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CASE REPORT

Granulomatous Periorificial Dermatitis in an Adult

A case report with review of literature

*Al-Mutasim Al-Qassabi,[1] Khalid Al-Busaidi,[2] Kaouthar Al Baccouche,[3] Abla Al Ismaili[4]

التهاب الجلد الورمي الحبيبي حول الفم في شخص بالغ

تقرير حالة مع مراجعة

المعتصم القصابي، خالد البوسعيدي، كوثر البكوش، عبلة الإسماعيلية

ABSTRACT: Granulomatous periorificial dermatitis (GPD) is a benign, self-limiting eruption that is considered a clinical variant of periorificial dermatitis, also known as perioral dermatitis. It presents primarily in prepubertal children as monomorphic scaly papules over perioral, paranasal and periorbital areas of the face with rare occurrence in adults. We report a 36-year-old Omani male patient who presented to the Dermatology Clinic at Bahla Polyclinic, Bahla, Oman, in 2018 with a papular eruption over his face for the previous six months. Based on clinical and histopathological findings the patient was diagnosed with GPD with sarcoid-like histology. He was treated effectively with oral doxycycline and topical metronidazole. This report provides a review of the literature on GPD and summarises all reported cases in adults to date.

Keywords: Perioral Dermatitis; Dermatitis; Granulomas; Case Report; Oman.

الملخص: التهاب الجلد الورمي الحبيبي حول الفوهة هو مرض حميد يشفى تلقائيا ويعتبر أحد الأشكال السريرية لداء التهاب الجلد حول الفوهة والذي يعرف أيضا بالتهاب الجلد حول الفم. يصيب غالبا الأطفال ما قبل سن البلوغ ويظهر على شكل حبوب متشابهة عليها طبقة من القشور في مناطق حول الفم والأنف والعين بالوجه مع ندرة حدوثه في البالغين. نعرض هنا حالة لذكر عماني عمره 36 سنة قدم إلى عيادة الجلد بمجمع بهلاء الصحي، عمان، في عام 2018 وهو يعاني من ثوران حطاطي في الوجه منذ ستة أشهر. بناء على النتائج السريرية و فحص الهيستوباثولوجيا تم تشخيصه بمرض التهاب الجلد الورمي الحبيبي حول الفوهة مع تغيرات شبيهه بالساركويد نسيجيا. تم علاج المريض بنجاح بإستخدام عقار الدوكسي سيكلين عن طريق الفم ومرهم ميترونيدازول. يقدم هذا التقرير مراجعة للأدبيات المتعلقة بالتهاب الجلد الورمي الحبيبي حول الفوهة ويلخص جميع الحالات المبلغ عنها في البالغين حتى الآن.

الكلمات المفتاحية: التهاب الجلد حول الفم؛ التهاب الجلد؛ أورام حبيبية روماتزمية؛ تقرير حالة؛ عمان.

Granulomatous periorificial dermatitis (GPD), also known as childhood granulomatous periorificial dermatitis (CGPD), is an uncommon, benign inflammatory skin disease that affects primarily dark-skinned prepubertal children; few cases have been reported in adults.[1–5] It is characterised by a monomorphic, skin-coloured to yellow-brown or red papular eruption around the mouth, nose and eyes that usually heals with no scarring. However, extra-facial lesions have been reported.[6] GPD shares many similarities with granulomatous rosacea (GR) and cutaneous sarcoidosis. Some authors consider it a variant of GR, while others suggest that it may be a variant of sarcoidosis.[7,8] This case report describes a rare case of GPD in an adult with sarcoid-like histology that was successfully treated with oral doxycycline and topical metronidazole. In addition, this report discusses controversies and distinguishing features of GPD from GR and sarcoidosis as well as a review of literature of all reported cases of GPD in adults.

Case report

A 36-year-old Omani male patient presented to the Dermatology Clinic at Bahla Polyclinic, Bahla, Oman, in 2018 with a papular eruption over his face for the previous six months. He reported no itching, burning sensation or facial redness. He had no known comorbidities and denied a history of fever, shortness of breath or other systemic complaints. In addition, he denied having used any topical or oral medications prior to the eruption. There was no recent history of travel and no abnormal environmental exposure. He was prescribed topical mometasone cream for two months and tacrolimus (0.1%) ointment for three months with partial response and recurrence once the treatment was discontinued.

