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Case Report

Granuloma faciale successfully treated with the pulsed dye laser

脈衝染料激光治癒面部肉芽腫一例

CL Black, C James, SC Huilgol

A 56-year-old female presented with a four-year history of several red-brown plaques on her cheeks and forehead. Clinical and histological findings were consistent with granuloma faciale. She had previously been treated unsuccessfully with cryotherapy, mometasone furoate 0.1% cream, intralesional triamcinolone acetonide (10 mg/mL) and a three-month course of oral dapsone. Treatment with the 595-nm pulsed dye laser was therefore attempted. The patient underwent six treatments in total over a period of three years. She achieved complete resolution of her lesions with no scarring or recurrence evident at follow-up 31 months later.

一名五十六歲女仕的兩邊面頰及額頭的皮膚，在四年內長出數處紅啡色的斑塊，其臨床及組織學發現與面部肉芽腫吻合。最初的各種治療皆無效，計有冷凍治療、外敷類固醇莫米松 0.1% 乳膏、皮內注射類固醇曲安奈德（每毫升含 10 毫克）及三個月的氨苯碸口服抗生素療程。其後，我們嘗試採用 595 納米脈衝染料激光以作治療，在三年間合共六次治療後，其皮損完全消褪，並在三十一個月的跟進期內沒有明顯的瘢痕或復發跡象。

Keywords: Granuloma faciale, cutaneous plaques, treatment

關鍵詞：面部肉芽腫，皮膚斑塊，治療

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Introduction

Granuloma faciale (GF) is a benign cutaneous disorder characterised by soft red-brown nodules or plaques, often with prominent follicular ostia and superficial telangiectasias. It is most common in Caucasian males, although cases have been observed in patients of oriental ancestry.[1] The major sites of predilection are the forehead, cheeks, nose and preauricular area. Lesions of

GF are typically asymptomatic although some patients report associated pruritus, burning and pain.

GF rarely resolves spontaneously, therefore treatment is usually necessary to reduce disfigurement. First line therapies include topical and intralesional corticosteroids and cryotherapy; however, these rarely produce long-term resolution and there is the risk of skin atrophy, pigment change and scarring. Surgical excision may be effective; however, scarring is inevitable and recurrence can occur even after full-thickness excision.[2] Systemic therapy for multiple or widespread lesions have included dapsone, clofazimine and antimalarials but results with these agents have been inconsistent and they carry a significant risk of systemic toxicity. Topical tacrolimus has more recently shown some promise in the treatment of this condition with minimal adverse effects; however, most patients have required prolonged treatment courses and results have been variable.

Treatment with lasers may also be effective; however, there are only limited reports of their use in the literature, probably due in part to the rarity of this condition. We report the use of the 595-nm pulsed dye laser (PDL) to effectively treat this condition in a 56-year-old female with success maintained at 31 months.

Case report

A 56-year-old Albanian female with Fitzpatrick skin type III, presented for treatment of several asymptomatic lesions on her cheeks and forehead. The lesions had been present for four years and had gradually increased in size. Her past medical history included mild asthma and chronic back pain secondary to a motor vehicle accident three years earlier. She was taking ibuprofen, dextropropoxyphene/paracetamol, budesonide inhaler, calcium and fish oil.

Examination revealed eight well-defined red-brown indurated plaques with prominent follicular openings on her forehead and cheeks (Figure 1). The clinical differential diagnosis included GF, sarcoidosis, rosacea, lupus erythematosus and lymphocytic infiltrate of Jessner.

A skin biopsy revealed a dense superficial and deep dermal mixed inflammatory infiltrate composed of neutrophils, lymphocytes, histiocytes, plasma cells and eosinophils separated from the epidermis by a Grenz zone. An associated low grade leukocytoclastic vasculitis was present with cytoclasis within and around vessel walls and sparse deposition of fibrin. The blood vessels had endothelial cell swelling, the walls were oedematous and there was a small purpuric component. No granulomatous component,

