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Original Article

Oral pyogenic granuloma in Ghanaians: a review of cases

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ABSTRACT

Background: Pyogenic granulomas, when presented late, can sometimes pose diagnostic challenge due to their remarkably large sizes. There has been no known published data among Ghanaians on this subject. **Aim:** To determine the clinical, demographic, pathological features and management of oral pyogenic granuloma in a Ghanaian population. **Methods:** A retrospective study of records of 108 patients treated at the Korle Bu Teaching Hospital for histologically confirmed pyogenic granuloma between 1998 and 2010. **Results:** The male-to-female ratio was 1:1.16. The mean age was 31.2 years with a range of 9 months to 71 years. The peak age group was 11-20 years (23%). The Commonest site was the gingiva (58.33%), with a higher prevalence in the upper jaw, (42.59%). Other sites included the lips (18.52%), buccal mucosa (10.19%) and tongue (8.26%). Majority presented late with symptoms such as bleeding, ulceration, infection and pain. In 58% of cases the lesions were pedunculated while in 42% they were sessile. Their consistencies ranged from soft and mobile to firm and rigid, with red surfaces. Their sizes ranged from a few millimetres to about 8 centimetres with a mean of 5.8 centimetres. They were treated by complete excision and no recurrences were noted in the few patients followed up. **Conclusion**: The clinical features found in this study were mostly similar to those in other studies. Most cases presented late, however, with remarkably larger sizes than generally reported from most other regions, and needed biopsy to conclude diagnosis. Simple surgical excision was used successfully in treating all cases.

Key words: Pyogenic, granuloma, sessile, pedunculated, oral, Ghana

INTRODUCTION

Pyogenic granuloma (PG) or granuloma pyogenicum is a common tumour-like growth of the oral cavity or skin that is considered to be of non-neoplastic in nature, arising commonly as a result of constant low grade trauma and poor oral hygiene and in a few instances because of hormonal disturbances.[1,2]

The term is an absolute misnomer contrary to what the name implies, as the lesion does not contain pus and strictly speaking not a granuloma.[3, 4] It was initially thought to be a mycotic infection contracted from horses to human.[3]

Clinical behaviour and appearance of the lesion depend upon the duration of the lesion.[4] They are usually highly vascular in the early stage,

consisting of hyperplastic granulation tissue, and over time they exhibit more collagenisation.[4] PG may present as a sessile or pedunculated, firm or soft, erythematous, exophytic and or painful papule or nodule with a smooth or lobulated surface that bleeds easily.[4,5] The gingiva is the most commonly affected site by PGs, accounting for 75% of all cases in some reports,[6] although occurrence of these lesions on the lips, tongue, oral mucosa, palate and fingers[7,8] has also been reported. A higher frequency of PG is observed in the second decade of life,[1] especially among women, probably because of the vascular effects of female hormones.[7] A preference for children has been reported by some investigators.[6]

Microscopically, PG is characterized by marked vascular proliferation amidst granulation tissue and chronic inflammatory infiltrate [1]. When ulcerated, the surface of the lesion is covered with fibrin.[1,9] Older lesions may present with areas of fibrosis.[9] In view of its clinical characteristics, the differential diagnosis of PG includes peripheral giant cell granuloma, peripheral ossifying fibroma, metastases of malignant tumours, haemangioma, conventional granulation tissue, fistula, inflammatory gingival hyperplasia, Kaposi's sarcoma, angiosarcoma, non-Hodgkin's lymphoma[6] and cutaneous horn in the lower lip.[9] The final diagnosis depends on biopsy.[7] As PG is benign, knowledge of its clinical characteristics and how to differentiate it from other sinister conditions that it may mimic is very important for all clinicians who work in this area. Surgical excision is the most common treatment,[10] but this may result in scars,[11] which is why the use of more conservative treatments, such as cryosurgery[4,13] and laser surgery, electro cautery is preferred.[3,10] The recurrence is about 3% after simple excision.[14]

Pyogenic granulomas are benign tumour-like lesions commonly encountered, but when presented late, especially when infected, they can pose diagnostic challenges by mimicking more sinister lesions, due to their remarkably large sizes.[4] Knowledge of their clinical features and demographics is essential for all heath personnel who encounter this lesion. We present a study carried out on patients with oral pyogenic granuloma, seen in a tertiary institution over a 22 year period. This is the first study of the condition carried out on any group of Ghanaians to the best of our knowledge.

