Case Report

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Multiple Pyogenic Granulomas: A Case Report

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ABSTRACT

Background: Pyogenic granuloma is primarily a reactive tumour like overgrowth seen in the oral cavity caused due to irritation, physical trauma or hormonal factors. Pyogenic granuloma is not an infectious but a reactive lesion, and causes functional and esthetic challenges. This case report describes the occurrence of multiple pyogenic granulomas; a rare entity; in the oral cavity of a 35 year old female patient. Diagnosis and treatment of pyogenic granuloma is important to prevent its recurrence. Based on clinical findings and histopathological reports a proper diagnosis was achieved and the multiple lesions were treated using a minimally invasive technique of excision using a diode laser.

Keywords: Diode laser, Granuloma, Surgery.

INTRODUCTION

Gingival enlargement is defined as an overgrowth or increase in the size of the gingiva. It can be classified according to Glickman as inflammatory, drug induced, associated with systemic diseases like leukemia, neoplastic enlargements, conditioned enlargements as seen in puberty or pregnancy and a small amount could be non-specific enlargements like "Pyogenic Granuloma".

Pyogenic granuloma or granuloma pyogenicum is a distinctive clinical entity originating as an exaggerated response of tissue to a non-specific infection. It can also be defined as a tumour like growth that is considered an exaggerated conditioned response to minor trauma, low grade or chronic irritation, hormonal factors, or drugs[1]. In 1844, Hullihen described the first case of pyogenic granuloma in English literature[2]. Pyogenic granuloma was then described in 1897 by two French surgeons, Poncet and Dor, who named this lesion otyomycosis hominis. It was only in 1904 that Hartzell first ever introduced the term pyogenic granuloma. The name pyogenic granuloma is a misnomer since the condition is not associated with pus and does not represent a granuloma histologically[3]. In actuality, it is a capillary hemangioma of lobular subtype because of which the lesions frequently show spontaneous bleeding. Elimination of the causative traumatic factors followed by complete surgical excision of the lesion constitutes the basis for definitive treatment and prevention of recurrences. Pyogenic granuloma has different clinical and histological presentations in the oral cavity. A rare case of multiple pyogenic granulomas and their minimally invasive management using a diode laser is reported here.

CASE REPORT

A 35 year old female reported to the Department of Periodontology & Oral Implantology, Padmashree Dr. D.Y Patil Dental College & Hospital, Nerul, Navi Mumbai with a chief complaint of difficulty in mastication due to generalized swelling in the oral cavity since 6 months causing her

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Fig 1a: Pre-operative facial view.

Fig 1b: Pre-operative lateral views.

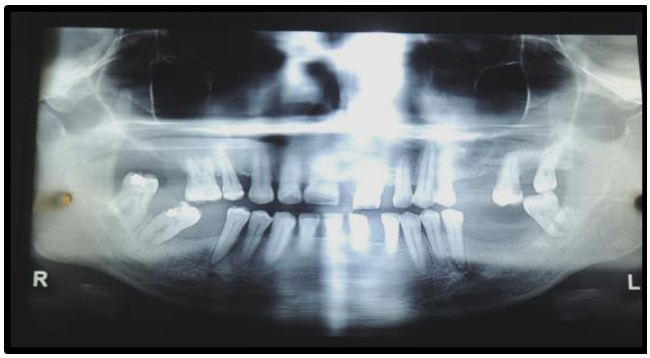

Fig 2: Orthopantamogram.

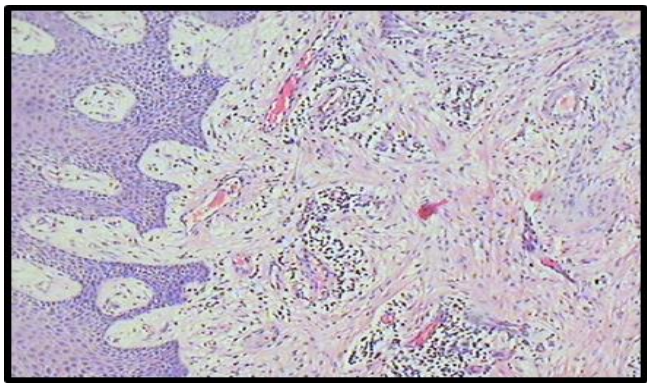

Fig 3a: Histologic Section under 10x.