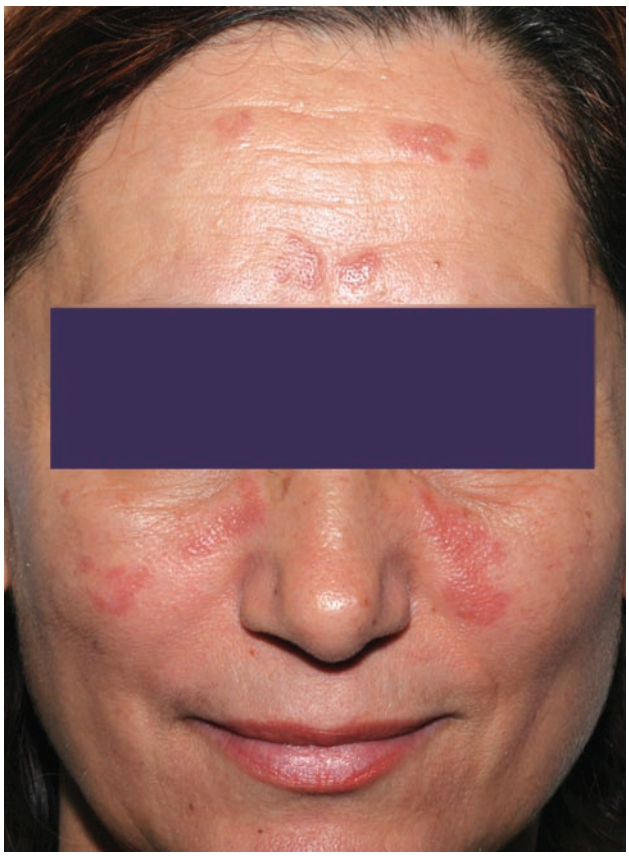

Figure 1. Pre-treatment appearance of granuloma faciale.

atypical lymphoid infiltrate, parasitised macrophages or overlying epidermal dysplasia was identified. Stains for fungal organisms were negative and no significant fibrosis was evident (Figure 2). These histopathologic findings were interpreted as typical for GF.

The patient had been previously treated unsuccessfully with cryotherapy, mometasone furoate 0.1% cream, intralesional triamcinolone acetonide (10 mg/mL) and a three-month course of oral dapsone.

Treatment with the Candela Vbeam® PDL (595 nm, pulse duration 1.5 ms) was therefore attempted. Three treatments, spaced two and five months apart, were administered with a double pass using 7 mm minimally overlapping spots at 10-10.5 J/cm^2. The dynamic cooling device was set with a 30 ms spray and a 30 ms delay. The laser was tolerated well by the patient with no anaesthesia required.

Significant improvement was noted after three treatments with flattening of the plaques and a decrease in pigmentation; however, recurrent erythematous patches were noticed on the right cheek and forehead eight months after the third treatment and these were therefore retreated with a single pass using the above settings. The patient subsequently required two additional treatments 14 and 21 months later for small areas of recurrence on the right cheek.

The patient has since remained clear of any lesions of GF for the past 31 months (Figure 3) and did not experience any complications such as scarring or pigmentary change.

Review

Medical lasers were first used to treat GF in 1983. The first lasers used were the carbon dioxide and argon lasers. Although effective, both were

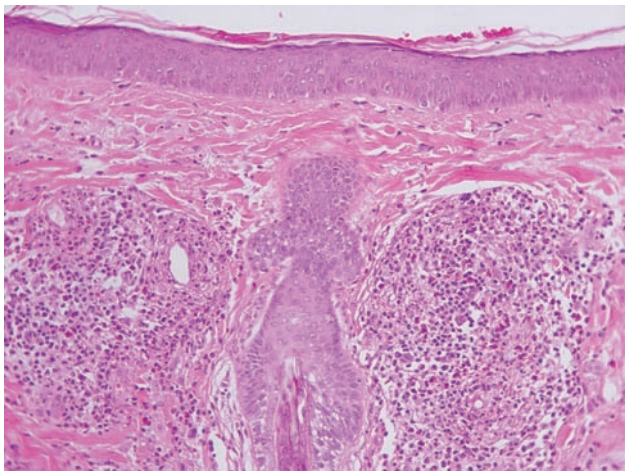

Figure 2. Nodular dermal infiltrate of neutrophils, lymphocytes, histiocytes, eosinophils and plasma cells with an associated leukocytoclastic vasculitis. Note the grenz zone between the inflammation and epidermis/hair follicle. (H&E, Original magnification x 100)

