CASE REPORT

Oral capillary haemangioma mimicking pyogenic granuloma: a challenge for diagnosis and management

Anil Patil,¹ Channaveer Pattanshetti,² Aniruddha Varekar,³ SandhyaRani B Huddar¹

¹Department of Pedodontics, Bharati Vidyapeeth Deemed University Dental College and Hospital, Sangli, Maharashtra, India

²Department of Oral and Maxillofacial Surgery, Bharati Vidyapeeth Deemed University Dental College and Hospital, Sangli, Maharashtra, India

³Department of Oral Pathology, Bharati Vidyapeeth Deemed University Dental College and Hospital, Sangli, Maharashtra, India

Correspondence to

Dr Anil Patil,
dranilp0888@gmail.com

SUMMARY

Pyogenic granuloma (PG) is a localised granulation tissue overgrowth, in reaction to mild irritation. The aetiology of the lesion is not known, though it was originally believed to be a botryomycotic infection. The clinical diagnosis of such a lesion can be quite challenging. The purpose of this article is to report an unusual case of benign tumour in an adolescent boy who was clinically diagnosed as PG and histopathologically as capillary haemangioma. PG being a benign lesion; surgical excision was performed and predisposing irritants were removed.

BACKGROUND

Pyogenic granuloma (PG) and capillary haemangioma are commonly occurring benign vascular lesions of oral cavity.¹ Poncet and Dor in 1897 first described pyogenic granuloma as 'granuloma pyogenicum'. The term is a misnomer as this condition is not related with pus and does not signify a granuloma histologically. Angelopoulos AP proposed the term 'haemangiomatous granuloma' that accurately expresses the histopathological picture (haemangioma like) and the inflammatory nature (granuloma) of oral PG.² Various authors have suggested names like granuloma gravidarum, pregnancy tumour, Crocker and Hartzell's disease, vascular epulis, benign vascular tumour, haemangiomatosis granuloma, epulis teleangiectaticum granulomatosa and lobular capillary haemangioma.³

Pyogenic granuloma was first thought to be a mycotic infection contracted from horses. Then, it was suggested that it results from a purulent change within benign oral tumours. It is now accepted that the lesion is an exaggerated localised connective tissue reaction to minor injury or irritation.⁴ The incidence has been described as 26.8% to 32% of all reactive lesions.⁵ PG of the oral cavity occurs at any age and in all populations with no racial predilection. Studies have determined a prevalence rate of 1 lesion per 25 000 adults with definite female predilection with a woman to man ratio of 2 : 1.⁶ In the oral cavity PGs show a predilection for the gingiva, with interdental papillae being a common site in 70% of the cases. They are more common in the maxillary anterior area than any other area in the mouth.

Haemangiomas are the benign tumours composed of blood vessels and are classified on the basis of their histological appearance as capillary, mixed cavernous or a sclerosing variety that tends to undergo fibrosis.⁷ Haemangiomas constitute 7% of all benign tumours

in infancy and childhood.¹ Haemangiomas are most often recognised at an early age and encountered more frequently in females than in males by a ratio of 3 : 1. Haemangioma commonly involves the head and neck. Though they are rare in the oral cavity however they may occur on the tongue, lips, buccal mucosa, gingiva, palatal mucosa, salivary glands, alveolar ridge and jaw bones. Both these lesions have higher incidence in female patients, occur in the young age group and histopathologically resemble each other.⁸ Therefore, the differentiation between a PG and capillary haemangioma is difficult.

The aim of the study was primarily to follow any clinical and radiographical changes after surgical excision of oral lesion and its effect on eruption of permanent successor.

CASE PRESENTATION

An 11-year-old boy reported to Department of Pedodontics, Bharati Vidyapeeth Deemed University Dental College and Hospital, Sangli, India with a chief complaint of swelling in the gums and palate of 3–4 weeks duration, which bled frequently and impeded with eating and brushing. The swelling was of peanut size, when the parents of the patient first noticed it, but had grown rapidly to attain the present size of 15 mm of diameter. The medical history was not significant and extraoral examination did not reveal any facial asymmetry.

History of reddish purple nodule at the left corner of mouth was noticeable while smiling which increased to present size and shape in 3–4 weeks. The patient could not recall the exact time of initiation of the growth. Intraoral soft tissue examination revealed a solitary, pedunculated, oval-shaped, reddish purple swelling with distinct border and irregular surface (figures 1 and 2). The soft tissue mass was attached to marginal gingiva

Figure 1 Preoperative lesion.

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Figure 2 Preoperative occlusal view of lesion.

interproximally between 63 and 65 measuring about 15 mm in diameter and surrounding palatal mucosa was normal. On palpation the swelling was non-tender, soft in consistency and blanching was seen on application of pressure. The 64 was missing and mesial proximal caries with 65 involving enamel and dentin were noticed. Intraoral periapical radiograph of the region revealed loss of alveolar crestal bone, with no sign of root resorption of the teeth involved (figure 3).

