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Case Report

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GIANT CELL FIBROMA AN UNUSUAL LESION OF ORAL CAVITY: A REPORT AND REVIEW OF FOUR CASES

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ABSTRACT

Background: The giant cell fibroma is a localized reactive proliferation of fibrous tissue, much like the irritation fibroma or fibrous hyperplasia. It usually small, may be sessile or peduncalated. It is painless, often has lobules/ nodules on its surface. It contains cells with large, stellate shaped fibroblasts, near the surface of the fibrous mass, beneath the overlying epithelium **Methods:** Here we reported four cases between 1991 and 2014 all have distinct clinical features with similar histopathological diagnosis of giant cell fibroma. **Results:** Four cases have been reported from our department between 1991 and 2014, these case reports revealed different clinical features and provisional diagnosis. **Conclusions:** All are confirmed histopathologically as giant cell fibroma, it helps in treatment plan and follow up for recurrences. Appropriate histopathological identification is necessary to diagnose the stellate shaped giant bi or multinucleated fibroblasts, which helps in complete surgical excision and follow up of the patient.

KEYWORDS: Giant cell fibroma, multinucleated, stellate fibroblasts.

INTRODUCTION

Giant cell fibroma is a benign hyperplastic lesion of oral mucosa.[1] and it has also been encountered in skin and genitalia.[2] It was first described in 1947 by Weathers and Callihan as a distinctive entity. The name given to this variant is based on the presence of large multinucleated fibroblasts that tend to occur in close proximity to the overlying epithelium. These giant cells have oval nuclei with eosinophilic cytoplasm and they often assume a stellate appearance. Pathologically giant cells are classified in different types. They can be grouped under the following categories such as inflammatory, neoplastic, metabolic disorders and bone disorders.[3] Its distinctive clinical appearance sets it apart from conventional fibromas.[4] It represent about 2-5% of all oral fibrous proliferations.[5] It appears as a sessile or pedunculated asymptomatic nodule, less than 1 cm in diameter, often having bosselated or somewhat papillary surface. Most cases diagnosed were between age group of 10-30, no gender predilection,[4] commonly seen in gingiva followed by tongue, palate, buccal mucosa and lips. Mandibular gingiva commonly affected than maxillary gingiva.[1] There are few lesions which are similar to giant cell fibroma are retrocuspid papilla, fibrous capsule of nose, acral fibrokeratoma, fibroblastoma.[1]

Microscopically, it is an unencapsulated mass of loose fibrous connective tissue that contains numerous large plump, spindle shaped fibroblasts, some of which are multinucleated and are typically present at the juxtaepithelial region. Surface epithelium is corrugated and atrophic with thin and elongated reteridges.[4] Origin of these cells is not known, Immunohistochemically, they showed positivity for vimentin.[4]

Ultrastructural studies indicated mononuclear giant cells were atypical fibroblasts and multinucleated giant cells suggest that they form by the fusion later. They contain numerous intracellular microfibrills.[6]

Very few case reports are seen regarding this tumor and controversy regarding the origin of the giant fibroblasts still continues. Here we reported four cases from the department of Oral Pathology and Microbiology, Bapuji dental college and hospital, Davangere, showing in different sites which differ in provisional diagnosis, and all cases are confirmed as giant cell fibroma only after histopathological diagnosis.

CASE REPORTS

Case report -1

A 45-year-old male reported with a solitary swelling on the left buccal mucosa opposite to mandibular first molar. The growth was measuring approximately 0.5 cm

× 0.25 cm in size, pedunculated, rough surfaced with finger like papillomatous projection and was non-tender. A clinical diagnosis of papilloma was given and was subjected to excisional biopsy. Histopathological examination of the excised specimen revealed superficial stratified squamous epithelium, which appeared thin, atrophic and stretched out. The bulk of the lesions consist of bundles of collagen fibres in a mild vascularized stroma with few inflammatory cells. Large dendritic cells are interspersed between the bundles of collagen fibres with a distinct cytoplasmic membrane and a prominent vesiculated nucleus resembling giant fibroblasts (Fig-1). The overall features are suggestive of a histopathologic diagnosis of a Giant Cell Fibroma.

