UNUSUAL PRESENTAION OF PERIPHERAL GIANT CELL GRANULOMA – A CASE REPORT

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Abstract

Peripheral giant cell granuloma or "Epulis gigantocelularis" or giant cell hyperplasia is a common benign oral lesion that originates from giant cells. It is relatively common tumor like growth in the form of soft tissue extraosseous purplish – red or red – watery color nodule consisting of multinucleated giant cells in the mononuclear connective tissue stroma. Peripheral giant cell granuloma has an unknown etiology and does not represent a true neoplasm but rather is a reactive lesion caused by local irritation or trauma. However, there is conflict between different authors whether it represents a reactive or neoplastic process. It is believed that giant cells show positive immunohistochemical reaction with osteoclats, while some authors believed its origin from mononuclear phagocytic system. It is very difficult to diagnose a case of giant cell granuloma on clinical presentation; thereby definitive diagnosis is truly based on histopathological evaluation. This paper presents a 65 years old lady with a lesion on the upper anterior region of jaw revealed distinctive features of peripheral giant cell granuloma. Hence, early detection of this lesion are very important to eliminate the potential complications.

Keywords: Epulis gigantocelularis, Giant cell hyperplasia, Peripheral giant cell granuloma.

Introduction

Peripheral giant cell granuloma is also known as "*epulis gigantocelularis or giant cell hyperplasia,*" is the most common multinucleated giant cell lesions of the oral cavity of soft tissue exophytic purplish-red nodule. This lesion represents a reactive or neoplastic process. However, most authors suggested its reactive origin. Since, the lesion does not appear to be truly "reparative" lesion, hence this terminology has been discarded.

The PGCG bears a close microscopic resemblance to the central giant cell granuloma, and hence some pathologists believe that it may represent a soft tissue counterpart of the central bony lesion.[1] The etiology of peripheral giant cell granuloma is unknown, but local irritation due to dental plaque or calculus, periodontal disease, ill fitting denture, poor quality dental restorations and trauma during dental extractions.

The peripheral giant cell granuloma most often occurs on the gingiva or edentulous dentoalveolar ridge but most occur anterior to the molar teeth. Although these lesions occur over a wide age range, the peak incidence in males is in the 2nd decade compared to the 5th decade for females.[2] There is a nearly 2:1 prediction of females to males, with the mandible being involved more often than the maxilla.[3] The lesions are generally asymptomatic and have a relatively rapid growth rate, often ranging from few mm to few cm within few months.

The lesion can be sessile or pedunculated, penetrating through periodontal membrane or may not be ulcerated. Occasionally lesion arise from the periosteum overlying edentulous area. Secondary ulceration due to trauma may give the lesion a focal yellow zone caused by the formation of fibrin clot over the ulcer.[4] It the early stage of its development X-ray does not show any change however after sometime changes become noticeable.[5]

At this point differential diagnosis should include central giant cell granuloma. Surgical excision is the best choice of treatment, but sometimes tooth are also required to remove from the affected site. The chance of recurrence of the lesions are quite high due to inadequate surgery.

Our main aim was to report a case of PGCG in an old lady which was misdiagnosed and neglected which became later complicated case.

Case report

A 65 years old female reported to OPD with a chief complaint of swelling in the upper front tooth region since last 6 months. [Figure 1]

Figure 1: Extra-oral view

Patient gives history of extraction 6 months back. The swelling appeared subsequently after 3 days which gradually increased to attain present size.The history of present illness was consisted the swelling 6 months back which was gradually increasing in size. The swelling showed sudden increase in size since one week and attained

the present size. Patient also gave a history of extraction 6 months back. Since then patient has experienced difficulty in eating and swallowing. On clinical examination, on inspection a large well defined growth was present in the right upper region of partially edentulous jaw extending from 12 to 14. [Figure 2]