METHODOLOGY

We retrieved the clinical records and pathologic charts of 108 patients with oral swellings which had been histologically confirmed as pyogenic granuloma in the period between 1998 and 2010 (22 years). They had all been seen and treated at the oral and maxillofacial unit of the Korle Bu Teaching hospital, Accra.

Statistical analysis

The data was cleaned and analysis was carried out on socio-demographic data, site of lesion, predisposing factors, clinical features, diagnosis, management, and recurrence using Microsoft Excel.

RESULTS

Incidence: Over the study period, 1823 oral lesions were presented to the Pathology Department from the oral and maxillofacial department. Of these 108 were diagnosed histologically as pyogenic granuloma, giving an incidence rate of 5.92%.

Age and sex: The youngest age of the patients at the time of presentation was 9 months and the oldest was 71 years; with a mean of 31.2 years. The mean age was 35.19 years for female patients, and 27.84 years for male. An incidence of 84.26% was seen in patients 50 years and below with a peak incidence of 23% observed in the 11-20 year-age group, (Table 1). The lesion occurred less frequently in males than in females, with a male-to-female ratio of 1: 1.16 (Figure 1).

Table 1: Distribution of oral pyogenic granuloma by sex and age group in the study sample.

Age	Female	Male	Total (%)
0 - 10	9	4	13(12.04)
11 – 20	18	7	25(23.15)
21 -30	9	13	22(20.37)
31 – 40	11	5	16(14.81)
41 – 50	4	11	15(13.89)
51 – 60	0	6	6 (5.56)
61 – 70	7	2	9 (8.33)
71 – 80	0	2	2 (1.85)
All Ages	58(53.70)	50(46.30)	108(100)

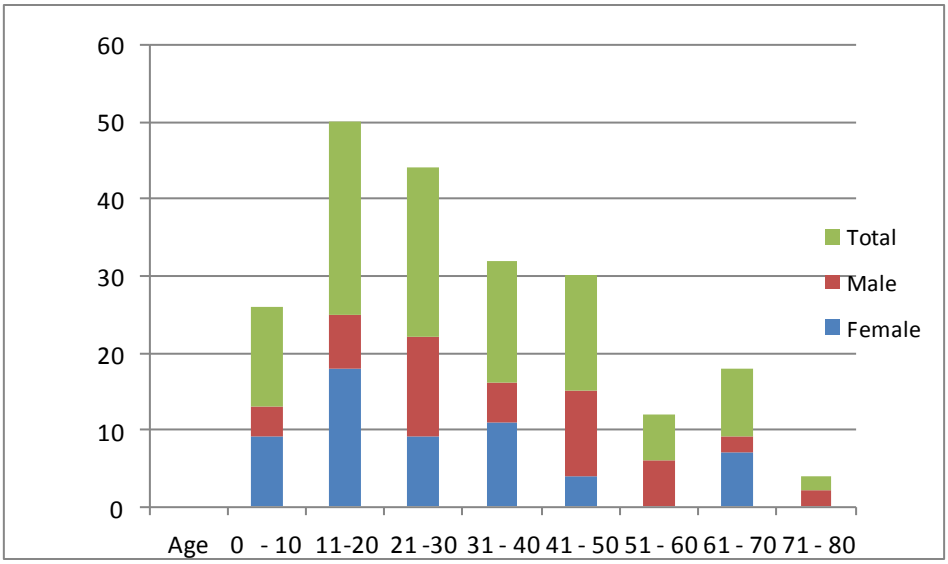

Figure 1: Gender distribution of oral pyogenic granuloma across different age groups in the study.