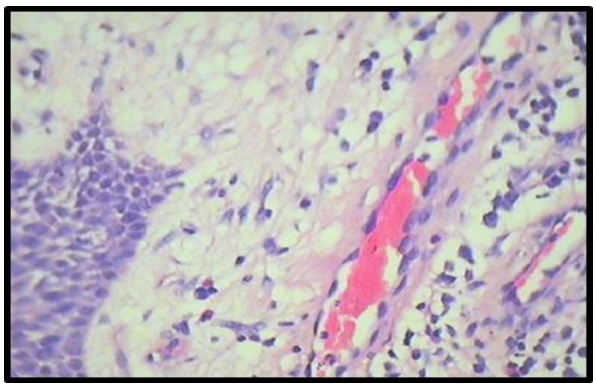

Fig 3b: Histologic Section under 40x.

Fig 4: Excision using diode laser.

Fig 5a: Post-operative facial view.

Fig 5b: Post-operative lateral view.

inability to eat food. She had a history of trauma to the upper anterior teeth 8 months back followed by a small swelling in relation to her left central incisor. The swelling was small, rounded and bled occasionally; as described by the patient. It kept on increasing in size and eventually multiple similar swellings developed in others areas of her mouth in the last 6 months. The patient had undergone oral prophylaxis followed by flap surgeries 2 years back. A detailed medical and family history was taken and found to be non-contributory to the present condition.

On intraoral examination, multiple lesions were seen involving the maxillary and mandibular gingiva on facial and palatal/lingual aspects. The lesions were bright red in colour, lobulated with irregular borders and appeared highly vascular. All the lesions bled spontaneously. Generalized 6-8 mm pseudo pockets were detected due to the enlargement.

The maxillary anterior region showed a solitary lesion approximately 1.5x1 cm in relation to 21. Mandibular anterior lesion was seen between 31-32 involving the marginal gingiva and the interdental papilla. The right maxillary posterior lesion was seen covering almost more than 1/3rd of the crown structure and the right mandibular posterior lesion covered the entire crown of 46 and involved the attached gingiva as well. The left mandibular lesion was seen as a round lobulated lesion involving 36, extending to the attached gingiva. A provisional diagnosis of idiopathic gingival enlargement was made owing to non-contributory medical, family and drug history.

Investigations

A complete hemogram showed blood counts within normal limits. A panoramic radiograph showed generalized moderate horizontal bone loss with respect to all the teeth which could be attributed to the periodontal condition of the patient 2 years ago.

Excisional biopsy was performed in the maxillary right posterior region and sent for histopathological analysis. The sections were stained using Hematoxylin-eosin stains and a detailed histopathological picture was obtained under 10x & 40x magnification. The hematoxylin-eosin stained sections showed a para-keratinised stratified squamous epithelium with blunt rete ridges. Several connective tissue entrapments were seen within the epithelium under 40x. The underlying connective tissue stroma showed a highly cellular inflammatory cell infiltrate with lobular masses of hyperplastic granulation tissue. Several blood vessels were seen engorged with RBCs and lined by mitotically active plump endothelial cells, a classic sign of pyogenic granuloma. The histological findings clearly were suggestive of pyogenic granuloma. Thus based on clinical and histopathological findings, the final diagnosis was determined as multiple pyogenic granulomas.

Treatment

The treatment of pyogenic granuloma is dependent on proper understanding of the etiology and the underlying pathologic changes. Surgical excision of pyogenic granuloma is the treatment of choice. Excision should also include removal of the base of the lesion, with extension down to the periosteum, and proper scaling and curettage of involved and adjacent teeth.

Various treatment options include external bevel gingivectomy using a scalpel, cryotherapy, chemical or electrical cauterization and recently the use of lasers. (Nd:YAG, carbon dioxide, diode and flash lamp pulsed dye laser).

Owing to the generalized nature of the granulomas and highly ulcerated clinical picture, the treatment of choice was chosen to be a diode laser owing to its advantages of minimal bleeding, reduced mechanical trauma, minimal scarring and post-operative swelling and pain along with precision incisions and complete removal of the entire tissue right from the base.

The following treatment was planned for this particular case. Supra gingival scaling was performed on the first appointment followed by sub-gingival scaling. The patient was recalled after a week. At this appointment, a very slight reduction in size of the lesion was observed. The patient was followed up for another 2 weeks during which scaling was repeated and the patient was also encouraged to maintain her oral hygiene. However, the size of the lesion did not reduce further.

Following this, surgical excision was planned and the lesion was excised under aseptic conditions. Surgical excision of all the lesions in the oral cavity was performed using a diode laser. The diode laser (Doctor Smile-Wiser, Lambda, Italy)® with a wavelength of 980nm, 1.5 W power was used in continuous, contact mode with the help of flexible fiber optic delivery system under local anesthesia. The excision extended down to the periosteum, followed by curettage and through scaling of the involved teeth to remove any remnants of calculus. A periodontal pack (Coe-pack) was placed and the patient was recalled after 1 week for removal of the pack and checkup. Extraction of associated teeth is rarely necessary but in this case teeth no 45 and 47 were extracted as they showed Grade III mobility.

