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CASE STUDY

Pyogenic Granuloma

[a]Gabriel Ebagu Njeze, [b]Wilson Onuigbo
[a]Chief Medical Director and Consultant Surgeon, Enugu State University of Technology Teaching Hospital, Park Lane, Enugu
[b]Professor of Pathology, Medical Foundation & Clinic, 8 Nsukka Lane, Enugu
Email: iheanaeboagu@yahoo.com

ABSTRACT
A retrospective review of pyogenic granuloma specimens seen over a 29 year period from i.e., 1971-2000 was carried out. Forty four patients comprising 24 males and 20 females a ratio of 6:5 were recorded. The mean age of these patients was 33.9 years range (7.5-63 years). This disorder affected mainly patients in their third and forth decades (47%). The lower limb was the commonest site especially the big toe. Apart from the thorax and perineum all other regions of the body were afflicted. Referring clinicians entertained several diagnoses. Some of the lesions grew so fast that a diagnosis of malignant disorder was entertained. Four patients had erroneous amputation of their toes as a consequence. The main treatment was excision and repair. A plea is made for biopsy of cases suspected to be pyogenic granuloma to exclude a malignant disorder, and to have a basis for proper treatment. In addition, the patients with fungating lesions should be screened for HIV.
Key words: *Pyogenic granuloma, lobular capillary haemangioma, skin, biopsy, malignancy*

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INTRODUCTION

This term pyogenic granuloma (PG) is thought to be a misnomer, because the lesion is unrelated to infection and in reality arises in response to various stimuli such as low-grade local irritation, traumatic injury or hormonal factors [1].Although it is a common disease in the skin, it is extremely rare in the gastrointestinal tract, except for the oral cavity [2] where it is often found on keratinized tissue [3]. It is also known to occur on the conjunctiva [4].PG is considered to be non-neoplastic in nature but concerns about bleeding and suspicion of malignancy cause early attention to the lesion [5,6].There are two kinds of PG namely lobular capillary haemangioma (LCH type) and non-LCH type, which differ in their histological features [7].

The incidence of oral PG in pregnant women is said to be high and as such there is the critical need for its proper diagnosis. It predominantly occurs in the second decade of life in young females, possibly because of the vascular effects of female hormones [1]. In infancy and childhood, PG is also a common vascular lesion of skin and mucous membranes and when seen early, it is a solitary, bright red papule [8]. The lesion grows rapidly, erupting through the skin, forming a stalk or pedicle. Epidermal breakdown, crusting, and bleeding usually initiate the first visit to a physician. The bleeding is episodic, copious, and often refractory to pressure, cautery, and caustics. Repeated visits to the emergency room for temporary control of bleeding are therefore common [8].

METHODS

Since 1970, the lead author (WIBO) had run a Reference Histopathology Unit at Enugu, Eastern Region of Nigeria. This facilitated the documentation of all patients whose surgical specimens were submitted. Accordingly, the accumulated data have been analysed with reference to those diagnosed as pyogenic granuloma based on the histological characteristics seen on the slides. The age, sex, town, site of lesion, clinical diagnosis, duration of symptoms and treatment given were studied.

RESULTS

Forty four patients, comprising 24 males and 20 females, (ratio 6:5) affected by this lesion from 1971-2000, a period of 29 years were analysed. The mean age of the patients was 33.9 years (range7.5-63 years). PG affected mainly patients in the third and fourth decades (Table 1). The lower limb was the commonest site especially the big toe and foot, followed by the head and neck. Apart from the thorax and perineum, every region of the body was affected (Table II). Trauma was stated clearly as preceding PG in 15 patients (34%), while infections were described in three patients (6.8%). Apart from PG as the clinical diagnosis, other diagnoses entertained by the referring clinicians were malignant melanoma, polyps including the aural and nasal varieties, papilloma, granuloma, Kaposi sarcoma, squamous cell carcinoma, verruca pyogenicum, exostosis, epulis, wart, haemangioma, keloid, carbuncle, fibroma, osteomyelitis, ulcer and unclassified tumor.

While most of the patients presented in hospital within three months, only five patients came to hospital after six months of seeing the lesion. Whereas many patients had painless growth, 14 (31.8%) complained of bleeding on touch and five (11.3%) had painful outgrowth. Touching was caused either by pain or itching. One person who had PG in the ear complained of hearing loss in that ear. Three patients presented with fungating lesions.

These specimens came from patients residing in different states of South East Nigeria; 31 were sent by doctors in Enugu, four from Ebonyi sate, three were each sent from Anambra and Imo states, and two from Abia state. Some of the doctors noted the lesion grew very fast raising the fear of malignancy. Three (6.8%) specimens sent were amputated big toes, while another was a fourth toe because of a clinical diagnosis of malignant melanoma. Excision and skin closure was the main mode of treatment.