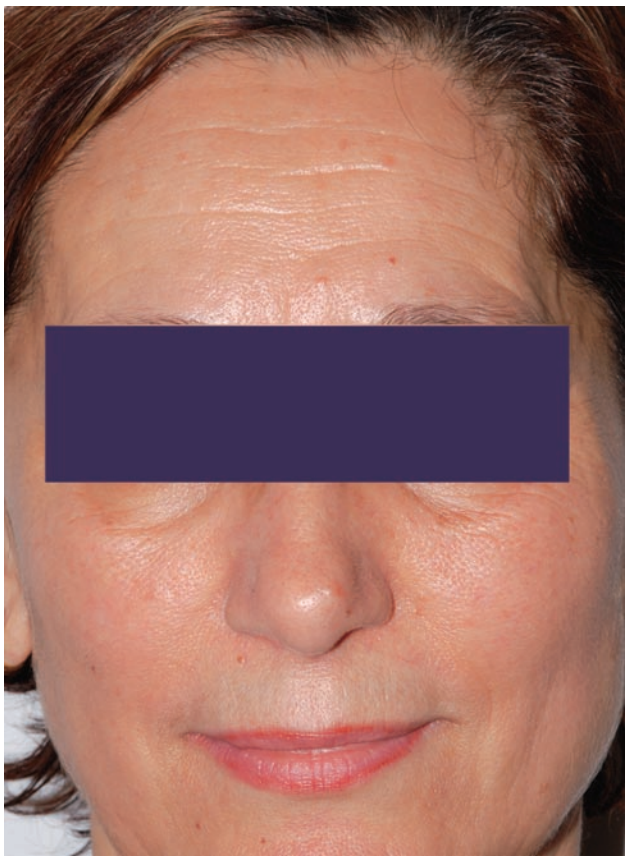

Figure 3. No clinical recurrence of granuloma faciale 31 months after treatment with PDL.

associated with significant and unacceptable post-procedure scarring.

PDL has since been used in the treatment of GF. Its success was first reported in 1999 by two independent authors,[3,4] with its effectiveness thought to be related to the vascular component of GF lesions. It is superior to the carbon dioxide and argon lasers because there is minimal epidermal disruption and therefore less risk of scarring. Since then, there have been four more case reports demonstrating success in the literature,[5-8] one small case series composed of four patients with mixed results,[9] and one case report describing no response with PDL.[10] All 11 patients in these articles were male and middle-aged (age range 39-62), except for one 11-year-old boy.[4]

Eight of the 11 patients were successfully treated with PDL. Location of the lesion appears to be a predictor for success. Of the eight patients successfully treated, the lesion of GF was located on the nose in six of these eight patients,[3-6,9] on the scalp in one patient[8] and the site was not documented in the final patient.[7] For the three patients where PDL was unsuccessful, the affected sites were extranasal and included the temple,[9] cheek[9] and extrafacial areas such as the back, shoulders and arms.[10] As a result of the higher documented success rate in nasal lesions, it has therefore been suggested that PDL may be more efficacious in treating nasal GF than in treating lesions located elsewhere.[9] This is not explained by the lesions being more common on the nose as the most common site of predilection for GF is the forehead (38%) followed by the cheeks (30%).[11]

To date, reports of the use of PDL in GF have predominantly been limited to Caucasian patients with success with PDL only reported in patients with this skin type. This is likely to reflect the fact that this disease is found more commonly in Caucasians; however, the only report in the literature of GF in a patient with a darker skin type[10] did not achieve success with PDL.

Most of the patients underwent 2-3 treatments of PDL spaced 4-8 weeks apart. Fluency ranged from 6.5-14 J/cm^2. No side effects were experienced by any of these patients apart from laser-induced purpura which faded over the ensuing weeks. Only one patient[4] underwent greater than three treatments with a total of nine treatments being performed, spaced six weeks apart. Mild epidermal atrophy with a residual violaceous hue was noticed at the four-month follow-up in this patient. Only three other papers stated follow-up duration which was six and nine months[6,8] and six years.[3]

Our report therefore reiterates the effectiveness of PDL for GF, but also demonstrates its success in treating areas other than the nose and in a patient with Fitzpatrick skin type III. This is the first report of success with PDL in treating GF of the forehead and cheeks, the most common sites of occurrence. The lack of documented success in these areas may be due to the rarity of this condition rather than an actual increased efficacy in treating nasal lesions. Larger studies are needed to determine whether this is the case.

Given the excellent safety profile of PDL and its documented efficacy, we agree with Sewell and Elston[8] that it should be considered early in the treatment of GF. A treatment regime of 2-3 treatments spaced 4-8 weeks apart appears to be effective in most cases; however, additional treatments may be required to achieve complete resolution as occurred in our patient.

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