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Surgical excision of recurrent pyogenic granuloma- A case report

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Abstract

Pyogenic granuloma, also known as lobular capillary hemangioma, is a common, benign, acquired, vascular neoplasm of the skin and mucous membranes characterized by an erythematous surface that bleeds easily. Although its cause is still unclear, this lesion is believed to be an exaggerated tissue reaction to local irritation, traumatic injury, hormonal imbalance, or due to the side effects of certain medications. Over all these factors, poor oral hygiene acts as an adjunct factor for the development of tumor. The majority of the patients have uncomplicated pyogenic granuloma. The most effective and often used form of treatment is still surgical excision, and now various other treatment modalities are also available. Recurrence after surgical excision happens in up to 16% of cases. This is a case report of pyogenic granuloma in a seven-year-old girl who presented with a gingival overgrowth in her maxillary right palatal surface region extending from primary canine to the second primary molar. The lesion was surgically excised and histopathological report confirmed the diagnosis of pyogenic granuloma with maturing fibrotic areas.

Keywords: Pyogenic granuloma, traumatic occlusion, excisional biopsy.

Introduction

Pyogenic granuloma is a non-malignant growth on the skin or oral cavity that resembles a tumour. It is an inflammatory hyperplastic lesion, which is typically regarded as a reactive lesion that develops in response to different stimuli soft tissue development which is rather frequent in the oral cavity.¹ Although its cause is still unclear, this lesion is believed to be an exaggerated tissue reaction to local irritation, traumatic injury, hormonal imbalance, or the side effects of certain medicines.² Over all these factors, poor oral hygiene acts as an adjunct factor for the development of tumour.³. Even though pyogenic granuloma has been documented in all age groups, peak incidence is seen in adolescents and young adults, with male to female ratio of 1: 2. Males are more frequently affected than females in the pediatric age group, and early childhood is the most likely time for pyogenic granuloma to develop rather than puberty.⁴ Pyogenic granuloma manifests clinically as a sessile or pedunculated exophytic mass with a smooth or lobulated surface that is prone to bleeding or ulceration and is covered by a yellow fibrinous covering usually nontender. Depending on how vascular the growth is, the lesion's colour can be red, purple, or pink.⁵The gingiva (75%) is the most frequently affected area in the oral cavity, with the maxilla being more frequently affected than the mandible. Infrequently, it can arise extra gingivally on the lips, tongue, buccal mucosa, and palate.⁶The Pyogenic Granuloma has a very strong blood supply and can bleed either spontaneously or in response to a slight injury.³ The lesion will be between a few millimetres and a few centimetres in size.⁷The most effective and often used form of treatment is still surgical excision, and now various other treatment modalities are also available.³Recurrence after surgical excision happens in up to 16% of cases. Recurrence occurs due to partial excision, failure to completely eradicate causative elements, or repeated trauma.⁵This report describes case of an oral pyogenic granuloma in a female child on the palatal gingiva.

Case Description

A 7-year-old female child reported to the Department of Pediatric and Preventive Dentistry with the chief complaint of pain and decay in the lower left back tooth region noticed since three days. Dental caries was seen in upper and lower molars. Her family history and medical history were irrelevant. The patient showed positive behaviour as assessed by Frankl's behaviour rating scale. The extra oral examination found nothing abnormal, and on intraoral examination a tiny growth involving the upper right tooth front region was seen. The patient gave history of bleeding during mastication and brushing from the site. She first noticed the growth six months ago, when it was in a size of peas and had grown steadily to its current size. The lesion was exophytic, irregular in shape, soft in consistency, pedunculated with a stalk, non-tender, and reddish white in colour with an ulcerated surface, which was measuring approximately $0.8 \times 0.4 \times 0.2$ cm in upper right front tooth region, involving the marginal palatal gingiva of primary canine extending mesially and distally to lateral incisor and first molar. (Figure 1)

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Figure1: Intra oral view showing extension of lesion These findings were confirmed by palpation of the lesion. At occlusion the lower deciduous canine was seen impinging the lesion.(Figure 2).



Figure 2: Lateral view showing traumatic occlusion Furthermore, there were caries seen in relation to canine and first molar. Absence of mobility was seen with the involved teeth. An intraoral periapical radiograph showed no bone loss in the area of the lesion. Oral hygiene was calculated by OHI-S index and the interpretation was fair. The blood investigation showed all the values are within the normal level. Based on the history and intraoral findings, provisionally it was diagnosed as traumatic fibroma.The differential diagnosis included haemangioma, pyogenic granuloma, peripheral ossifying fibroma, and peripheral giant cell granuloma. We obtained verbal informed consent of the patient and a signed informed consent of the caregivers (the father) for treatment and for the use of medical information in the datasheet. Treatment chosen was excisional biopsy of the lesion.