DISCUSSION

Analysis of 44 patients with PG seen over 29 years is presented. There was a slight male preponderance i.e. a ratio of 6:5. Pyogenic granuloma is usually a small red, oozing and bleeding bump that often seems to follows a minor injury, and grows rapidly over a period of a few weeks. The head, neck, upper trunk and hands and feet are the most commonly affected sites [8] and our findings agree with that. Pyogenic granuloma occurs in all age groups and although they may eventually regress, removal of unsightly, bleeding or uncomfortably positioned lesions is usually sought before this takes place [9]. We recorded PG in all age groups but 47% occurred between 21-40 years (Table 1).

Fourteen of the present patients had PG on the big toe while 11 had it on different areas of the sole of the foot. These are areas of the body that are easily susceptible to trauma, especially for those who walk about with bare feet. The big toe with the nail easily suffers blunt collision injury, because of its projection compared to other toes while the sole is injured when it steps on sharp objects. The high frequency of PG around nails can easily be attributed to the high frequency of trauma and/or inflammation of the periungual tissues and high vascularity of the nail unit [9]. Tissue injury may trigger pathologic angiogenesis driven by FLT4, a tyrosine-kinase receptor, and the nitric acid pathway [10]. Pyogenic granuloma, an impaired wound healing process, is linked to vascular growth driven by FLT4 and the nitric oxide pathway.

Antiretrovirals have also been associated with the development of pyogenic granulomas, predominantly of the great toes. However none of the patients in this study was known to be taking antiretroviral drugs [11]. One of the patients had PG of the big toe secondary to in growing toenail and the associated infection. When PG is single, especially if it involves the nail bed, histological examination is necessary to rule out malignant melanoma [12].

Pyogenic granulomas are always benign growths. Still there is always a concern that they could be cancerous, and rarely a cancer like the amelanotic melanoma can mimic pyogenic granuloma [13].Ideally a sample should be obtained for biopsy analysis. Without this, patients can have erroneous and mutilating surgical operations. Four patients (9%)in this study had amputation of their digits from the onset of treatment because they were thought to be melanomas. In another report, a patient who had PG of the conjunctiva underwent an unnecessary enucleation of the eye because it was mistaken for squamous cell carcinoma [14]. PGs is known to occur anywhere on the integument including the external genitalia [15]. This is demonstrated by patients in this study, as one had this lesion on the abdomen, another on the knee and yet a third on the upper end of the leg, on a sature line. Elsewhere [16] there had been a report of a frightening giant fungating growth, on left thigh, which turned out on histological examination to be a pyogenic granuloma.The patient was HIV positive, and therefore was described as another rare manifestation of HIV infection. The issue of fungation noted also in three of our patients brings up the issue of infection in the pathogenesis of PG. Although infection as an aetiologic agent is not proven with certainty, some workers have suggested that PG may be caused by *Bartonella* spp [17].

The distal extremities (especially the fingers) have been described as sites of predilection for pyogenic granuloma [15]. Three patients (6.8%) presented, had PG on the fingers and another on the palm. Since acute and chronic trauma is considered aetiologic, it is easily understandable why the palm and fingers are sites of predilection for PG. The hand is used for work and sports and is constantly injured.Although amelanotic melanoma may have a similar appearance, it is known that there can be rapid spontaneous resolution of this PG of the fingers, and such resolution is not consistent with a malignant condition [18]. In the head and neck region which are also sites of predilection [8], PGs were recorded at four sites i.e., on the ear, lips, gum, nose and occiput[Table 2]. The patient with the ear lesion presented with a polypoid lesion and hearing loss, while the patient with the gingival lesion had pain and bleeding while chewing food. Mucosal and cutaneous PG appear to be etiologically different. Many believe that mucosal PGs, which have a higher female preponderance, are causally related to estrogens, while cutaneous PGs are not [19]. Estrogens and other hormones appear to exaggerate the inflammatory responses of gingival tissue like minor trauma from the use of tooth brush.

Table 1. Age of PG Patients

Age	
1—10	3
11—20	8
21—30	9
31—40	12
41—50	1
51—60	10
61—70	1
Total	**44**

Table 2. Affected Part By PG

Site	
Palm	1
Lip	2
Gum	1
Toe	14
Foot	11
Leg	2
Ear	1
Nose	1
Abdomen	1
Foot (unspecified)	3
Knee	1
Occiput	1
Finger	3
Cheek	1
Other toes	2

Table 3. Clinical Diagnosis of PG

Clinical diagnosis	
Melanoma	4
Polyp tumor { Nose	1
Ear	1
Foot	1
Epulis	1
Ulcer	2
Keloid	1
Exostosis	1
Wart	2
Squmous cell carcinoma	1
Kaposi sarcoma	1
Pyogenic granuloma	10
Carbuncle	1
Pedunculated papilloma	1
Ingrowing toe nail	1
Fibroma	1
Tumor	1

In conclusion, it is important to biopsy all pyogenic granulomas to exclude malignancy and undertake a retroviral screening as some of these are now known to be unexpected manifestations of HIV infections.

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