distal aspect of 31 and 32, with periapical radiolucency w.r.t 31. (fig 2)

Phase I therapy which constituted scaling and root planning was carried out and patient was recalled after one week for further evaluation. Patient was instructed for laboratory test (FBS) and the result was in normal range before the surgery.

The success or failure of therapy should be followed clinically and by radiographic examination. Based on clinical and radiographic interpretation treatment plan was designed as excisional biopsy.

Precautions were taken into consideration prior to the surgery which included by wearing protective eye glasses by clinician, attendant and the patient prior to the laser. Local anaesthesia infiltration was administered. Diode laser with wavelength of 810 nm, with continuous wave mode of 0.4-mm diameter fibre optic was set for total excision of lesion. Lesion was held with the tissue nipper in upward direction. Lesion was cut at the base with contact mode; during the procedure some amount of fume were released which might cause some discomfort to the patient hence we had used high suction air evacuator. The fibre tip was cleaned of the debris with wet saline gauze. After excision the area was cleaned with curette. Due to completely bloodless field the entire procedure accomplished within 8 minutes without any pain. (Fig 3,4); No antibiotics or analgesics were prescribed. After excision of mass an arrested caries was noticed and the patient was referred for further restorative procedure.

The excised mass was immersed in 10% formaldehyde solution and was sent to the Oral Pathology for the histopathological examination.

The histopathological exam revealed (fig 5) that the lesion was mainly constituted hyperplastic stratified squamous epithelium with underlying fibrocellular dense collagen connective tissue with scarce inflammatory cellularity and a diffuse and mild lymphoplasmacytic infiltration. Hence, the definitive diagnosis was fibro-epithelial hyperplasia with inflammation.

Patient was recalled after a week and a month which revealed completely healed gingival and mucosa with no evidence of recurrence. (Fig 6, 7)

II. DISCUSSION

Localized overgrowths of fibrous tissues are of frequent occurrence in the oral mucosa. This is caused by a range of stimuli like poor oral hygiene, food impaction, or mouth breathing, improper dentures. But in the present case report, the local deposits mainly plaque and calculus on tooth surfaces could be the etiological aspect for chronic irritation of gingival tissues resulting in their proliferation. [6]

Clinically, the involved gingival mass appeared to be reddish, firm and retractable with tender on palpation in nature. The chronic nature of the lesion resulted in the fibrotic nature of the gingiva and Histologically they are characterized by a focal sub-epithelial mass of fibrous connective tissue composed of interlacing or parallel bundles of collagen, containing occasional vascular channel and variable inflammatory infiltrate.[7]

Based on the underlying cause and pathologic changes. Surgical excision was the treatment of choice. The primary aim of utilizing a laser in present case report was to build a favour environment devoid of fear, anxiety and better acceptance for patients.

Laser-assisted treatment has some advantages compared to traditional surgical techniques. The main advantage of laser treatment is photocoagulation of lymphatic, haematic and nerve endings thus giving less intraoperative bleeding, less oedema and post-intervention pain. [8]

Studies have reported that the laser activates myofibroblasts which result in the synthesis of collagen fibres and the anti-inflammatory capacity. These effects show better results, in terms of healing.[9]

Among various lasers available, diode laser is solid semiconductor of wavelength ranging from 800 and 980 nm. This is simple, cost-effective, user-friendly, and can be used in contact mode. Due to its active medium it cannot be absorbed by the dental hard tissues. Hence, diode laser is harmless for soft tissue surgeries and was used in our study. This Diode lasers have been reported to be effective compared to other lasers especially for the excision of intra oral soft tissue lesions. [10]

III. CONCLUSION

Fibro-epithelial hyperplasia a gingival enlargement, prominent lesions often noticed in clinical practise. As per the various literatures it can be treated with recent treatment modalities like Laser. This can be used in oral soft tissue surgery due to its advantages like better coagulation, no need for suturing, less post operative swelling and pain and patients comfort.

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PHOTOGRAPHS:

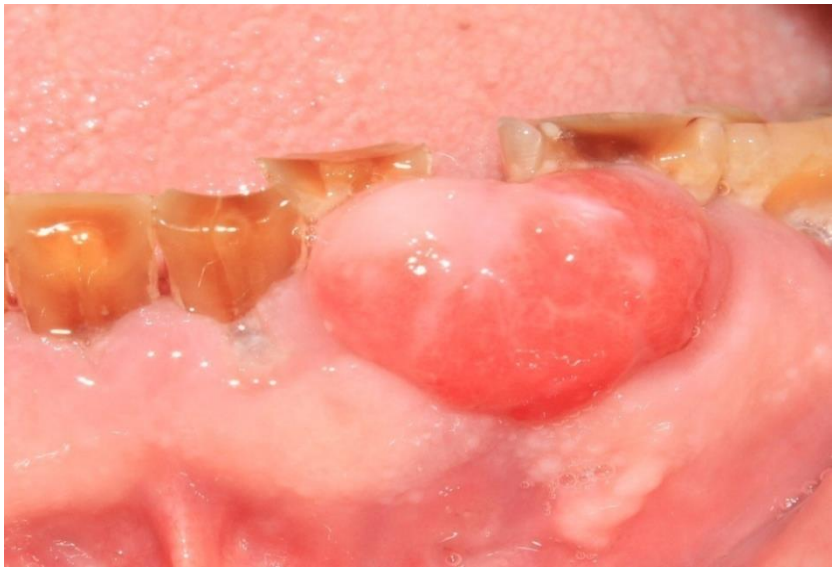

Fig 1 : Pre operative view.

