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Review

Should pyogenic granulomas following burns be excised?

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ABSTRACT

Background: Patients with pygenic granuloma following burns (PGB) presents dramatic clinical features which are different from those with classic pyogenic granuloma. This review aims to discuss whether pyogenic granuloma following burns (PGB) need excision or not.
Methods: Using the PubMed, EMBASE, Cochrane Library and web of science databases. All articles which discussed diagnosis and treatment of pyogenic granuloma following burns with histological results were included from 1978 to 2013. Reports from meetings were not included. Only articles published in English were included.
Results: Twenty one articles excluded from a total of 32 studies. One study was excluded from the 11 descriptive studies because of typical histological results. The rest, 10 studies were case reports. Only one article was published in French, whose abstract was published in French and English. Patients with PGB presented six distinctive clinical features. First, all the patients had burns initially. The second, PGB acutely erupted between 1 and 4 weeks in patients' burned area, which may be infected by bacteria, fungus and virus. The fourth, PGB can be classified into proliferative and shrivelling stages. The fifth, three hisiological characteristics including hyperkeratosis or acanthosis, numerous newly formed proliferative vascular, edematous stroma with infiltration by plasma cells and lymphocytes. Finally, recurrence, 6 out of 16 patients with PGB involuted spontaneously with no recurrence. Three out of 16 patients were conservatively managed with no recurrence, neither patients (5) who had surgery and 2 patients treated with electro coagulation had recurrence.
Conclusions: PGB lesions are benign based on clinical features and histological examinations. The clinical process of PGB could be divided into proliferative and shrivelling stages. Conservative treatment including wound management and antibiotic could be chosen firstly, especially when large PGBs are on the face or other important area of one's body. When conservative treatment is ineffective, a surgery could be chosen.

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Contents

1. Clinical problem

Pyogenic granuloma (PG), or lobular capillary hemangioma, is a common acquired proliferative vascular lesion of the skin and mucous membranes that may appear throughout childhood and adulthood [1,2]. Several effective methods have been used to treat pyogenic granuloma. Full-thickness skin excision and primary closure have exhibited the highest reported rates of local control but have the disadvantage of linear scar formation [1]. Conservative measures, such as shave excision with cauterization and cauterization alone, are associated with recurrence rates exceeding 40 percent [1,2]. Although pyogenic granulomas can be treated with lasers or cryotherapy, these treatments involve less complications or side-effects [3–6]. To date, doctors remain unsatisfied with the results of these treatments for pyogenic granulomas.

Patients with pyogenic granulomas following burns (PGBs) present with different characteristics compared to those with classic pyogenic granulomas [7–16]. First, PGB patients experience an initial burn. Second, most PGBs erupt acutely between 1 and 4 weeks after the burn in the patient's burned area. Third, PGBs may be infected by bacteria, fungi and viruses. Fourth, PGBs can be classified into proliferating and shriveling stages. Fifth, PGBs have three main histological characteristics: hyperkeratosis, numerous newly formed proliferative vascularizations, and edematous stromata with inflammatory and plasma cells. Finally, different outcomes can be achieved. 37.5% (6/16) of patients' PGBs involuted spontaneously based on published reports. Patients with PGBs who received surgery or other treatments did not experience recurrences, depending on the published reports (Table 1) [7–16].

Thus, PGB has distinctive clinical and histological characteristics. Because the mental and physical health of patients with PGB can be seriously affected, doctors should devote more attention to treating these patients. However, the available evidence regarding the treatment of PGBs is controversial. Thus, we will review the etiology, diagnosis and treatment of PGB.

2. Selection of articles for inclusion in review

Using the PubMed, EMBASE, Cochrane Library and web of science databases. All articles which discussed diagnosis and treatment of pyogenic granuloma following burns with histological results were included from 1978 to 2013. Reports

Table 1 – General data on pygenic granuloma following burns.

First authors	Origin country	Published time	Cases	Age/gender (F/M)	Reason (burns)
De Kaminsky [7]	Argentina	1978 Apr	1	15 months/F	Boiling milk
Momeni [8]	Iran	1995 Oct	3	1.5 years/M	Boiling milk
				5 years/F	Boiling milk
				35 years/F	Boiling milk
Ceyhan [9]	Turkey	1997 May	1	18 months/F	Boiling milk
Liao [10]	China	2006 Jan	2	41 years/M	Scald
				19 years/M	Scald
Aliağaoğlu [11]	Turkey	2006 Feb	1	5 years/F	Not mentioned
Bozkurt M [12]	Turkey	2006 Mar	1	2 years/M	Boiling milk
Diallo [13]	Senegal	2006 Dec	3	8months/M	Thermal burn
				13months/M	Thermal burn
				13years/M	Thermal burn
Ceyhan [14]	Turkey	2007 Sep	1	17 months/M	Hot water
Shirol [15]	India	2012 Nov.	1	42years/F	Not mentioned
Durgun [16]	Turkey	2013 Apr	2	18months/F	Hot milk
				7years/M	Hot milk
Total			16	9/male:7/female	