doi: 10.5958/0976-156X.2014.00015.X

GIANT CELL FIBROMA-AN UNUSUAL CASE PRESENTATION WITH REVIEW AND TREATMENT USING DIODE LASER.

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ABSTRACT:. Fibroepithelial hyperplasias of the oral cavity are a variety of lesions that exhibit different clinical and Histologic presentations and types causing diagnostic confusion despite their relatively trivial nature. While stressing upon the importance of histological examination in such cases, A case of large giant cell fibroma presenting over the maxillary gingiva in a 33 years male patient is presented. The lesion is excised using diaod laser and no recurrence is noted over a period of 12 months. The importance of histological examination in such cases is stressed upon.

KEY WORDS: ***Giant cell fibroma, immunohistochemistry, lasers, gingiva.***

INTRODUCTION

Giant cell fibroma (GCF) an uncommon variant of non-neoplastic fibrous hyperplasia of the oral cavity, is microscopically characterized by abundance of large mononucleate, stellate, and less conspicuous multinucleate giant cells scattered in a fibrous stroma[1].The lesion was initially described as a separate entity by Weathers and Callihan in 1974[2], on the basis of its characteristic racial, age, anatomical distributions, limited growth potential, clinical appearance and distinctive histopathology[3]. It was usually seen in young persons, peaking in second and third decades of life. It is asymptomatic, pedunculated, and papillary in appearance and ≤ 1 centimeter in diameter. The commonest location was the gingiva, with mandibular gingiva being the most preferred site followed by tongue, palate and buccal mucosa. Subsequent analyses have strongly supported the benign, non-neoplastic character of the lesion but the nature and origin of the giant fibroblasts remain obscure[3,4,5].

An unusual case of GCF which presented as a large, smooth surfaced, sessile mass in the maxillary premolar region is reported. The lesion was excised using diode Laser and immunoreactivity of the giant cells was investigated histologically.

Case Report

A 33 year old male patient visited our specialty centre, with a compliant of a painless swelling over the maxillary gingiva on the right side. Patient medical history and other related findings were non contributory and he had noticed swelling five months prior from which time the growth progressed slowly.

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 (**Fig .1**). The lesion had a sessile base which was attached to the marginal and the attached gingiva. 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, informed 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).Laser parameters were 1.5 Watt at continuous pulsed mode **(Fig 2).** The diode laser uses a 400-µm 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. There was no bleeding, the patient was comfortable, and no sutures were necessary **(Fig 3).** No postoperative antibiotics were given, he was instructed to take analgesics. Patient was recalled after one week to evaluate healing. Healing was uneventful **(Fig 4)**. The excised tissue was immersed in a 10% formalin solution and sent to the pathology lab for histopathology examination.

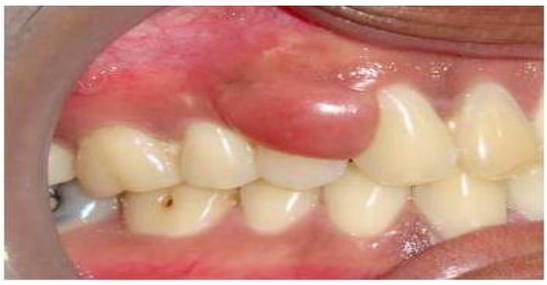

Fig.1.Photograph showing gingival growth irt to 13,14.