Site: Gingiva was the most frequently involved site in both jaws, n=63 (58.33%), with a higher prevalence, n=46, (42.59%), in the upper jaw. Other sites of occurrence included the lips, N=20, (18.52%), buccal mucosa (10.19%) and tongue (8.26%)(Table 2). In five cases (4.63%) the precise location on the oral mucosa was not specified. Among the 63 lesions involving the gum, 49 (77.78%) of them occurred in the anterior region involving the gingiva between the premolars, and 14 (22.22%) in gingiva posterior to the second premolars (Table 2).

Table 2: Distribution of oral pyogenic granuloma by site and age group in the study sample.

Age	Buccal Mucosa	Lower Lip	Upper Lip	Tongue	upper gingiva	lower gingiva	UOM*	Total (%)
0 - 10	0	2	1	1	5	2	2	13(12.04)
II - 20	3	6	0	1	9	6	0	25(23.15)
21 -30	5	3	1	1	8	2	2	22(20.37)
31 - 40	2	3	1	1	6	3	0	16(14.81)
41 - 50	1	2	0	2	7	2	1	15(13.89)
51 - 60	0	0	0	1	5	0	0	6(5.56)
61 - 70	0	0	1	1	5	2	0	9(8.33)
71 - 80	0	0	0	1	1	0	0	2(1.85)
	11(10.9)	16(14.84)	49(3.72)	9(8.26)	46(42.59)	17(15.77)	5(4.63)	108(100)

* UOM = Unidentified Oral Mucosa.

Clinical features: The lesions were described as pedunculated in the majority of cases (58%) and sessile in the rest (42%). Description of their Consistencies ranged from soft and mobile to firm and rigid, with red surfaces. The sizes ranged in their widest diameter from a few millimetres to about 8 centimetres with a mean size of 5.8 centimetres across their widest diameters. The majority of cases presented quite late, being first noticed at least 2 years before presentation, with symptoms such as bleeding, ulcerations resulting from trauma to their surfaces from opposing teeth during attempts to masticate, with subsequent superimposed infection and accompanying pain. Other symptoms in this category of cases included partial extrusion from the oral cavity, facial asymmetry, and interference with function such as speech and swallowing (Figure 2).

Figure 2: Unusually large pedunculated buccal oral pyogenic granuloma in a 53-year old female patient.

Histopathology: There was similar reporting in all cases, consisting of marked vascular proliferation amidst immature fibroblastic connective tissue, granulation tissue and chronic inflammatory infiltrate (Figure 3).

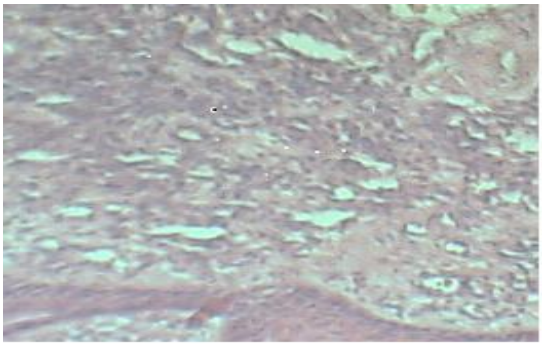

Figure 3: Photomicrograph of oral pyogenic granuloma (H&E x 400) showing vascular proliferation amidst immature fibroblastic connective tissue, granulation tissue and chronic inflammatory infiltrate.

Treatment: All cases were completely excised using general or local anaesthesia, depending mainly upon the size of lesion and also on the age and level of cooperation of the patient. Attempt was made in all cases to remove the lesion from the base, and in cases directly overlying bone, curettage was carried out after excision and the wound surface dressed with ribbon gauze impregnated with Bismuth, Iodoform, paraffin Paste (B.I.P.P.). Analgesics and antibiotics were routinely administered post operatively for pain control and prophylaxis against infection, respectively. Wound healing was largely satisfactory and uneventful.