Following the reoccurrence of the papular eruption, examination showed monomorphic scaly erythematous papules localised to the perioral, paranasal and periorbital areas of the face [Figure 1]. The vermilion border

[1]*Department of Dermatology, Bahla Hospital, Bahla, Oman;* [2]*Dermatology Program, Oman Medical Specialty Board, Muscat, Oman;* [3]*Department of Pathology, Khoula Hospital, Muscat, Oman;* [4]*Department of Dermatology, Al Nahdha Hospital, Muscat, Oman*

**Corresponding Author's e-mail: mhhh1414@gmail.com*

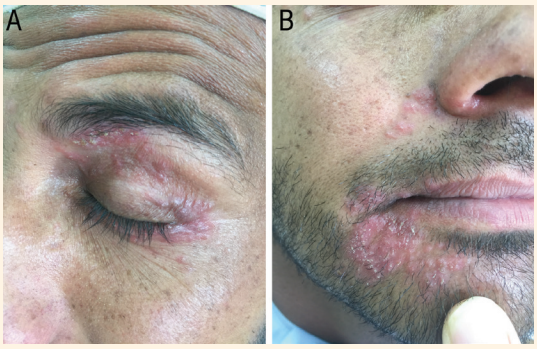

Figure 1: Photographs of the face of a 36-year-old male showing monomorphic erythematous scaly papules localised to (**A**) periorbital, (**B**) paranasal and perioral areas with involvement of vermilion border.

was involved. There was no facial erythema or telangiectasia. There were no other skin lesions and other orifices were not involved. The rest of the physical examination was unremarkable. The differential diagnoses included periorificial dermatitis, GR, cutaneous sarcoidosis and *lupus miliaris disseminatus faciei* (LMDF).

Laboratory investigations, including angiotensin converting enzyme (ACE) levels, were normal. The chest X-ray was also normal. A punch biopsy was taken from the area with erythematous papules and sent for histological investigation.

Histopathological examination of an erythematous papule showed non-caseating naked granulomas containing histiocytes, multinucleated giant cell of Langhans type and focally surrounded lymphocytes [Figure 2]. Periadnexal and perivascular lymphocytic infiltrate was also present. Stains for fungi (i.e. periodic acid–Schiff) and acid-fast bacilli (i.e. Ziehl-Neelsen and Wade-Fite) were negative.

As a result of the clinical and histopathological findings, the patient was diagnosed with GPD. The patient was treated with oral doxycycline (100 mg) once daily and topical metronidazole cream twice daily. He showed marked improvement after six weeks with complete resolution of the lesions without scarring after 12 weeks, after which treatments were stopped [Figure 3]. He had no recurrence on follow-up visits after three and six months.

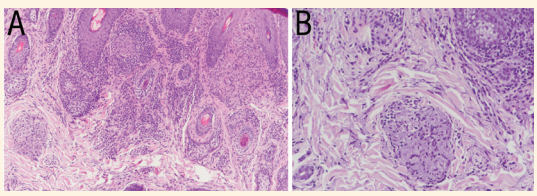

Figure 2: Haematoxylin and eosin stains at (**A**) x10 magnification showing non-caseating granulomatous inflammation with some naked granulomas and (**B**) at x40 magnification showing surrounding lymphocytic infiltrate.

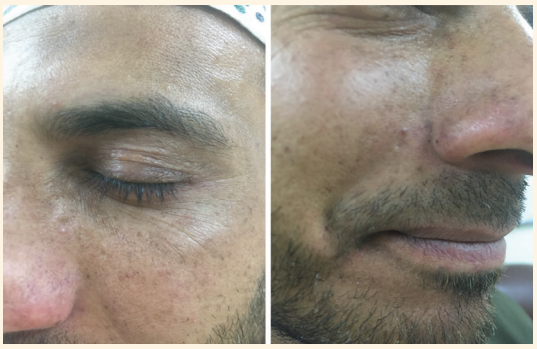

Figure 3: Photographs of the face of a 36-year-old male showing complete resolution after 12 weeks of treatment with oral doxycycline and metronidazole cream.

The patient gave consent for his images and clinical information to be reported in a journal. The authors explained that while the patient's name would not be published, complete anonymity could not be guaranteed.

Discussion

GPD is a well-recognised entity that affects commonly dark-skinned prepubertal children. While topical steroids are considered to be the most important and frequently reported pathogenic factor, other reported factors include cosmetic products, physical factors and microorganisms.[1,8–11]

GPD is a controversial disease as it shares many similarities with other granulomatous disorders such as GR and cutaneous sarcoidosis. GDP is distinguished from cutaneous sarcoidosis by the absence of systemic involvement and a self-limiting nature. Antony *et al.* reported a case of GPD that could be a variant of sarcoidosis with raised ACE levels and a chronic nature.[8] GR usually shows similar histology to GPD but it mainly affects the central face and may show classic signs of telangiectasia, oedema and erythema.[7] LMDF is distinguishable from GPD as it has a tendency to affect periorbital areas only, a presence of caseation on histology and resolution with scarring. Misago *et al.* reported a case of CGPD with similar features to LMDF suggesting that the term 'facial idiopathic granulomas with regressive evolution' should include both CGPD and LMDF.[12] Since GPD sometimes presents with eczematous features, seborrheic dermatitis is also an accepted differential diagnosis, but the latter usually involves other areas such as the eyebrows and scalp with a dramatic response to topical steroids and different histologic features without granulomas. Dermatoscopy may show additional features that aid in diagnosis.[13] Table 1 summarises the differential diagnoses with

Table 1: Differential diagnosis of granulomatous papules on the face[11,13–17]