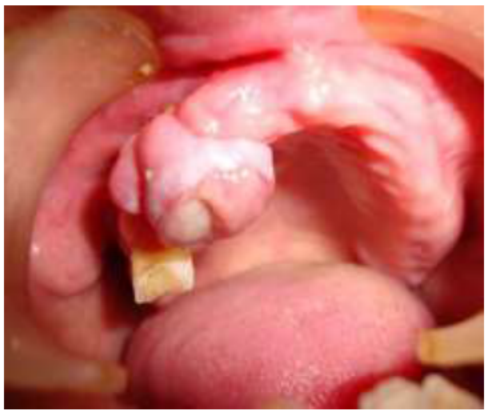

Figure 2: Intra-oral view

The growth was oval in shape and pedunculated with smooth margins. It measured about 2 x 2 cms with non-ulcerated surface and exhibited pinkish-red color. All the findings of inspection were confirmed on palpation. On palpation, the growth was firm with positive induration extending from anterior incisor region upto premolar region. The clinical findings indicated a benign lesion, and the differential diagnosis of Irritation Fibroma, Peripheral giant cell granuloma, Giant cell fibroma, Fibrosarcoma, Myofibroma, Traumatic neuroma and Pyogenic Granuloma was made. The patient was scheduled for surgical excision under local anaesthesia, and hemostasis was achieved by electrocautery. The lesion was treated with Carnoy's solution to prevent the recurrence. Betadine-povidone mouth rinse was prescribed post-operatively two times a day for a week.

On gross examination, the excised nodule was grayish-white in color, firm in constitency, ovoid in shape and measuring about 0.6 x 0.4 x 0.3 cm in dimension, and sent as such for tissue processing. [Figure 3]

Figure 3: Gross specimen in incisional punch biopsy

On histopathological examination, the given H&E stained tissue section showed a hyperplastic parakeratinized stratified squamous surface epithelium with numerous long rete ridges. [Figure 4]

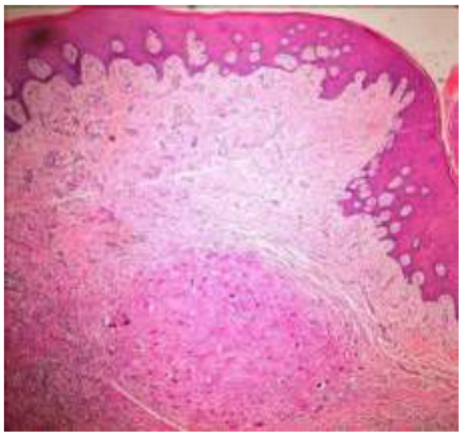

Figure 4: Microphotograph showing peripheral epithelium with gaint cells in connective tissues under scanner view (4X, H & E Stain)

The connective tissue was fibro-cellular and shows unevenly distributed multinucleated giant cells. Towards the centre of the section, giant cells were surrounded by dense infiltration of mononuclear inflammatory cells. Few capillaries and numerous extra-vasated RBCs were also evident.

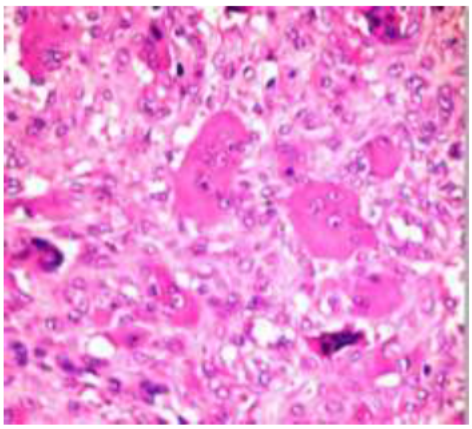

Figure 5: Foregien body type gaint cells seen in connective tissue stroma under high power (40X, H & E stain)

The patient was recalled in the department of Oral & Maxillofacial pathology and microbiology and forensic odontology, Santosh Dental College and Hospital, Ghaziabad, (U.P.) after 6 months and reviewed the lesion, there was no bony defects and no recurrence was noticed.

Discussion

PGCG is a localized tumor like hyperplastic gingiva enlargement which usually evolved from the interdental tissues as consequences of chronic irritation from local factors such as subgingival plaque, calculus or trauma. While PGCG occur mostly in adults, some cases have been described in children where a more aggressive clinical

behaviour have been observed.[6] In a review of 720 cases, 33% were seen in patients younger than 20 years of age, which concurs with the findings of another study in which 33 of 97 cases (34%) occurred in individuals between 5 and 15 years of age.[7,8] Studies show the clinical features of peripheral giant cell granuloma in Iranian population are almost similar to those reported by other investigators with age ranges from 6 to 75 years (mean 33 years).[9] The case we reported was 65 years old lady and was between normal age range.