Each quadrant was treated in subsequent appointments with an interval of 3-4 days between each appointment. The patient was recalled 10 days after the last appointment. Uneventful healing was seen at all the operated sites except for the lower anterior sextant which showed slight amount of inflammation.

The patient was recalled every month for the first three months, and every third month after that. Ultrasonic scaling was performed on all the appointments. No signs of inflammation or recurrence were observed on any of the follow-up appointments in any area of the mouth and the gingiva appeared healthy. The case was followed up to one year and no recurrence was seen. The patient was advised to maintain a strict oral hygiene protocol since non-compliance by the patient in maintaining oral hygiene could lead to recurrence of the lesion.

DISCUSSION

Pyogenic granuloma is a non-specific conditioned enlargement, seen as an exaggerated response to minor trauma. It is generally seen as a solitary sessile/pedunculated mass which is often ulcerated and shows a spontaneous tendency to bleeding. Generalized pyogenic granuloma with multilple lesions seen is termed as "satellitosis'[4].

Satellite lesions of the skin have been reported, however there is limited literature to support satellitosis in the oral cavity[5]. Pyogenic Granuloma has a high predilection for young females in the second decade of life. It predominantly occurs on marginal gingiva (75%) with only 15% of the tumors on the alveolar part[6] and commonly in the maxillary arch than the mandibular. Other common sites are lips, tongue and buccal mucosa. The size of the lesion may vary from a few millimeters to several centimeters and is generally bright red in colour due to its high vascularity and bleeds spontaneously. As the lesion matures, it may appear pinkish and more collagenous due a decrease in vascularity over time.

Local irritants like calculus, any foreign material, poor oral hygiene, chronic low grade trauma, physical trauma, hormonal factors, bacteria, viruses and certain drugs have been proposed as etiologic factors in the development of pyogenic granulomas by different investigators[7]. For gingival lesions, excising the lesion down to the periosteum and scaling adjacent teeth to remove any calculus and plaque that may be a source of continuing irritation is the line of treatment. Multiple pyogenic granulomas may be considered as a consequence to an angiogenic stimulus in the form of a neovascular response[8].

Multiple pyogenic granulomas are a rare entity, and there is very limited literature on the same till date. Reports of multiple lesions of pyogenic granuloma on skin, back and gastro-intestinal tract have been reported. This case presents a unique clinical presentation of multiple lesions of pyogenic granuloma seen in the oral cavity. Excessive local production of tumor angiogenic factor as a consequence of a tissue lesion due to trauma may cause both the pyogenic granuloma and its satellite lesions[8]. Pyogenic granuloma can have varied differential diagnosis like Fibroma, Peripheral Giant Cell Granuloma, Peripheral ossifying fibroma or hemangioma owing to its clinical appearance. Hence, biopsy findings are important in establishing diagnosis. In the present case, the lesion was surgically excised and was sent for histopathologic examination. The histopathologic reports of this case led to a final diagnosis of multiple pyogenic granulomas.

In this case, the etiology might be considered as trauma that the patient had six months back with the release of various endogenous and angiogenic factors contributing to the increased vascularity of the lesion. These factors

probably contributed to the development of this lesion. Due to the generalized nature of the lesion and highly vascular appearance, the diode laser was chosen as the treatment of choice. Use of laser allows control of excessive bleeding because of coagulation. It helped in controlling the hemorrhage during the excision, post-operative pain, swelling and scarring of the gingival tissues.

About 16% of all pyogenic granulomas recur after excision as stated by Taira et al inspite of being reactive hyperplasias. An incompletely excised lesion or inability to remove the etiologic factors and maintain oral hygiene may be the primary cause of recurrence and can lead to the development of multiple satellite lesions surrounding the original lesion[9]. Hence a proper follow up of the patient with regular oral hygiene maintenance is the key factor towards maintenance[6].

CONCLUSION

Generalized pyogenic granuloma is a rare occurrence, and there is limited data published regarding the same. The present case has described the unique occurrence of multiple satellite lesions of pyogenic granuloma in the oral cavity. Excision of the lesions using a diode laser has addressed a minimally invasive treatment modality that could be effectively used to avoid post-surgical complications and recurrences. A detailed patient history, meticulous clinical and histopathological examination, targeted surgical therapy and a proper follow up of such cases combined with good patient compliance will definitely help to achieve a good outcome and maintenance.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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