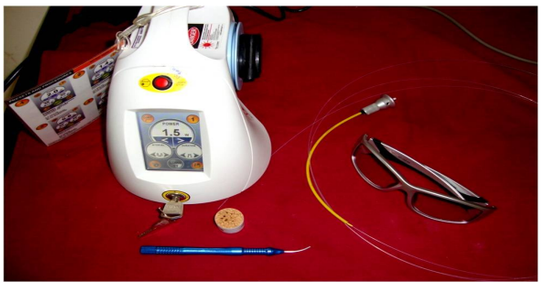

Fig.2. Diode laser unit

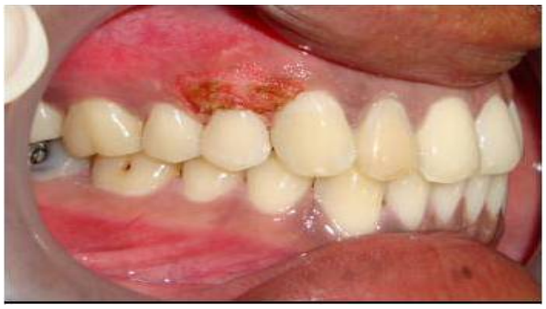

Fig.3. No bleding on excision

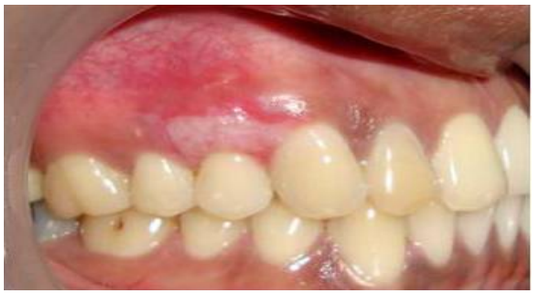

Fig.4. Photograph after healing

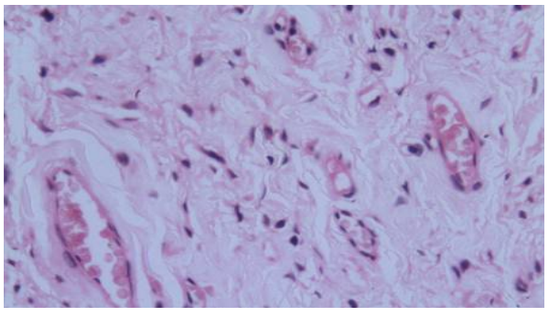

Fig.5. Haematoxyphilic cytoplasm of Giant cells

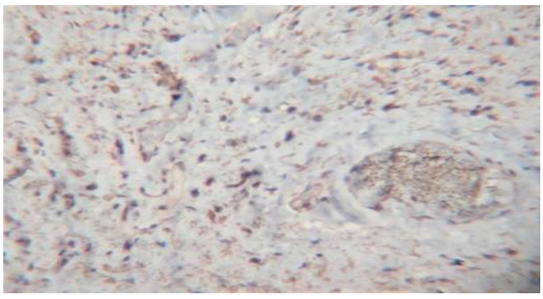

Fig.6. All Giant cells with strong positivity for vimentin

HandE stained sections of the excised mass showed a hyperplastic epithelium with elongated and anastomosing rete processes covering a variedly mature fibrous connective tissue stroma. Abundantly distributed stellate giant cells and few multinucleated cells were noted, especially in the lamina propria beneath the basal layer. The cytoplasm of these giant cells was haematoxyphilic and sometimes a peripheral separation of connective tissue from the cells was noted **(Fig 5).** A diagnosis of giant cell fibroma is arrived at and the immunoreactivity of the giant cells was further investigated following standard recommended procedures. All stellate giant and multinucleated giant cells showed strong positivity for vimentin (ready-to-use, mouse monoclonal, Anti-Vimentin, Clone V9, Dako, Denmark.) and showed negative reaction for s-100 (Polyclonal Rabbit, Anti-S100, Dako) **(Fig 6).**

Discussion

Though the distinction of GCF as a separate entity is been disputed over the years, various authors and textbooks have adhered to the separate designation because of the distinct features both clinically and histologically it presents with.

Many giant cell fibromas are misdiagnosed clinically as papillomas due to their caulifiower-like appearance. They may clinically resemble other common hyperplastic,

connective tissue oral lesions such as irritation fibroma[5,6] and should also not to be confused with other lesions containing giant cells such as peripherial giant cell granulomas.

GCF has no gender predilection[6], though some studies found slight female predominance[4,5]. Approximately 93–97% of giant cell fibromas develop in Caucasians and only 3–7% of lesions occur in other races[4]. GCF is often pedunculated and is usually < 1 cm and most frequently < 0.5 cm in diameter[4,5,6]. The present lesion is much larger in dimension and is a sessile lesion with smooth surface. It presented over the relatively uncommon location , the maxillary gingiva.

Conservative surgical excision appears to be the treatment of choice for GCF and is usually successful with no recurrences[5]. In the present case, though the lesion was confined to a small area, patient was in little apprehensive for surgical excision by scalpel method and hence laser was used instead and this technique resulted in removal of the lesion with less bleeding than with any other surgical technique. The patient was comfortable postoperatively, and has had no recurrence after one year of follow-up.

Histologically, GCF is characterized by the presence of numerous large stellate and multinucleated giant cells in a loose collagenous stroma. Ultra structural examination has suggested that the stellate and multinucleated giant cells are unusual fibroblasts[5]. The immunohistochemical findings of the present case were consistent with that of the literature. The giant cells showed strong positivity for vimentin and were negative for S-100.The vimentin positivity of the large stellate cells confirms their origin of mesenchymal – fibroblast phenotype. The possibility that the large stellate cells may represent melanocyte or Langerhan cell has been excluded by ultra-structural findings and the negative staining for s-100[3, 5]. It has been shown that GCF multinucleated cells are positive for proliferating cell nuclear antigen. However, the absence of Ki-67 immunoreactivity and mitoses in GCF multinucleated giant cells indicates that cell cycling in the absence of cytokinesis is not involved in GCF multinucleated cell formation. Therefore, GCF multinucleated cells possibly form by fusion of mononuclear fibroblasts[7]. A distinctive difference is noted in the extracellular matrix between GCF and fibroepithelial polyps and denture hyperplasia in a study by mighell et al[8], no elastic fibres were detected within the giant cell fibromas by either Verhoeff's stain or immune histochemical staining suggesting a fundamental difference[8]. Odell et al[3] also found that these cells were positive for prolyl-4-hydroxylase, indicating a functional fibroblast differentiation.

CONCLUSION

Although simple surgical excision is the treatment of choice for giant cell fibroma, lasers have stolen the limelight. The patient was quite comfortable as there was no bleeding, swelling or any post operative discomfort. Hence, diode lasers prove to be a safe and reliable alternative technique for excision of soft tissue lesions.

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