

Multiple disseminated pyogenic granuloma post oil burning-review literature

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Abstract

Pyogenic granuloma (PG) is a common acquired vascular tumor and may appear mostly as a solitary lesions. Multiple disseminated PGs are a very rare form and mostly are seen after traumas such as burn. We presented a new case with multiple PGs secondary to scald burn due to oil.

Key Clinical Message

Pyogenic granuloma (PG) is a common acquired vascular tumor and may appear mostly as a solitary lesions. Multiple disseminated PG is a very rare form and mostly are seen after traumas such as burn.

Introduction

Pyogenic granuloma (PG), or lobular capillary hemangioma, is a common acquired proliferative vascular lesion of the skin and mucous membrane that may appear throughout childhood and adulthood. They occur most often on the face and distal extremities as a solitary, red nodule. PG has a pliable surface and

bleed easily.[1-3] While etiology of PG is unclear, trauma, infections, female sex hormones, viral oncogenes, microscopic arteriovenous anastomosing, and growth factors are considered as etiologic factors.[4] There have been several reports of solitary PG after trauma and multiple disseminated PGs are a very rare form of PG and generally seen after traumas such as burns. We presented a patient with multiple PGs developed after third-degree scald burn due to oil, and this is the first report of disseminated PG post-oil burning. We also reviewed the literature and found 25 other cases that

mostly caused by milk burning.[4,5-18]

Case Report

A 30-year-old woman was referred to our department (Al Zahra Hospital; Referral Center for Treatment of Skin Diseases). The patient had 60% body surface third-degree burn due to oil 4 weeks before. She was treated using daily dressing with silver sulfadiazine and intravenous antibiotic in a burn care

center (Imam Musa Kazim hospital), and the burned skin in her thigh was successfully repaired with

full-thickness skin graft from the left forearm origin. During this period, 24 days after the burn injury,

multiple papillomatosis and nodular lesions appeared periphery of the burn site and also around the donor site on her forearm [Figure 1]. The lesions grew and bled easily.

Laboratory investigation including complete blood count, liver, and renal function tests was within normal range. HIV and human T-lymphotropic virus serology were negative. Blood and fresh tissue cultures for

Bartonella spp. were negative. Histopathology examination showed hyperkeratosis, dermal edema, intense inflammatory cell infiltration (mostly lymphocytes and plasma cells), and bloody vessel proliferation [Figure 2,3].

The pathological features of this biopsy consisted with the clinical diagnosis of PG. Besides conservative treatment such as daily dressing and antibiotic, the excision of the lesions followed by electrosurgery of the base under local anesthesia was planned for her treatment and performed in the primary local facility. There was no evidence of recurrence 6 months later.

Discussion

PG is a common acquired vascular tumor that is more common in the pediatric age group. The lesions present as rapidly growing papulonodules that are extremely friable, frequently ulcerate, and may bleed profusely with minor trauma. They appear mostly on the face, trunk, and distal extremities. While the etiology of PG remains unclear, the possible predisposing factors that affect the pathogenesis include trauma, infections, elevated female sex hormones level, viral oncogenesis, microscopic arteries venous anastomosis, and growth factors.[1-4]. PG of different sizes occurs often as single lesions and multiple disseminated lesions are a rare form of PG, and in general, burns and widespread traumas may play a role in this form of PG. PG develops over the burned area between 1 and 4 weeks following burns and may be infected with bacteria and fungi. As in other cases in the literature in English, there were 25 cases of disseminated PG following burn from 1978 to 2020.[4-18]

The cases occurred approximately between 1 and 4 weeks following burning mostly secondary to milk (nine cases), nine cases of scald burn, one case provoked by hot water, and four thermal burns or flames and two cases are not mentioned. Surprisingly, in our patient, the etiology was oil. In a majority of cases, the lesions developed following the second-degree burn [Table 1]. Differential diagnosis includes amelanotic melanoma, squamous cell carcinoma, angiosarcoma, Kaposi sarcoma, hemangioma, bacillary angiomatosis, metastatic visceral malignancies, and granulation tissue.

[14] These entities were ruled out both by clinical findings, histopathological studies, and/or microbiological cultures. Conservative treatment including wound management and antibiotic could be chosen first, especially when large PG is on the face or other important areas of the body. As PG can involve the reticular dermis, pulse dye lasers, cauterization, and shave excision may not be able to reach the entire PG, and these methods of treatment have a recurrence rate of 43.5%.[20]

In our patient, the lesions were surgically excised and followed by electrosurgery of the base, and no occurrence was observed during 6 months. On a basic scale level, we think that the burn etiology

and not the burn injury itself is important because all similar cases have the same etiology that may not be a coincidence, and milk proteins might cause the development of PG; to the best of our knowledge, the most probable etiology is not a trauma or infection itself, but an idiosyncratic response to previous insults with the accompanying release of various proliferative and growth factors such as endothelial growth factor, fibroblast growth factor, and interleukin 1 B may play a role.[10,20]

Oil burning is reported in our case as a cause of disseminated PG for the first time so more research focusing on the etiology is needed, and the reasons why every trauma could not cause PG and why the same patient could not develop PG at later trauma are unclear.

Declaration of patient consent The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and

due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest

None declared

Author Contribution

Medical care, material preparation and data collection were performed by the authors. The first draft of the manuscript was written by Minoo Jelvan and all authors commented on previous versions of the manuscript. Parvin Rajabi provided pathological photographs and interpreted pathological data.

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Figure 1: The appearance of multiple pyogenic granuloma on patient’s forearm, 4 weeks after burn injury

Figure 2 : Histopathologic examination showed small capillaries with variable luminal diameters in an edematous stroma with scattered inflammatory cells, H&E (40x)

Figure 3 : Histopathologic examination showed small capillaries with variable luminal diameters in an edematous stroma with scattered inflammatory cells, H&E (100x)

	Age/ sex	Causing agent	Degree of burn
De kaminsky et al. / Argentina 1978 [5]	15 months /F	Boiling milk	Second
Momeni et al. / Iran/ 1995 [6]	1-5 years/M 5 years /F 35 years/F	Boiling milk	Second
Ceyhan et al. /Turkey/ 1997 [7]	18 months/ F	Boling Milk	Second
Liao et al. / China/ 2006 [8]	41 years/ M 19 years /M	Scald	Second
Aliğağoğlu et al. / Turkey/ 2006 [9]	5 years/F	Not mentioned	Second
Bozkurt et al. / Turkey 2006 [10]	2 years/ M	Boling milk	Second
Diallo et al. / Senegal/2006 [11]	8 months/ M 13 months/ M 13 years/M	Thermal burn	Second
Ceyhan et al. / Turkey 2007 [6]	17 months/M	Hot water	Second
Ozbayoglu et al. / Turkey 2011 [12]	8 years/M	flame	Second
Shirol et al. /India/2012 [13]	42 years/F	Not mentioned	Second
Durgun et al. /Turkey/2013 [14]	18 months/F 7 years/M	Hot milk	Second
Zhao et al. /China/2015/[15]	Five cases ranging from 15 months to 4 years	Scalding burn	second
Dastgheib et al. /Iran/2016 [16]	12 years/M	Boiling milk	second
Xu et al. /China /2016[17]	4 years/F	Scalding burn	second
Ashk Torab et al./2018[18]	15 months/F	Scalding burn	second

Table 1. Reported pyogenic granuloma post burns