Disease	Typical patient characteristics	Clinical features	Main dermoscopic features	Histopathological findings	Prognosis
GPD	• Prepubertal children • Rarely seen in adults	• Monomorphic, skin-coloured to yellow-brown or red papules confined to the periorificial areas of the face	• Not described	• Dermal non-caseating granulomas	• Spontaneous resolution without scarring
GR	• Middle-aged women	• Yellow-brown or pink papules on the cheeks, periorbital or perioral skin • Blushing, erythema or telangiectasia, may be seen	• Linear reddish or purple vessels arranged in a polygonal network (vascular polygons)	• Epithelioid granulomas adjacent to hair follicles • Caseation in 10% of the cases	• Chronic nature
Cutaneous sarcoidosis	• Any age and gender	• Non-inflammatory facial papules and nodules with systemic symptoms such as fatigue, weight loss, joint pain and pulmonary symptoms	• Structure-less, orangish areas and well-focused linear or branching vessels	• Naked, non-caseating granulomatous infiltration	• Chronic nature
LMDF	• Young adults	• Reddish-yellow or yellowish-brown papules on the central face and eyelids	• Follicular keratotic plugs and vascular structures	• Caseating granulomas	• Spontaneous resolution with scarring

GPD = granulomatous periorificial dermatitis; GR = granulomatous rosacea; LMDF = lupus miliaris disseminatus faciei.

Table 2: Summary of reported cases of granulomatous periorificial dermatitis in adults[1–5]

Author and year of publication	Age in years	Gender	Clinical presentation	Histopathological findings	Treatment (duration)
Chintagunta *et al.*[1] (2018)	34	Female	Well-defined erythematous to pigmented plaques associated with scaling involving the perioral, paranasal and glabella	Granulomatous inflammation in the dermis composed of lymphocytes, histiocytes, epitheliod cells and multinucleated giant cells	Oral doxycycline 100 mg OD + pimecrolimus 1% cream BID (3 months)
Vincenzi *et al.*[2] (2000)	19	Female	Numerous, flesh-coloured micropapular lesions involving the perioral and perinasal areas associated with a mild diffuse erythema and slight vesiculation	Numerous well-formed granulomas containing occasional multinucleated giant cells in the dermis	Oral clarithromycin 250 mg OD (6 weeks) then 125 mg OD (8 weeks)
Vincenzi *et al.*[2] (2000)	25	Female	Numerous red micropapules involving the nasal folds and the perioral regions	Perifollicular non-caseating epithelioid cell granulomas in the dermis with some multinucleated giant cells and a variable number of lymphocytes and histiocytes in perivascular and perifollicular areas	Oral clarithromycin 250 mg OD (10 days) then 250 mg on alternate days (20 days)
Tambe *et al.*[3] (2018)	30	Female	Multiple erythematous, scaly papules and plaques on the supra orbital, periorbital, perioral and perinasal area	Perifollicular and perivascular granulomatous inflammatory infiltrate composed of lymphocytes, epithelioid cells and giant cells	Oral isotretinoin 20 mg OD + metronidazole cream (3 weeks)
Li *et al.*[4] (2006)	28	Female	Pink to normal skin-coloured, discrete and coalescing papules ranging from 1–3 mm in diameter over the face, nape and bilateral forearms	Dermal granuloma formation around hair follicles, composed of lymphocytes, epithelioid histiocytes and occasional multinucleated giant cells	Oral doxycycline 100 mg OD + topical metronidazole gel (2 months)
Loai and Huang[5] (2015)	24	Female	Multiple, discrete, red to brown papules on erythematous base on the perioral and periocular areas	Granulomatous infiltration composed of lymphocytes, histiocytes, epithelioid cells and multinucleated giant cells, without caseation in the dermis	Oral minocycline 50 mg bid + tacrolimus ointment 0.03% BID (50 days)
Present case	36	Male	Monomorphic scaly erythematous papules localised to the perioral, paranasal and periorbital areas of the face	Non-caseating naked granulomas containing histiocytes, multinucleated giant cell of Langhans type and focally surrounded lymphocytes	Oral doxycycline 100 mg OD + metronidazole cream (3 months)

OD = once daily; BID = twice daily.

clinical and dermoscopic features of granulomatous papules on the face.

GPD has a self-limiting nature, therefore treatment is not necessary. However, many topical and systemic treatments have been reported to hasten clearance.[1,2,6,7,11,18] Topical treatments include metronidazole, erythromycin or pimecrolimus.[1,6,11] Systemic treatments mainly include tetracycline antibiotics such as tetracycline and doxycycline; oral erythromycin and clarithromycin are also effective.[2,7,18]

To date, there are a total of six reported cases of GPD in adults [Table 2].[1–5] The present case is the only case in a male. In two cases, the lesions were erythematous plaques and the remainder had erythematous papules as in the present case. All cases showed dermal non-caseating granulomas upon histopathological examination. One case was treated with oral isotretinoin while the others were treated with oral antibiotics. All cases showed complete resolution without recurrence.

Conclusion

GPD is a well-recognised entity that may affect adults and should be differentiated from GR, cutaneous sarcoidosis and other granulomatous disorders of the face by clinicopathological correlation to minimise systemic treatment use.

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