



ORIGINAL RESEARCH PAPER

Dental Science

HISTOLOGICAL DIFFERENCES BETWEEN CASES OF PYOGENIC GRANULOMA – A CASE REPORT

KEY WORDS:

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BACKGROUND

Pyogenic granuloma is a tumor like enlargement of gingiva. It is non-neoplastic in nature. The exact nature of the systemic conditioning factor is unknown.¹ It most commonly involves gingiva in the oral cavity.² Pyogenic granuloma is similar in clinical and microscopic appearance to the conditioned gingival enlargement seen during pregnancy. The differential diagnosis is based on the patient's history. It arises in response to chronic low grade local irritation, traumatic injury, hormonal factors or any drugs. Pyogenic granuloma is smooth, red erythematous papule with a pedunculated or sessile base which hemorrhagic and compressible.³ Development of lesion is slow or rapid, asymptomatic and painless. Color of the lesion changes as it grows old from pink to red to bluish red.⁴

This case series depicts such an array of different histological reportings for cases of pyogenic granuloma.

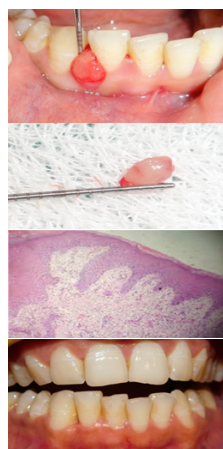
CASE REPORT

A series of 10 patient age range from 19-25 years reported to the outpatient department of periodontology, New Horizon Dental College & Research Institute, Bilaspur, Chhattisgarh with a chief complain of swelling in the gums.

A total of three cases have been selected for describing the various histopathological presentations. The clinical descriptions of these cases have been described.

Case 1

A 19 year old female patient reported to the department with a complain of swelling in the gums in lower front region of the lower jaw since 15 days which was painless in nature and gradually increased in size. It was recurrent in nature. Extra oral examination was non-significant. Intra-oral examination revealed a triangular shaped, pedunculated exuberant growth with respect to buccal aspect and interdental gingiva of 42 and 43 measuring about 3x2cm. On palpation the growth was soft in consistency and bleed profusely on probing. Oral hygiene was fair. Based on clinical finding, the case was provisionally diagnosed as pyogenic granuloma. IOPA was taken and no bony involvement was seen. Histopathology examination showed parakeratinised stratified epithelium with long rete pegs and intact epithelial connective tissue junction. Connective tissue shows moderate mixed inflammatory infiltrate with numerous budding capillaries and endothelial lining blood vessels with few foamy macrophages. Extravasation of RBC is also seen.



a. Pre-operative

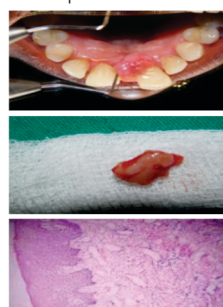
b. Excised tissue

c. Histopathology

d. Post operative

Case 2

A 30 year old male patient reported to the department with a complain of enlarged gum in lower front region of the lower jaw since 2 months which was occasionally painful and gradually increased in size. It was recurrent in nature as he went for excision 7 months back. Extra oral examination was non-significant. Intra-oral examination revealed pale pink color fir in consistency with smooth surface texture with respect to buccal aspect and interdental gingiva of 41, 42 and 43 measuring about 1x0.6x0.5cm. Oral hygiene was fair. Based on clinical finding, the case was provisionally diagnosed as pyogenic granuloma. IOPA was taken and bone loss was found. Histopathology examination showed parakeratinised stratified epithelium with short rete pegs and intact epithelial connective tissue junction. Connective tissue is fibrocellular and foci of area shows edematous changes, proliferating blood vessels, extravasated RBC and predominant neutrophils.



