Reactive Lesions Of Oral Cavity

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Abstract. Oral mucosa is subjected constantly to external and internal stimuli that can give rise to reactive lesions. These lesions are non- neoplastic in nature. They manifest a spectrum of diseases that range from developmental, inflammatory, and reactive to neoplastic changes. Reactive lesions are typically gives response to chronic inflammation caused by various forms of low grade chronic irritations to the oral mucosa such as dental plaque and calculus, sharp edges of grossly carious teeth, faulty dental restorations, chronic biting habits, ill-fitting dental/oral appliances and food impactions. These lesions have a very similar appearance to benign neoplastic proliferations. This similarity is troublesome in differential diagnosis among them. Different types of localized reactive lesions of oral cavity are focal fibrous hyperplasia (FFH), pyogenic granuloma (PG), irritational fibroma, peripheral giant cell granuloma (PGCG), peripheral ossifying fibroma (POF), fibro-epithelial hyperplasia/polyp, inflammatory fibrous hyperplasia, and inflammatory gingival hyperplasia. [Dr Binita G NJIRM 2016; 7(4): 154-157]

Key words .Focal Fibrous Hyperplasia (FFH), Pyogenic Granuloma (PG), Irritational Fibroma, Peripheral Giant Cell Granuloma (PGCG), Peripheral Ossifying Fibroma.

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Introduction: Reactive lesions are common tumor like growth of the oral soft tissues. Normally they occur in response to chronic irritation or trauma. Gingiva is the most common site. Reactive hyperplasia comprises a group of fibrous connective tissue lesions that commonly occur in the oral mucosa as a result of injury[1.] These lesions represent a reaction to some kind of irritation or low grade injury like chewing, trapped food, calculus, fractured teeth and iatrogenic factors including overextended flanges of dentures and overhanging dental restorations [2]. These proliferations are painless with pedunculated or sessile base that vary in color, from light pink to red. The surface appearance is variable. It might be ulcerated or non-ulcerated. Size of lesion varies from few millimeters to several centimeters. Reactive proliferations are fibrous tissues with another histological component such as multinucleated giant cells, calcified material, or small vessels hyperplasia[3].They usually have a rapid onset and may increase and decrease in size and eventually regress. Reactive enlargements are often, but not always, tender or painful and usually have a more rapid growth rate (measured in hours to weeks) than tumors[4.]Most common localized reactive lesions of oral cavity are focal fibrous hyperplasia (FFH), pyogenic granuloma (PG), peripheral giant cell granuloma (PGCG), peripheral ossifying fibroma (POF)[5]. The clinical appearance of reactive lesions is very similar to that of neoplastic proliferations. This similarity is a challenging matter for differential diagnosis. Hence, proper knowledge about these lesions is very important for better diagnosis.These lesions are composed of one or more of the following connective tissue components: collagen, bone, endothelial cells, and multinucleated giant cells[6.] Hence, this distinct feature helps to differentiate them from each other histopathologicaly.

Focal fibrous hyperplasia: Focal fibrous hyperplasia is also known as irritational or traumatic fibroma. It is reactive as well as inflammatory lesion of connective tissue. It presents usually as a yellowish–white to pink colour with sessile base, smooth-surfaced, asymptomatic, soft nodule. The surface may be hyperkeratotic or ulcerated, owing to repeated trauma. The most common intraoral site is along the occlusal line of the buccal mucosa, which is an area subjected to masticatory trauma. However, it also affects the lower lip, tongue, hard palate and edentulous alveolar ridge[7].

