

LASER EXCISION OF A GIANT CELL FIBROMA – REPORT OF A CASE AND REVIEW OF LITERATURE

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ABSTRACT

Giant cell fibroma is a non-neoplastic lesion of fibrous connective tissue origin considered to be a variant of fibroma. It differs significantly from routine fibromas in that its stroma contains very large stellate fibroblasts, making it to be known as a separate entity. The purpose of this article is to report a case of a giant cell fibroma in a 35-year-old male patient and briefly emphasize on the differential diagnosis of this lesion. Though it is customary to manage giant cell fibroma with routine excisional biopsy, our case report highlighted the use of a diode laser as an alternate safe and reliable technique to remove the lesion without any postoperative discomfort and minimize the patient's esthetic concerns.

KEY WORDS : Giant cell fibroma, Fibroblastoma, Fibrous hyperplasia, LASER

INTRODUCTION

The giant cell fibroma is an interesting non neoplastic lesion of the oral mucosa. It was first described by *Weathers* and *Callihan* in 1974¹. Clinically GCF is an asymptomatic, papillary, pedunculated lesion with predominance over the mandibular gingiva. Seen commonly in the female sex and occurs in the first three decades, this lesion draws attention in having a unique origin of multinucleate cells and large stellate fibroblasts. The fibroblasts of GCF were unusual and distinctive to warrant separate classification of fibrous hyperplasia²⁻⁶. *Weathers* and *Callihan* reviewed more than 2000 specimens at Emory University of which 108 specimens met the criteria for reclassification of GCF¹.

Very few case reports are seen regarding this tumor and controversy regarding the origin of this lesion continues. A case report of GCF is presented and is followed by brief review of this tumor.

Case report

A 35-year-old male patient was referred to the Department of Periodontics, Sri Sai College of Dental surgery, Vikarabad from the Department of Oral Medicine for a growth over the labial surface of

the right maxillary teeth. Patient had noticed the growth over the gingiva four months back but did not seek any medical assistance. His medical history was non contributory. The growth slowly progressed and attained the current size.

Intra-oral examination revealed a solitary, reddish-pink firm gingival growth on the labial surface of the maxillary right arch of size 2x1cm extending between the distal aspect of canine and the mesial aspect of the second premolar. The lesion had a sessile base which was attached to the marginal and the attached gingiva (**Fig.1**). Radiographic examination using an intra-oral periapical radiograph revealed no abnormality of the underlying bone. Based on its clinical presentation, a provisional diagnosis of fibroma was established.

Surgical procedure

After the treatment plan was explained, consent was obtained. Appropriate eye protection was used, and topical anesthetic was applied for 3 minutes. Complete excision of the gingival growth was done utilizing a diode laser unit (Picasso, AMD laser technologies, USA; wavelength 810 nm) (**Fig.2**).



Fig.1.Intra oral photograph showing the gingival growth



Fig.2. Diode laser settings



Fig.3. Intra oral photograph of the excised area with the diode laser



Fig.4.Excised tissue



Fig.5.Healed site

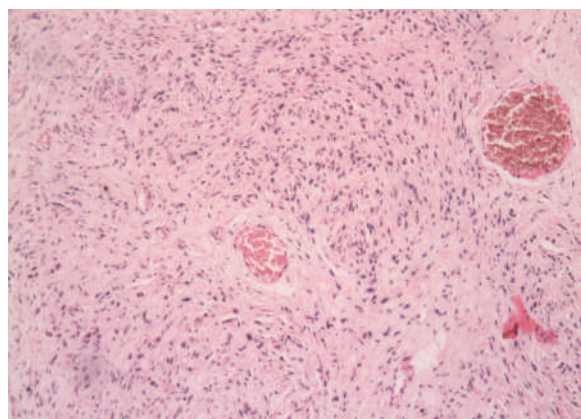


Fig.6.Microscopic view at 10 x of the excised tissue

Laser parameters were 1 Watt at continuous pulsed mode. The diode laser uses a 400- μ m strippable fiber in a contact mode. Surgical assistant grasped the gingival growth with tissue pliers and pulled on it to create tension. The fiber was placed at the depth of the growth and gradually moved in

an antero posterior direction, continuously firing the laser to dissect out the fibroma from its periphery (**Fig.3** and **Fig.4**). Finally the excised tissue was immersed in a 10% formalin solution and sent to the pathology lab for histopathology examination. There was no bleeding, the patient was comfortable, and

no sutures were necessary. No postoperative antibiotics were given. He was instructed to take analgesics if needed. Patient was recalled after one week to evaluate healing. Healing was uneventful (**Fig.5**)