a. preoperative

b. excised tissue

c. histopathology



d. Post operative

Case 3

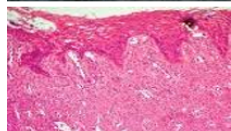
A 23 year old male patient reported to the department for a regular dental checkup and enlarged portion of gingiva was found with respect to 26, 27 which was painless in nature. Extra oral examination was non-significant. Intra-oral examination revealed pale pink color firm in consistency with some irregular surface texture with respect to buccal aspect of 26, 27 measuring about 0.6x0.5x0.4cm. Oral hygiene was fair. Based on clinical finding, the case was provisionally diagnosed as pyogenic granuloma. IOPA was taken and no bone loss was found. Histopathology examination showed parakeratinised stratified epithelium with long rete pegs and intact basement membrane. Connective tissue was fibrocellular and show collagen fibers, proliferating blood vessels, extravasated RBC and predominant neutrophils.



a. Preoperative



b. excised tissue



c. histopathology



d. Postoperative

DISCUSSION

Pyogenic granuloma is a non-specific conditioned enlargement. Pyogenic granuloma also known as a telangiectatic granuloma, eruptive hemangioma, granulation tissue-type hemangioma, granuloma gravidarum, lobular capillary hemangioma, and pregnancy tumor. It is a common tumor like growth of the oral mucosa or skin.⁵ It is also seen in the other parts of oral cavity such as buccal mucosa, tongue and lips other than gingiva.⁶ Oral pyogenic granuloma arises from minor trauma to the tissues that provide a pathway for invasion of nonspecific types of microorganisms. From the histological point of view, it is a benign vascular tumor.⁷ It is an exuberant connective tissue proliferation to a known stimulus or injury like calculus or foreign material within the gingival crevice. After any trauma, the key to wound healing is the formation of granulation tissue and this includes the migration of inflammatory cells, migration and proliferation of vascular endothelial cells and fibroblasts and synthesis of extracellular matrix. Such processes of wound healing seem to be controlled by various kinds of cytokines. Out of these cytokines – role of growth factors, particularly bFGF – a heparin binding angiogenic protein, has been found to be highly mitogenic for capillary endothelial cells and to induce angiogenesis.

Gingiva may be enlarged during pregnancy and may atrophy during menopause. It is generally seen during the second and third trimesters wherein it is referred to as "pregnancy tumor"⁸

Microscopic findings of a true pyogenic granuloma invariably show a characteristic polypoid, circumscribed, exophytic lobular proliferation of capillaries in a fibromyxoid stroma. The adjacent epithelium may be hyperplastic and keratotic but the overlying epithelium is ulcerated or atrophic. The lamina propria is composed of a large vessel, often with a muscle wall, and surrounding aggregates of small variably sized capillaries with small angular lumina and clusters of plump, cytologically bland appearing endothelial cells. Bacterial colonization and scattered

inflammatory cell infiltrate of lymphocytes, plasma cells and mast cells are common features.⁹

There are various differential diagnosis oral kaposi sarcoma, peripheral giant cell granuloma, peripheral ossifying fibroma, fibroma, peripheral odontogenic fibroma, hemangioma, conventional granulation tissue, hyperplastic gingival inflammation, bacillary angiomatosis, angiosarcoma, and non-Hodgkin's lymphoma.³

Treatment consists of the removal of the lesions plus the elimination of irritating local factors such as calculus or any foreign body incorporated in the gingival tissue. There are chances of recurrence of pyogenic granuloma after surgical excision, and re-excision should be done. Excision should extend deeply to the periosteum and adjacent teeth to remove the irritation source and prevent lesion recurrence.¹⁰ Other treatment options for PG are laser excision,^{11,12} Cryosurgery or the use of an electric scalpel¹³, local injections of a sclerosing agent (mo-noethanolamine oleate) aided in the complete disappearance, Local injection of ethanol also appears to be an alternative therapy for PG.¹⁰

CONCLUSION

Oral pyogenic granuloma is non-neoplastic in nature. Pyogenic granuloma can be adequately treated with correct diagnosis and proper treatment. A careful management of the lesion also helps prevent the recurrence of this benign lesion.

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