CASE REPORT

Lobulated capillary haemangioma: a common lesion in an uncommon site

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SUMMARY

Pyogenic granuloma (PG) is a well-known localised granulation tissue overgrowth. It remains an aetiopathological enigma, with trauma, inflammatory and infectious agents being the suspected causative factors. It is a relatively common benign mucocutaneous lesion occurring intraorally or extraorally and is more common in women in the second decade of their lives than in men. Although it is a common lesion it may present with varying clinical features that sometimes may mimic more serious lesions such as malignancies. The clinical diagnosis of such lesion can be quite challenging. This case report drives attention towards the uncommon location of PG of lobular capillary haemangioma type occurring on anterior palate. Surgical excision of the lesion was planned because of the discomfort attributed to large size of the lesion and hindrance in mastication.

swelling was of a negligible size when the patient first noticed it, but had grown gradually over the past 2 years and had attained the present size. Apart from difficulty in mastication, there were no other symptoms. The patient's medical history was unremarkable.

Examination revealed a pedunculated lesion, reddish in colour, firm in consistency and measuring approximately 1.3×1.2 cm (figure 1). The swelling was non-tender, the surface felt rough and hard on palpation and was ulcerated in many areas. Intraoral hard tissue examination showed both the upper central incisors having grade 3 mobility. Moderate amount of local factors were present in relation to the upper anteriors. Excisional biopsy of the swelling was planned.

INVESTIGATIONS

Intraoral periapical radiograph

On examination of radiograph of the upper anterior region (figure 2) severe bone loss was evident extending upto the apical third of the roots of central incisors.

Histopathology

The histopathological section showed epithelium and connective tissue. Epithelium was stratified, squamous and parakeratinised type, it was ulcerated in some areas. The connective tissue comprised of numerous small and large endothelium-lined blood vessels engorged with red blood cells. Chronic inflammatory cell infiltration and bundles of collagen fibres were also seen (figures 3 and 4). There was no evidence of malignancy. These findings were consistent with a histopathological diagnosis of LCH.

BACKGROUND

Pyogenic granuloma (PG) is a common tumour-like growth of the oral cavity or skin that is supposed to be non-neoplastic in nature.¹ Hullihen's² description in 1844 was most likely the first PG reported in the English literature, but the term PG was introduced by Hartzell³ in 1904. There are two kinds of PG, namely, Lobular Capillary Haemangioma (LCH) and non-LCH type, which differs in histological features.⁴ Over the years various authors have suggested other names such as granuloma gravidarum/pregnancy tumour, Crocker and Hartzell's disease, vascular epulis, benign vascular tumour, haemangiomatosis granuloma, epulis teleangiectaticum granulomatosa and LCH.^{5 6}

Although PG is a non-neoplastic growth in the oral cavity, proper diagnosis, prevention, management and treatment is very important. As an old adage says 'Eyes cannot see what the mind does not know' a clinician, not cognisant with the possibility of this reactive lesion in its unusual site mistakes it for the more serious ones. This is easily overcome by histopathology which confirms its innocuous nature.

Epivatianos *et al.*, reported that the two types of PG were clinically different. They found that LCH PG occurred more frequently (66%) as a sessile lesion, whereas non-LCH PG mostly occurred as pedunculated (77%). Our present case showed a pedunculated LCH PG which is relatively less common.⁴

CASE PRESENTATION

A 53-year-old male patient presented with a swelling since 2 years on the anterior palate. The

Figure 1 Intraoral photograph showing palatal growth.

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Figure 2 Radiograph of upper central incisors showing bone loss extending up to the apical third.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis of PG includes peripheral giant cell granuloma, peripheral ossifying fibroma, metastatic cancer, haemangioma, bacillary angiomatosis, angiosarcoma and non-Hodgkin's lymphoma.

TREATMENT

Surgical excision was performed using a 15 number blade under local anaesthesia using 2% Lignocaine with 1:80 000 adrenaline

Figure 3 Excised tissue.

Figure 4 Image showing immediate postoperative. Suture in position.

(Lignox, Indoco Remedies Ltd, India). The excised tissue (figure 5) was stored in 10% formalin and sent for histological examination. After bleeding was controlled a single suture (3-0 silk) was given (figure 6).

OUTCOME AND FOLLOW-UP

Currently the patient is under follow-up.

DISCUSSION

PG is a relatively common, tumour-like, exuberant tissue response to localised irritation or trauma. Three-quarters of all oral PGs occur on the gingiva, with the lips, tongue and buccal mucosa also affected.

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In the present case, a lesion was found on palatal mucosa and showed a pedunculated LCH type of PG, which is an unusual presentation.

Aetiology

Though some investigators consider PG as a benign neoplasm, it is usually considered to be a reactive tumour-like lesion which arises in response to various stimuli such as chronic low-grade local irritation, trauma injury, hormonal factors or certain kind

Figure 5 Magnification ×10: H&E showing lobular masses of hyperplastic granulation tissue showing abundant capillaries.