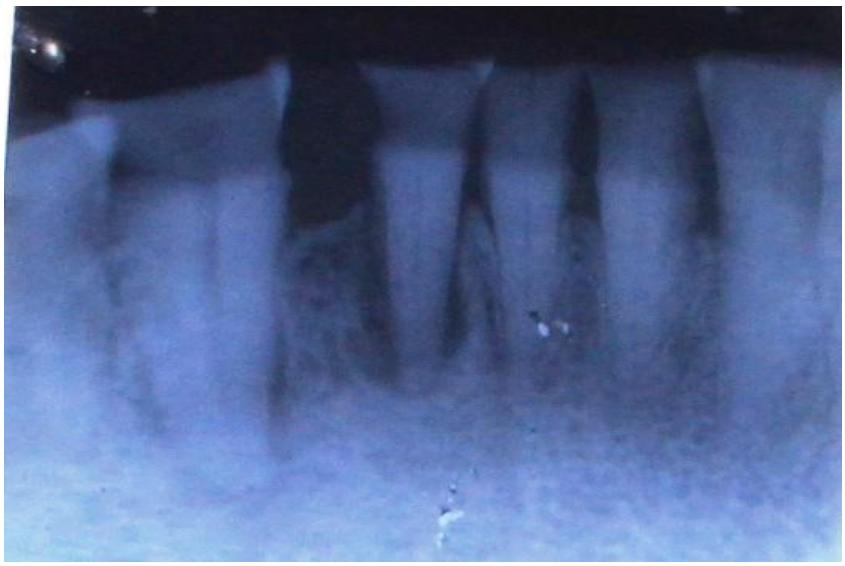

Fig 2: Pre operative radiograph

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Fig 3: excised mass with Laser

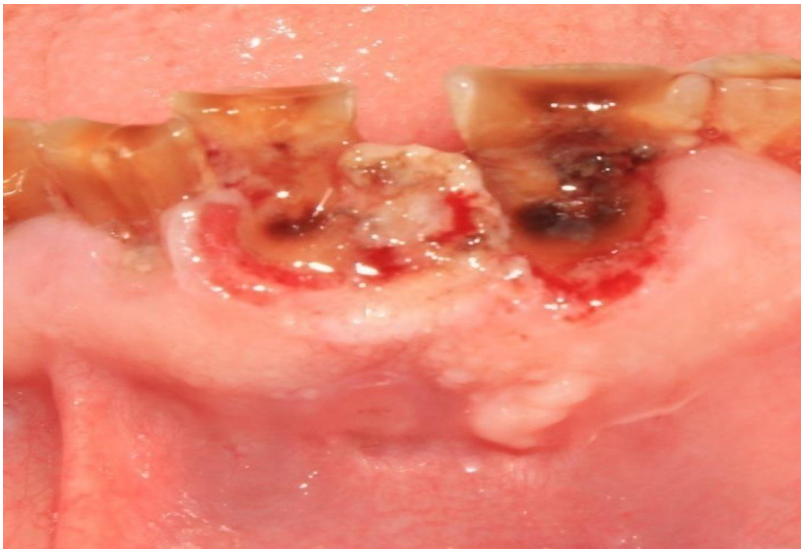

Fig 4: Immediate after excision

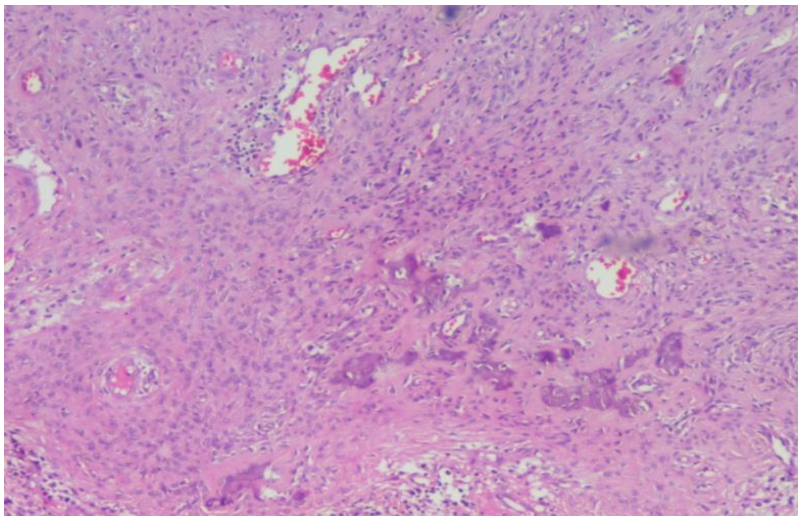

Fig 5: Histopathological view

Fig 6: One week follow up

Fig 7: One month follow up