Tell show do (TSD) technique was employed as behaviour management to keep the patient relaxed and cooperative during the entire procedure. Excisional biopsy of the soft tissue lesion was performed under local anaesthesia, topical anaesthetic gel was applied in the areas where block has to be given. Nasopalatine block was given for palatal anaesthesia and buccal infiltration was given for buccal aspect. The soft tissue landmarks are protected, a #15 Bard-Parker® blade was used to create an elliptical incision through palatal aspect towards the lesion. A wedge-like excisional biopsy was performed and the excised sample was sent to the Department of Oral and Maxillofacial Pathology for histopathological analysis. (Figure 3)



Figure 3: Excised lesion

The surgical site bled profusely during surgery. Haemostasis was achieved, (Figure 4) following which Coepack was placed to leave the site undisturbed.



Figure 4: Immediate post op after excision

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The postoperative course was uneventful, and a 15 days post-operative evaluation displayed reoccurrence of the lesion at the same site (Figure 5).



Figure 5: recurrence at the same site

On intraoral examination, a similar exophytic growth measuring approximately $0.5 \times 0.3 \times 0.3$ cm, pedunculated, irregular in shape, with a smooth surface, greyish white in colour, firm in consistency which bleeds on probing was seen. Furthermore, absence of mobility of the involved teeth and the treatment for the tooth was left untreated. IOPA was taken to rule out bone loss and finally the provisional diagnosis was traumatic fibroma because the traumatic occlusion was not corrected following the Excisional biopsy.

Excisional biopsy was planned at the new site and the excised tissue was sent for histopathological analysis to the Department of Oral and Maxillofacial Pathology. The diagnosis of pyogenic granuloma was confirmed. Before excision stainless steel crown was given in relation to primary first and second molar with raised occlusion and restored the proximal caries in the distal aspect of canine. After 10 days review no recurrence was seen.

Histopathological Impression

The given H&E-stained section (Figure:6) of both the specimen showed surface epithelium with stratified squamous associated with fibrovascular connective tissue. The epithelium appears atrophic in some foci and hyper plastic in other foci. The adjacent fibrovascular

connective tissue exhibits varying number of capillaries and mature dense collagen fibres. A thin fibro purulent membrane composed of superficial keratin layer was also seen. The diagnosis was given as pyogenic granuloma with maturing fibrotic areas.





Pyogenic granuloma was first defined in English literature by Hullihen in 1844 as an inflammatory hyperplastic lesion, which is usually considered to be a reactive lesion arising in relation to various stimuli. Pyogenic granuloma in humans was classified as botryomycosis hominis in 1897. The presently used word for pyogenic granuloma or granuloma pyogenicum is attributed to Hartzell in 1904. Moreover, it was known as Crocker and Hartzell's disease.⁸ The differential diagnosis includes lesions with similar clinical characteristics, such as haemangiomas, peripheral giant cell granulomas, inflammatory gingival hyperplasia, and peripheral ossifying fibromas, among others. Poor oral hygiene (dental calculus and plaque), a few unidentified conditions as well as over-contoured defective dental restorations, hormonal disturbances during puberty or pregnancy, specific drugs, and any episode of traumatic injury to the oral cavity should all be taken into account when making the diagnosis of a reactive hyperplastic lesion as pyogenicgranuloma.⁹

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These irritants cause the underlying fibrovascular connective tissue to become hyperplastic, and they also cause granulation tissue to proliferate, which results in the creation of pyogenic granulomas.⁸Gingival pyogenic granulomas account for approximately 75-85% of all oral pyogenic granulomas.⁴In the present case, the patient had traumatic occlusion impinging on the site of lesion. Hence, the history of traumatic impingement on the anterior hard palate, fair oral hygiene status, and characteristic features of the lesion were suggestive of pyogenic granuloma.

Options for treatment include excisional biopsy of the lesion and thorough scaling of the area to prevent any discomfort. It is necessary to eliminate gingival lesions all the way to the periosteum.¹⁰Pyogenic granuloma is a benign lesion; therefore, surgical excision is the treatment of choice. Treatment differs depending on the child's capacity for cooperation and the extent of the lesion. In the present case, surgical excision was performed and is also a suggested course of therapy in the literature because the patient was quite cooperative and the size of the lesion was tiny.

Other therapeutic options for removing pyogenic granulomas include cryosurgery, flash lamp pulsed dye laser, sclera therapy, excision by Nd: YAG laser, injection of corticosteroid, or ethanol.¹¹It has been found to return after excision in the literature. Recurrence is thought to be caused by partial removal of the mass, failure to remove the causes, and possibly re-injury to the same lesion site.² In the present case, recurrence was reported because the traumatic occlusion was not corrected. After correction of occlusion, there was no recurrence even after one month. (Figure: 7)



Figure 7: Post op after one month

Conclusion

Pyogenic granuloma, a benign lesion, is a threat to patients because it grows quickly and is large enough to cause pain and discomfort in children. Early detection and immediate treatment are crucial because pyogenic granuloma in children is uncommon. This helps prevent discomfort and future complications while also enhancing children's quality of life.

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