DIFFERENTIAL DIAGNOSIS

Based on clinical features, a provisional diagnosis of pyogenic granuloma was made with differential diagnosis of capillary haemangioma.

TREATMENT

Therefore, excisional biopsy of the mass under local anaesthesia with necessary emergency equipments was planned. The complete haemogram report was within normal limits. The biopsy was performed keeping a wide margin down to the periosteum, with thorough curettage of the area (figure 4). The patient was discharged after achieving proper haemostasis.

H&E-stained histopathological sections of the specimen (figure 5) showed parakeratinised stratified squamous epithelium with areas of ulceration. The fibrous connective tissue revealed numerous endothelium-lined blood vessels and budding endothelial cells. A mixed inflammatory cell infiltrate secondary to ulceration was seen. Diagnosis obtained from the Dept of Oral Pathology was 'suggestive of capillary haemangioma with inflammatory component, secondary to ulceration'.

Figure 3 Preoperative intraoral periapical radiograph.

Figure 4 Excised mass.

OUTCOME AND FOLLOW-UP

Oral prophylaxis was performed to remove plaque and calculus on follow-up visit, and decayed 65 was also restored with glass ionomer cement. The patient was regularly followed once in 15 days for 3 months. After 3 months, complete healing of operated area was observed with erupted 24 (figures 6 and 7).

DISCUSSION

PG is a common reactive lesion that generally develops rapidly, bleeds easily and ulcerates creating the erroneous clinical impression of a malignant tumour.⁹ However, it is a well-circumscribed benign soft tissue tumour of inflammatory rather than neoplastic nature developing from the connective tissue of the skin or mucous membrane.² Epulis granulomatosa/epulis haemangiomatosis is a term used to describe hyperplastic growths of granulation tissue that occasionally occurs in healing extraction sockets.⁶ Gingival irritation as a result of calculus, overhanging edges or rough restorations might be the predisposing factor for development of gingival PG. It is proposed that microulceration from these irritants in an already inflamed gingiva allows the ingress of low virulent oral microflora into the gingival connective tissue. This induces an exaggerated vascular hyperplastic response in the connective tissue resulting in the formation of PG. In the present case, constant trauma inflicted by the sharp edges of the carious 65 could have been the aetiology for growth in the 64 region.

Radiographical findings are absent in PG. However, localised alveolar bone resorption in rare instances of large and long-standing gingival tumours can be seen.² Radiographs are

Figure 5 Photomicrograph.

Figure 6 Three months postoperative complete healing.

advised to rule out bony destruction suggestive of malignancy or to identify a foreign body or sharp restorative margin that would need to be treated with the lesion.¹⁰ Long-standing PGs can show dystrophic calcification.

Non-proliferative enlargements must be distinguished from the proliferating haemangiomas. The histological image in the present case can be mistaken for less frequently occurring lesions like capillary haemangioma, epitheloid haemangioma or epithelial cell histiocytoma.⁶ Capillary haemangiomas, reported in the literature, have been treated with curettage.¹¹ Local complications, which tend to occur in the proliferative phase, include bleeding and ulceration. Bleeding occurs when the epithelial basement membrane has been penetrated by haemangioma. This condition usually responds to local pressure or simple mattress sutures. Ulceration can lead to pain, infection or recurrent bleeding.¹¹ Other treatment modalities include ligation and excision, artificial ulceration, electrolysis and thermocautery, sclerosant therapy, radiation and compression depending on the clinical features and the anatomical considerations.

Figure 7 Three months postoperative intraoral periapical radiograph.

Current management consists of *primum non nocere*, that is, spontaneous involution, steroid therapy and chemotherapy.⁹ After surgical excision of gingival lesions, curettage of underlying tissue is recommended.¹² Excision with 2 mm margins at its clinical periphery and to a depth to the periosteum or to the causative agent is advised. Any foreign body, calculus or defective restoration should be removed as part of the excision. In the present case, the lesion was tiny, and radiographically did not show any bony involvement, and therefore immediate surgical haemorrhage control was not required. Hence, it was determined to treat this case by simple excision under essential precautions. The present case was followed up for 3 months after excision. The wound healing was complete and no recurrence was found.

Learning points

- ▶ Capillary haemangioma may easily be confused with pyogenic granuloma.
- ▶ Attempts of excision without proper diagnosis and good surgical setup may lead to serious medical problems.
- ▶ Hence, diagnosis and risks involved should be considered and necessary precautions should be taken prior to excision of apparently innocent lesions.
- ▶ In such cases, diagnosis can be accurately made by histopathological assessment.

Competing interests None.

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