Histopathological examination of the specimen showed a highly cellular dense connective tissue stroma. Connective tissue showed dense collagen fiber bundles with numerous fibroblasts. These fibroblasts were giant and stellate with nuclei hyperchromasia. Numerous dilated endothelial cell lined blood vessels with engorged red blood vessels were seen (**Fig.6**). These findings coupled with the clinical features were suggestive of a giant cell fibroma.

Discussion

GCF is a fibrous tumor with distinctive clinicopathology unlike traumatic fibroma; it is not associated with chronic irritation. It represents approximately 2–5% of all oral fibrous proliferations.³ Occasionally the clinician may be confused by a pathology report diagnosing a 'Giant cell fibroma' in what seemed to be a routine intra oral fibroma. Both intra-oral fibroma and GCF represents focal fibrous hyperplasia that has limited growth potential and is usually static when first seen. Both are curable by local excision around their clinical periphery and into the submucosa.

This lesion should not be confused with giant cell fibroblastoma, a term often used by general pathologist and dermatologists. This lesion is a true benign neoplasm and has a distinctive subcutaneous/dermal mass of 2-6cm seen mostly in young boys. It is not related to GCF of oral cavity⁷.

The giant cell fibromas are smooth rounded or verruciform lesions usually of less than 1cm in size. The surface often has papillary presentation hence easily mistaken for a papilloma. The lesion usually occurs at young age of less than 30 years in about 60% of cases. Most studies show female preponderance. 50% of all cases occur on the gingiva. The mandibular gingiva is affected twice more than the maxillary counterpart. Tongue and palate are next preferred sites for GCF in the oral cavity^{2,6}.

The Histopathology shows the hallmark feature of presence of large, stellate and angulated cells most of them are multinucleated giant

fibroblasts within the superficial connective tissue. These fibroblasts are distinctively absent in the central portion of the lesion. They often assume star shape resembling a montana ray. Ultra structure reveals a typical fibroblast with melanin in few areas^{6,8,9}. Worth mentioning at this point is the retrocuspid papilla having a microscopically similar developmental lesion occurring on the mandibular gingiva. It is often bilateral pink papule typically less than 5mm diameter and most commonly seen in 95% cases of children and young adults. However it can be differentiated from GCF by least prevalence or almost disappearing in the age group of above 25 years (6-19% prevalence in second decade) suggesting that the retrocuspid papilla represents a normal anatomic variation that disappears with age⁶.

Not all pathologists synchronize with the idea to warrant separation of GCF from the routine hyperplasia. Regeze et al⁸ put forward a concept of reactive capacity of fibroblasts to the various stimuli. If this idea is valid then the presence of giant star shaped fibroblasts in GCF can simply be written off as a reactive response of the connective tissue to the ongoing epithelial hyperplasia. This concept strongly explains the site of GCF mainly located on the gingiva rather than other non masticatory areas.

Numerous treatment modalities have been employed for the treatment of GF consisting of surgical excision, electrocautery etc depending upon the clinical and anatomic considerations. With the advent of lasers in dentistry, lasers like Co₂, Nd: YAG and Er: YAG have been used to treat a number of intraoral soft tissue lesions such as papilloma, pyogenic granuloma, hemangioma etc¹⁰.

In the present case, though the lesion was confined to a small area, patient was a little apprehensive. Hence utilizing a laser was truly justified as all his fears were put to rest, as this technique resulted in removal of the lesion with less danger of bleeding than with any other surgical technique. The patient did well postoperatively, and has had no recurrence after one month of follow-up.

Likewise the distinctive histology, ultra structure remarkable site, age and sex prediction of GCF makes the pathologists to highlight the uniqueness of GCF from routine hyperplasia. Whether the GCF gains the limelight in the hyperplasia category remains speculative for the clinicians and the pathologists.

CONCLUSION

Though many treatment modalities exist for the treatment of giant cell fibroma, lasers have stolen the limelight. The patient was quite pleased with the results as there was no bleeding, swelling or any post operative discomfort. Hence, diode lasers prove to be a safe and reliable technique for excision of soft tissue lesions.

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