Figure 6 Magnification $\times 40$: high-power photomicrograph showing active endothelial cell proliferation around new blood vessels.

of drugs.^{1 7-9} Approximately one-third of the lesions occur after trauma, so the history of trauma before the development of this lesion is not unusual, especially for extrajingival PGs.^{10 11} The aetiology of PG in this case can also be attributed to trauma elicited from lower central incisors over the palate because of the deep bite.

Epidemiology

Population studies have determined a prevalence rate of 1 lesion/25 000 adults. Although PG may occur in all age groups it is predominant in the second decade of young adult females, possibly because of the vascular effects of female hormones.^{1 7 12} Epivatianos *et al*,⁴ reported predominance in women (1 : 1.5). Some authors believe that patients are mostly males less than 18 years, females in the age range 18–39, and older patients with an equal gender distribution.¹⁰

CLINICAL PRESENTATION

Site predilection

PG shows a striking predilection for the gingiva accounting for 75% of all cases, where they are presumably caused by calculus or foreign material within the gingival crevice. The lips, tongue and buccal mucosa are the next common sites.^{1 12} Lesions are slightly more common on the maxillary gingiva than the mandibular gingiva; anteriors are frequently affected than posterior areas. Also, these lesions are much more common on the facial aspect of gingiva than the lingual aspect.¹ In the present case the lesion was located on the palatal gingiva, which is again relatively less commonly seen.

PGs of head and neck are uncommonly seen extrajingivally in areas of frequent trauma such as the lower lip, tongue, buccal mucosa and palate.^{13 14} Such lesions may resemble their gingival counterparts or can show atypical presentations.

Diagnosis

Although PG can be diagnosed clinically with considerable accuracy, radiographic and histopathological investigations aid in

confirming the diagnosis and planning the treatment. Radiologists are advised to rule out bony destruction suggestive of malignancy, or to identify a foreign body or sharp restorative margin that would need to be removed along with the lesion.¹⁵ Long-standing PGs, like other irritational hyperplasias can show dystrophic calcifications. The radiographic appearances of such calcifications vary from barely perceptible, fine grains of radiopacities to larger, irregular radiopaque particles that rarely exceed 0.5 cm in diameter.¹⁶

Such atypical presentations, like the present case in discussion can be rather confusing, and can lead to erroneous diagnoses of some serious lesions. These include squamous cell carcinoma, basal cell carcinoma, keratoacanthoma, kaposi's sarcoma, AIDS-related complex, amelanotic melanoma, acrolentiginous melanoma, nodular melanoma and metastatic carcinomas. Capillary haemangioma, bacillary angiomatosis, Spitz nevus, fibroma of mucosa, pigmented spindle cell tumour of Reed, nevocytic nevus, seborrheic keratosis, angiolymphoid hyperplasia with eosinophilia, furuncle, ecthyma contagiosum and verruca vulgaris are benign lesions that can be considered in the differential diagnosis. Peripheral giant cell granuloma and peripheral ossifying fibroma are two intraoral lesions that may look clinically similar to gingival PGs.¹³

All clinically suspected lesions must be biopsied to rule out more serious conditions as mentioned earlier. The pathology is distinct consisting of a matrix of oedematous connective tissue in which numerous thin-walled vascular channels can be seen. These vessels sometimes are organised in lobular aggregates, and some pathologists require this lobular arrangement for the diagnosis (lobular capillary haemangioma).¹ This histological picture can however be mistaken for other less-frequently occurring lesions like capillary haemangioma, epithelioid haemangioma or epithelial cell histiocytoma.^{1 14 17}

TREATMENT

Management of PG depends on the severity of symptoms. If the lesion is small, painless and free of bleeding, clinical observation and follow-up are advised.¹⁸ Other treatment modalities include conservative surgical excision (excisional biopsy) or recent protocols like laser surgery (Nd:YAG, flash lamp pulsed dye laser) and electrodesiccation.^{19 20} Injections of absolute 'ethanol', sodium tetradecyl sulfate (sclerotherapy) and corticosteroids have also been tried with successful results in cases with recurrent lesions.^{21 22}

Recurrence

Recurrence occurs in up to 16% of the lesions making follow-up necessary.²³ It is believed to result from incomplete excision, failure to remove aetiological factors or owing to a reinjury in the same area.⁷ Some recurrences manifest as multiple deep satellite nodules that surround the site of original lesion (Warner-Wilson Jones syndrome).²³ However, recurrence with extra gingival granulomas is uncommon.²⁴

Prevention consists of routine dental cleanings and home care. No complications are anticipated with a removal of this lesion other than the chance of a cosmetic mucosal defect. The prognosis is excellent, and the lesion usually does not recur unless inadequately removed. Focus patient education on better oral hygiene, and consider recommending pulsating mechanical toothbrushes with timers. These toothbrushes encourage better hygiene.