Case report -2

A 19-year-old male reported with a swelling on the lower left labial mucosa. The growth was appearing as an elevated vesicular lesion measuring approximately 5mm in diameter and whitish in color, surface is smooth and keratinized. The surrounding mucosa appeared normal in color. It was non-tender and firm in consistency. A clinical diagnosis of traumatic fibroma was given and was subjected to excisional biopsy. Histopathological examination of the excised specimen revealed a mass of moderately vascular dense fibrous connective tissue which is loosely/compactly arranged. The characteristic feature is the presence of numerous large, stellate shaped fibroblasts with multiple nuclei and dendrite like processes. The overlying epithelium is thin to normal showing hyperkeratotic surface with parakeratinization. The reteridges are thin to bulbous and seem to extend into the connective tissue (fig-2). The overall features are suggestive of a histopathologic diagnosis of a Giant Cell Fibroma.

Case report -3

A 16-year-old female reported with a swelling on the left side of palate since 3 months. It was a solitary, pedunculated growth situated on the palate at 0.5cm from the gingival margin in the region of 24 and 25 and is measuring about 1X1cm in size. The surface is granular and is firm in consistency. A clinical diagnosis of fibroma was given and was subjected to excisional biopsy. Histopathological examination of the excised specimen revealed presence hyperplastic parakeratinized epithelium. Underlying connective tissue is composed of dense collagen fiber bundles and fibroblasts, with only one or two multinucleated fibroblasts. There is also presence of mild inflammatory cell infiltrate chiefly consisting of lymphocytes and plasma cells (fig-3). The overall features are suggestive of a histopathologic diagnosis of a giant cell fibroma.

Case report-4

A 42-year-old male reported with a growth on the right buccal mucosa since 10 years. Initially the growth was small in size and reached to present size since 4 years. It was appearing as a cauliflower like growth measuring about 1.5X2.0cms in size in relation to 45, 46 region. It was non-tender and non-fluctuant on palpation. A clinical diagnosis of benign soft tissue tumor was given and was subjected to excisional biopsy. Histopathological examination of the excised specimen revealed presence of hyperplastic parakeratinized stratified squamous epithelium with thin and elongated rete ridges showing papillary projections in few areas. The connective tissue is relatively avascular and fibrocellular with mild inflammatory infiltrate. Numerous giant stellate shaped fibroblasts with dendritic processes and large vesicular nucleus are seen especially near the surface epithelium and few giant fibroblasts were binucleated. Artifactual spaces separating the giant fibroblasts from surrounding stroma are also seen. Deeper part of the connective tissue shows muscle bundles (fig-4). The overall features are suggestive of a histopathologic diagnosis of a Giant Cell Fibroma.

Table 1: Describes the age, sex, site, clinical growth pattern and provisional diagnosis of all four case reports.

Case no.	Age In years	Sex	Site	Clinical growth pattern	Clinical/provisional diagnosis
1	45	Male	Buccal mucosa	Pedunculated, finger like papillomatous projections	Papilloma
2	19	Male	Labia mucosa	Elevated vesicular lesion surface is smooth and keratinized	Traumatic fibroma
3	16	Female	Palate	Pedunculated, surface is granular	Fibroma
4	42	Male	Buccal mucosa	Cauliflower like growth pattern	Benign soft tissue tumor