The etiology and nature of PGCG still remains unclear. In the past, several hypothesis had been proposed to explain the nature of multinucleated giant cells, one of them is that they are osteoclasts left from physiological resorption of teeth or reaction to injury to periosteum. Now there is a strong evidence that these cells are osteoclasts as they have been shown to possess receptors for calcitonin and were able to excavate bone in vitro.[10] The typical presentation is that of a swelling of varying sizes (may range from small papules to enlarged masses; most of them are less than 20 mm in diameter. They may be soft to firm in consistency and may have a pedunculated or sessile base. The color of the overlying mucosa may range dark red to purple or blue commonly with an ulcerated surface. Pain is not a usual feature, though in some cases pain may be induced by repeated trauma.[1,11]

In the differential diagnosis in the cases of dentoalveolar enlargement in old we consider main lesions such as Irritation Fibroma, Peripheral giant cell granuloma, Giant cell fibroma, Fibrosarcoma, Myofibroma, Traumatic neuroma and Pyogenic Granuloma. Peripheral giant cell granuloma, like peripheral ossifying fibroma, is a lesion unique to the oral mucosa, occurring only on the gingiva. Unlike peripheral ossifying fibroma, however, it may occur on the dentoalveolar mucosa of edentulous areas. Like pyogenic granuloma and peripheral ossifying fibroma, peripheral giant cell granuloma may represent an unusual response to tissue injury. It is distinguished from pyogenic granuloma and peripheral ossifying fibroma only on the basis of its unique histomorphology, which is same as the central giant cell granuloma.[7,8]

Histopathologically, PGCG consists of proliferation of multinucleated giant cells in the fibro-cellular connective tissue stroma filled with plump of ovoid and spindle shaped mesenchymal cells and extravasated erythrocytes. The giant cells may contain few to several dozens of nuclei. Some of these cells can have large vesicular nuclei, while others are small, pycnotic nuclei. Abundant haemorhagic areas can also be appreciated throughout connective tissue stroma which often results in deposits of hemosiderin pigments, especially at the periphery of the lesion. Fibroblasts are the basic element of peripheral giant cell granulomas. Scattered among the plump, young fibroblasts are numerous multinucleated giant cells with abundant eosinophilic cytoplasm which appear to be non-functional in the usual sense of phagocytosis and bone resorption.[12]

Despite ultrastuctural studies, the true nature of the giant cells in PGCG remains debatable.[13] Inflammation is a constant finding but is varied not only in degree but also in location. The inflammatory cell consists primarily of lymphocytes, plasma cells, histiocytes and occasional polymorphonuclear cells. Rarely ulceration was an associated feature.[14]

According to the findings of Willing *et al* [15], it was revealed that stromal cells secrete cytokines and other factors of cell differentiation, including monocyte chemo-attractant protein (MCP-1), Osteoclasts differentiating factor (ODF), and macrophage stimulating factor (M-CSF). MCP1 is essential for osteoclast differentiation, indicating that stromal cells stimulate migration of monocytes into the tumor tissue fusing in multinucleated giant cells that resemble osteoclasts.

Treatment consists of local surgical excision down to the underlying bone, for extensive clearing of the base. The adjacent teeth should be carefully scaled to remove any source of irritation and to minimize the risk of recurrence.[16] Exposure of all bony walls following thorough surgical resection responds satisfactory most of the times. Recurrence rate of 5.0 – 70.6% (average 9.9%) has been reported in various epidemiological studies.[17] The 1 year follow-up has shown no recurrence suggests that treatment given and good oral hygiene remains mainstay of treating PGCG.

Conclusion

Peripheral giant cell granuloma is a common benign tumor like growth of the oral mucosa. Histopathological examination of the tissue specimen is still the best diagnostic tool for such lesions. Surgical excision is the mainstay of treating PGCG and to prevent the recurrence, the adjacent teeth should be scaled carefully and remove any underlying source of irritation to the mucosa. It is necessary to remove the etiological factors irrespective of choice of treatment. The correct diagnosis in early stage and proper treatment plan for the lesion is very crucial for the lesion to be treated in a proper manner to prevent recurrence and life threatening condition.

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