Learning points

- ▶ Although pyogenic granuloma can be diagnosed clinically with considerable accuracy, radiographic and histopathological investigations aid in confirming the diagnosis and planning the treatment.
- ▶ Radiologists are advised to rule out bony destruction suggestive of malignancy or to identify a foreign body or sharp restorative margin that would need to be removed with the lesion.
- ▶ All clinically suspected lesions must be biopsied to rule out more serious conditions.

Competing interests None.

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REFERENCES

- 1 Neville BW, Damm DD, Allen CM, et al. *Oral & maxillofacial pathology*. 2nd edn. Philadelphia: WB Saunders, 2002: 437–95.
- 2 Hüllihen SP. Case of aneurism by anastomosis of the superior maxillae. *Am J Dent Sc* 1844;4:160–2.
- 3 Hartzell MB. Granuloma pyogenicum. *J Cutan Dis Syph* 1904;22:520–5.
- 4 Epivatianos A, Antoniadis D, Zaraboukas T, et al. Pyogenic granuloma of the oral cavity; comparative study of its clinic pathological and immunohistological features. *Pathol Int* 2005;55:391–7.
- 5 Graham RM. Pyogenic granuloma: an unusual presentation. *Dent Update* 1996;26:240–1.
- 6 Bjork K, Hoede N, Korting GW, et al. *Diseases of the oral mucosa and the lips*. Philadelphia: WB Saunders, 1996:229–30.
- 7 Regezi JA, Sciubba JJ, Jordan RCK. *Oral pathology: clinical pathological considerations*. 4th edn. Philadelphia: WB Saunders, 2003 115–16.
- 8 Mussalli NG, Hopps RM, Jhonson NW. Oral pyogenic granuloma as a complication of pregnancy and the use of hormonal contraceptives. *Int J Gynaecol Obstet* 1976;14:187–91.
- 9 Miller RA, Ross JB, Martin J. Multiple granulation tissue lesions occurring in isotretinoin treatment of acne vulgaris—successful response to topical corticosteroid therapy. *J Am Acad Dermatol* 1985;12:888–9.
- 10 Pilch BZ. *Head and neck surgical pathology*. Philadelphia: Lippincott Williams and Wilkins, 2001:389–90.
- 11 Macleod RI, Soames JV. Epulides: a clinico pathological study of a series of 200 consecutive lesions. *Br Dent J* 1987;163:51–3.
- 12 Eversole LR. *Clinical outline of oral pathology: diagnosis and treatment*. 3rd edn. Hamilton: BC Decker, 2002:113–14.
- 13 Laskaris G. *Colour atlas of oral diseases*, 4th edn. New York: Thieme Publishers, 1997:400–1.
- 14 Sapp JP, Eversole LR, Wysocki GP. *Contemporary oral and maxillofacial pathology*, 2nd edn. Mosby: Missouri, 2004:318–19.
- 15 Marx RE, Stem D. *Oral and maxillofacial pathology—a rationale for diagnosis and treatment*. Chicago: Quintessence publishing Co, Inc, 2003:21–3.
- 16 White SC, Pharoah MJ. *Oral radiology principles and interpretation*. 5th edn. Mosby: Missouri, 2004:598.
- 17 Wood NK, Goaz PW. *Differential diagnosis of oral and maxillofacial lesions*, 5th edn. Mosby: Missouri, 1997:549–50.
- 18 Sills ES, Zegarelli DJ, Hoschander MM, et al. Clinical diagnosis and management of hormonally responsive oral pregnancy tumor. *J Reprod Med* 1996;41:467–70.
- 19 White JM, Chaudhry SI, Kudler JJ, et al. Nd: Yag and CO₂ laser therapy of oral mucosal lesions. *J Clin Laser Med Surg* 1998;16:299–304.
- 20 Ishida CE, Ramos-E-Silva M. Cryosurgery in oral lesions. *Int J Dermatol* 1998;37:283–5.
- 21 Ichimaya M, Yoshikawa Y, Hamamoto Y, et al. Successful treatment of pyogenic granuloma with absolute alcohol. *J Dermatol* 2004;31:342–4.
- 22 Moon SE, Hwang EJ, Cho KH. Treatment of pyogenic granuloma by sodium tetradecyl sulphate sclerotherapy. *Arch Dermatol* 2005;141:644–6.
- 23 Taira JW, Hill TL, Everett MA. Lobular capillary hemangioma with satellitosis. *J Am Acad Dermatol* 1992;27:297–300.
- 24 Vilmann A, Vilmann P, Vilmann H. Pyogenic granuloma: evaluation of oral conditions. *Br J Oral Maxillofac Surg* 1986;24:376–82.

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