Histology- FFH is characterized by an unencapsulated, solid, nodular mass of dense and sometimes hyalinised fibrous connective tissue. The surface epithelium is usually atrophic, but may show signs of continued trauma, such as, excess keratin, intracellular edema of the superficial layers or traumatic ulceration. Epithelial atrophy is due to dense fibrous tissue that causes stretching of the reteridges and surface epithelium. Collagen fibres are arranged parallel to each other and are dense and wavy with plump fibroblasts entrapped in between. (Fig 1)

Pyogenic granuloma: Pyogenic granuloma (PG) is a common reactive neoplastic lesion of the oral cavity, which is composed of granulation tissue and develops in response to local irritation or trauma. It is also known as pregnancy gingivitis. Pyogenic granuloma is a focal reactive overgrowth with marked proliferation of endothelial cells and blood vessel formation[6]. Vandana reddy et al in their ten years observational study in north Indian population on reactive hyperplastic lesions found out pyogenic granuloma to be the second most common reactive lesion of oral cavity[2]. The common site is gingiva. Most common is interdental gingiva between two maxillary central incisors and usually associated with hormonal changes. Lesion is highly vascular with pedunculated base, usually occurring in the gingiva of children, young adults, pregnant women (pregnancy tumor)[8]. The surface of the lesion is typically ulcerated and red to purple in color.

Histology - Histologically these lesions demonstrate a highly vascular proliferation that is similar to granulation tissue. It resembles capillary hemangioma lesion either regress, particularly after pregnancy, or undergo fibrous maturation, and they may develop into a peripheral ossifying fibroma[9]. (Fig. 2)

Peripheral giant cell granuloma: It is also known as giant cell epulis[8]. It is a relatively common lesion of gingiva. It appears as a red or bluish-red mass. Lesion is generally intact, but it may be ulcerated. Clinical appearance of peripheral giant-cell granuloma is similar to that of pyogenic granuloma. Peripheral giant cell granuloma is more bluish purple in colour while the pyogenic granuloma is more bright red. Base is sessile or pedunculated.

Histologically- Peripheral giant-cell granuloma is conjured of a striking aggregation of multinucleate, foreign body–like giant cells. Giant cells surrounded by plump mesenchymal cells. Dense fibrous connective tissue zone is found separating epithelium and giant cell proliferation. Acute and chronic inflammatory cells infiltrate is frequently present. Peripheral giant cell granuloma resembles with central giant cell lesion. The later one arise in bone. (Fig 3)

Peripheral ossifying fibroma: The peripheral ossifying fibroma is a reactive gingival growth that shares similar clinical features as the PGCG[10]. It has uncertain pathogenesis. It could arise from the periodontal ligament or periosteum. The mineralization occurs within lesion that is derived from the cells of periosteum or periodontal ligament. However, some researchers believe that lesion may develop as a pyogenic granuloma that undergoes fibrous maturation and subsequent calcification[8]. The cells of periodontal ligament and periosteum undergo proliferation causes connective tissue metaplasia. Chronic irritation of periosteal and periodontal membrane undergo metaplasia of the connective tissue resulting in initiation of formation of bone or dystrophic calcification. Most lesions are located in the interdental papilla. Most of the lesions are sessile or pedunculated, and can have an ulcerated surface. The POF tends to be more widespread in females than males, and radiographic evidence of erosion of underlying bone can be seen[11].

Histology- Histology shows fibrous proliferation associated with areas of calcification in the connective tissue. The type of mineralized component varies from bone or cementum like material or dystrophic calcification. The bone is woven and trabecular type. The basophilic areas of cementum like masses are also seen. Dystrophic calcifications are characterized by large to small irregular basophilic masses. (Fig 4)

Fig 1 Focal Fibrous Hyperplasia (H&E100x)

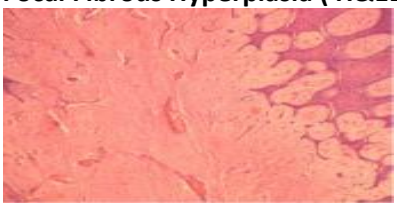


Fig 2 Pyogenic Granuloma(H&E 100x)

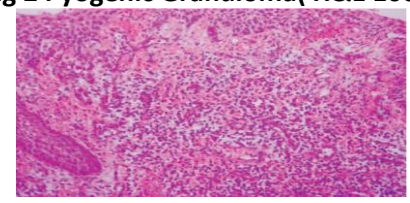


Fig 3 Perripheral Giant Cell Granuloma(H&E 100x)