Recurrence: Review in this series was sporadic and no known case of recurrence was noted in the patients who returned for follow-up.

DISCUSSION

Pyogenic granuloma is a benign tumour-like lesion which occurs quite frequently in the oral cavity.[1] When seen early, conservative measures often suffice in terms of cure. However, when seen late, the gross nature of the pathology may offer a challenge to the clinician as the diagnosis may not be straight forward and a biopsy may be essential to complete investigations.

This is the first study carried out on any group of Ghanaians, and the largest reported from the West African sub region to the best of our knowledge. The characteristics of the lesions in this study share most of the features of previously reported series in Africa [15] and elsewhere.[4, 9] Over the period of study, spanning 22 years, only 108 of 1823 biopsied oral lesions, were pyogenic granuloma, thus giving an incidence rate of 5.92%. This is similar to the 4.8% and 7% incidence rates reported in Iran, [16] and Nigeria,[15] respectively, and tends to suggest that the lesion is not very common. It must however be born in mind that most of the lesions in this study were very large growths, and it is possible that some patients with small lesions may have been treated in other clinics without any need for referrals, or as mentioned in other reports.[17,18] Some patients do not usually present for treatment at the hospitals unless their lesions become large with accompanying symptoms that are uncomfortable to deal with.

We found that the peak incidence (23%) was in the second decade, thus, confirming similar findings in most other studies.[9,15,16,19,21] Pyogenic granuloma occurred in all ages and sexes in this study. The age at first presentation was between 9 months to 71 years, with a mean of 31.2 years. This is very similar to the mean ages of 30 and 33 years recorded in Jordan [19] and Nigeria[15] respectively, and to many from other regions.[4,9,10] Although this lesion occurs in both sexes, in most reports it tends to occur more often in females than in males.[15,16.19,20,21] This was the case in this study as well. Oral pyogenic granuloma occurred slightly more in females with a ratio of 1.17. The mean age for females (35.19 years) was also higher than that of males (27.84 years), confirming Lawoyin's finding of 38 years and 28 years for females and males respectively.[15]

The most preferred location for pyogenic granuloma in this series was the gingiva, with a total of 63 cases or 58.33% occurring in the gingiva in both jaws (Table2). This has been the finding in several other reports.[7-10] The aetiology of pyogenic granuloma is unknown. Precipitating factors however include trauma, calculus deposits from poor oral hygiene and non-appropriate dental restorations. Chronic irritation may evoke an exaggerated proliferative response of connective tissue resulting in the angiogenesis and formation of pyogenic granulomas.[15,16] This phenomenon could play a major part in explaining the higher occurrence of this lesion in the gingiva, giving the proximity of these precipitating factors to the gingiva.

The clinico-pathological features of pyogenic granuloma in this study largely duplicate those of previous studies from other regions.[5,15,16] Most cases were however unusually larger (figure 2) and symptomatic, mainly due to late presentation. Symptoms such as bleeding, pain, infection and functional disability in terms of mastication were rampant. Occlussal interference was evidenced in some cases by the presence of indentations, often with ulcerations from opposing teeth.

Several treatment methods such as using, injection of absolute ethanol, [11] 1,064-nm laser followed by glycerine sclerotherapy [12] and using laser diode [22] have been proposed in the literature. No such treatment method was employed in this series. Despite the very large sizes encountered in some cases, treatment in all cases was by employing surgical excision under either local or general anaesthesia uneventfully. Though follow-up was sporadic, with only a few patients keeping their appointments, there was no note of any recurrence.

Conclusion: The clinical features of oral pyogenic granuloma found in this study were mostly similar to those in other studies. Most cases presented late, however, with remarkably larger sizes than generally reported from most other regions and needed biopsy to eliminate seemingly more sinister lesions and establish diagnosis. Treatment in all cases was by complete surgical excision with satisfactory outcome.

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