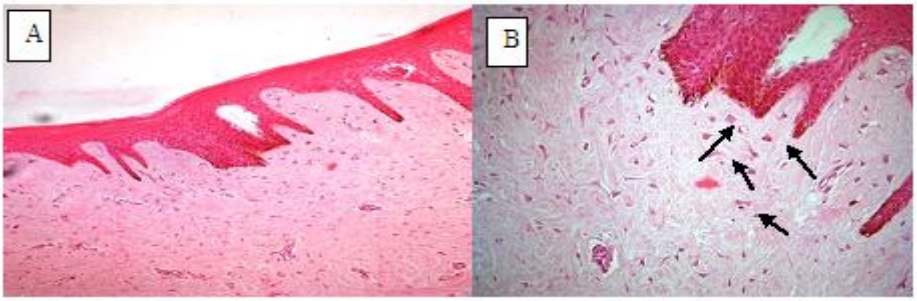

Figure 1: A- Elongated reteridges and collagenous stroma. B- Stellate shaped giant cells with dendritic process.

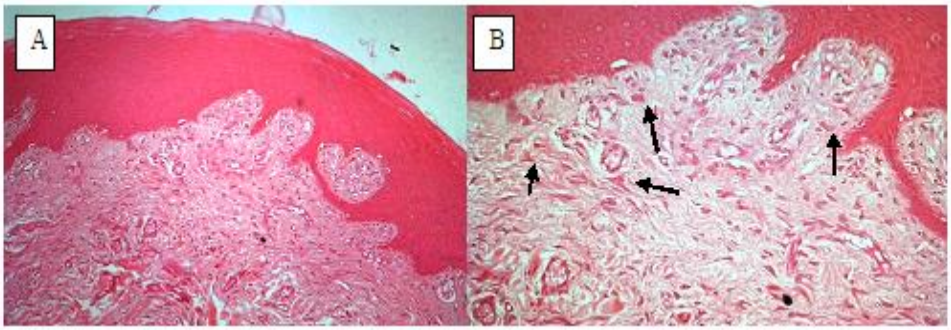

Figure 2: A- Stratified squamous epithelium with underlying connective tissue. B- Connective tissue showing stellate shaped giant cells.

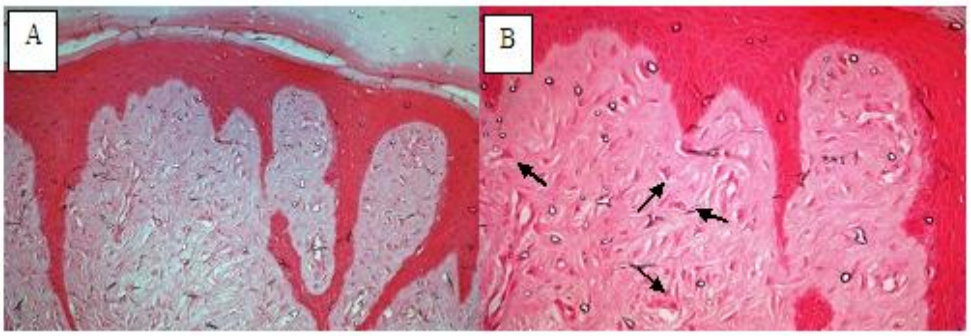

Figure 3: A- Elongated reteridges with underlying connective tissue. B- Stellate shaped bi and multinucleated giant cells with dendritic processes.

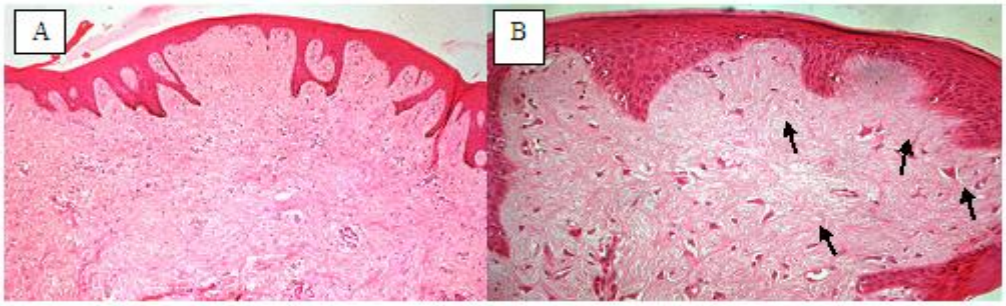

Figure 4: A- Elongated reteridges with underlying connective tissue. B-stellate shaped giant cells with dendritic processes.