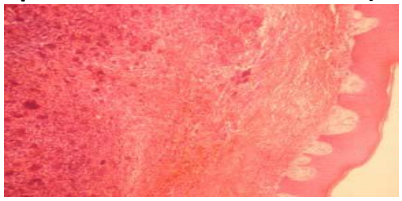
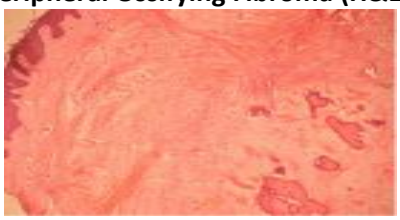


Fig 4 Peripheral Ossifying Fibroma (H&E 100x)



Discussion: Reactive lesions of the oral cavity are tumor-like non-neoplastic proliferations produced in involvement through chronic irritation or trauma. These proliferations are pedunculated or sessile masses and painless with different colors ranging from light pink to red. The surface is also variable, with an ulcerated or non ulcerated appearance[11]. J Nadari et al in 2012 in their study of 2068 cases of oral reactive lesions, found peripheral giant cell granuloma to be the most common reactive lesion. The reactive lesions were more common in males, most common site was gingiva, and occurred in the third decade of life[3]. Effiom O. A et al in his study found out that pyogenic granuloma was most common reactive lesion of gingiva in nigirian population. Its female to male ratio was 1.7:1 and was most commonly found in pregnant women[12].V Reddy In their series, concluded a high degree of occurrence of reactive hyperplastic lesions of the oral cavity in 2nd, 3rd and 4th decades of life. The present series has also shown that the mean age of occurrence of these lesions is 31.56 years. Moreover, found that the principal oral site affected is the gingiva. In their study focal fibrous hyperplasia was found to be more common reactive lesion[2]. Paulo et al in their study found out FFH to be most commonly occurring reactive lesion of oral cavity[7]. Study made by Abghali et al in northwest Iran suggested that PGCG and pyogenic granuloma to be most commonly occurring reactive lesion of the oral cavity. PGCG is supposed to be occurring most commonly in maxilla and pyogenic granuloma showed equal male and femaleratio[13]. Almost all the studies and series of studies are suggestive of reactive lesions tobe non-neoplasticlesions without any malignant potential.

The surface of the lesion is smooth or maybe ulcerated due to local injury. Their base is pedunculated or sessile. The colour of the lesion varies from normal pink to red. Their differential diagnosis is important. Focal fibrous hyperplasia is hyperplasia of fibrous component of connective tissue. It is slow progressive lesions and the colour of the lesion is usually like normal mucosa. The base is often sessile. Pyogenic granuloma is also a reactive lesion. The colour of the lesion vary from pink to red and base is often pedunculated. The lesion is painless but often bleed easily. It exhibit rapid growth. Peripheral Giant Cell Granuloma is commonly found on gingiva or edentulous alveolar ridge. It resembles pyogenic granuloma but appears more blue-purple than pyogenic granuloma that appears bright red in colour. The base may be sessile or pedunculated. Peripheral ossifying fibroma appears as a nodular mass which is either sessile or pedunculated and is commonly found on interdental papilla. The growth probably begins as an ulcerated lesion. The lesion is chronic. The clinical diagnosis is always confirmed by histopathology. The FFH shows dense fibrous connective tissue in which dense collagen fibre bundles are found. The Pyogenic Grnauloma is highly vascular with moderate to severe chronic inflammation in the connective tissue. PGCG shows numerous foreign body giant cells in the connective tissue and POF shows areas of calcification resembling bone or cementicles.

Conclusion: Oral reactive lesions are non-neoplastic lesions of oral cavity. They occur in respond to the chronic irritation or trauma due to calculus, dental appliances, poor oral hygiene, and hormonal disturbances and shows hyperplastic growth and considered reactive rather than neoplastic. The most common site of the lesions is gingiva and a cell of origin is from periodontium and periosteum.

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