DISCUSSION

Giant cell fibroma is a rare benign soft tissue tumor of unknown etiology, diagnosed only based on histopathology. Clinically it shows features similar to fibroma may be traumatic or irritational type, papilloma, fibro-epithelial hyperplasia etc. In 1974 Weathers and Callihan introduced the term giant cell fibroma to describe a benign fibrous oral mucosal tumour that has been diagnosed previously as fibroma, fibrous hyperplasia or fibroepithelial polyp. They mentioned that there were sufficient unusual and distinctive clinical and histologic features to warrant separation and reclassification as a separate entity.[3] Four cases have

been reported from our department between 1991 and 2014, these case reports revealed different clinical features and provisional diagnosis. Most cases diagnosed were between age groups of 1-3 decades of life[4], two out of four in our cases are at the age group of 16 and 19 years. Gingiva is most commonly involved site followed by palate, tongue, buccal mucosa and lip.[1] in our case reports, sites involved are buccal mucosa, labial mucosa and palate, as these sites are more susceptible to trauma which reveal the diagnosis of traumatic fibroma or fibroma. And in our case reports one is benign soft tissue tumor and another one is papilloma because of its finger like papillomatous projections. The lesion is commonly misdiagnosed as papilloma or fibroma because of their small size, irregular surface, pedunculated base and involvement of traumatic sites of the oral cavity. Clinical features in our cases correlated with classical clinical features.

Histologically, numerous large stellate and multinucleated giant cells are present in fibrous, loosely arranged and poorly vascularized connective tissue. The cells have well defined cell borders and show dendritic processes. The overlying epithelium is hyperplastic, with thin elongated rete ridges. Inflammatory infiltrate is usually absent.[7] All four case reports revealed similar histological features as described by Weathers and Callihan.

Apart from the oral cavity, the other sites of occurrence are the nose, at which the lesion differs based on the site of the lesion and histologically by the presence of larger stellate fibroblasts and a tendency to recur.[8]

Campos and Gomez reported that stellate and angular cells of GCF were positive for prolyl-4-hydroxylase and vimentin, indicating a functional fibroblast differentiation. It is difficult to determine whether these stellate and multinucleate fibroblasts are the result of a functional or a degenerative change. Further studies are necessary to address these questions.[9]

Electron microscopic and immunohistochemical studies revealed that these giant fibroblasts are atypical fibroblasts and formed by the fusion of mononuclear cells. Several immunohistochemical studies have been performed to determine the origin of these giant cells. Giant fibroblasts showed negative reactivity for cytokeratin, neurofilament, HHF, CD 68, HLA DR, Tryptase and S 100 protein. The Results showed positive staining only for vimentin andprolyl-4 - hydrolase. This suggests that the stellate and multinucleate cells of GCF have a fibroblast phenotype.[10]

The choice of treatment for GCF is surgical excision in adults whereas in children electrosurgery or laser excision is preferred. Laser therapy has been suggested as an alternative approach.[10] Recurrences are considered rare. The recurrence of these cases are reported in few incidences and found to be due to incomplete removal of the lesion.[10]

CONCLUSIONS

Though giant cell fibroma is a rare benign tumor, clinically in our cases it revealed more common tumors have a provisional diagnosis of fibroma, papilloma and benign soft tissue tumor. All are confirmed histopathologically as giant cell fibroma, it helps in treatment plan and follow up for recurrences. Appropriate histopathological identification is necessary to diagnose the stellate shaped giant bi or multinucleated fibroblasts, which helps in complete surgical excision and follow up of the patient. Further studies are needed to revise about ultrastructural features and to find about the origin of these giant fibroblasts.

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Nil.

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