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Silicone granulomas with ulcers

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Abstract

We present a 42-year-old transgender woman with woody induration over her buttocks and lower extremities as well as persistent ulcers of the buttocks. The lesions developed ten years prior to her presentation and approximately five years after she received illegal silicone injections to her buttocks. Histopathologic examination was consistent with a silicone granuloma. Silicone granuloma is a not an uncommon side effect of silicone injections and more often occurs when the filler is administered by non-physician practitioners, as is the case in this patient. Ulcerative silicone granulomas, however, rarely are reported. In this case, the patient's hemodialysis treatments, which required long periods of weight bearing on her buttocks, may have predisposed her to ulcers in this area, and the ulcers may have been in part due to poor vascular supply as well as physical pressure. Treatment of this patient is relatively challenging, owing to her multiple comorbidities that include end-stage renal disease and congestive heart failure.

Case Presentation

PATIENT: 42-year-old-woman

DURATION: Ten years

DISTRIBUTION: Buttocks

HISTORY: A 40-year-old transgendered woman with a history of idiopathic, non-ischemic cardiomyopathy and end-stage renal disease treated with hemodialysis, presented to the Dermatology Consult Service at Tisch Hospital. The patient was admitted for hypotensive episodes during dialysis treatment. The Dermatology Service was called to evaluate multiple ulcers on the buttocks.

The patient reported that the ulcers developed on her buttocks ten years prior to our evaluation and five years after she received illegal silicone injections to her lips, buttocks, and thighs as part of her physical transition from a man to a woman. The injections were performed by an unlicensed practitioner in a garage in the Bronx without immediate adverse effects. A few years after she received the injections, she developed nodules on her lips, which were surgically removed by a plastic surgeon. She then developed the ulcers of her buttocks five years after the injections, which was roughly coincident with the time when she started hemodialysis. The ulcers on her buttocks were painful and made weight-bearing on her buttocks difficult, especially during hemodialysis.

At the time of admission to the hospital, the patient was started on vancomycin for possible cellulitis of her buttocks. Prior to admission, she had been taking doxycycline 100 mg twice daily for several months for the buttock ulcers, and she had been treated topically with clobetasol and duoderm dressings. She did not notice an appreciable improvement with any of these treatments.

PHYSICAL EXAMINATION: The entire buttocks, hip, and leg area, extending down the lateral and posterior aspects of the thighs to the knees and lower legs, was diffusely covered in large, firm and indurated plaques (**Figure 1**). Within the plaques, there were multiple, punched out, circular, shallow ulcers, many of which had coalesced into larger ulcers (**Figure 2**). Many lesions had a yellow, fibrinous exudate with no malodor. There was no surrounding erythema.



Figure 1. The entire buttocks, hip, and leg area, extending down the lateral and posterior aspects of the thighs to the knees and lower legs, was diffusely covered in large, firm and indurated plaques.



Figure 2. Multiple, punched out, circular, shallow ulcers, many of which had coalescent into larger ulcers.

LABORATORY DATA: A complete blood count showed a hemoglobin of 9.5 g/dL and hematocrit of 29.1 g/dL. White-cell, platelet, and eosinophil counts were normal. A basic metabolic panel showed blood urea nitrogen of 39 mg/dL and creatinine of 4.5 mg/dL. Human immunodeficiency virus was negative. Hepatitis B virus surface antigen was negative, and hepatitis B virus core antibody was positive. Hepatitis C virus was negative by polymerase chain

reaction. Tissue cultures were negative for bacteria, fungi, and mycobacteria.

HISTOPATHOLOGY: There is a superficial and deep, perivascular and interstitial, lymphocytic infiltrate in addition to numerous variably-sized vacuolated cells with surrounding histiocytes. The epidermis is focally ulcerated. Dystrophic calcification is noted within a few vessels (**Figure 3**). Gram, acid fast bacilli, and periodic acid-Schiff-diastase stains fail to show microorganisms.

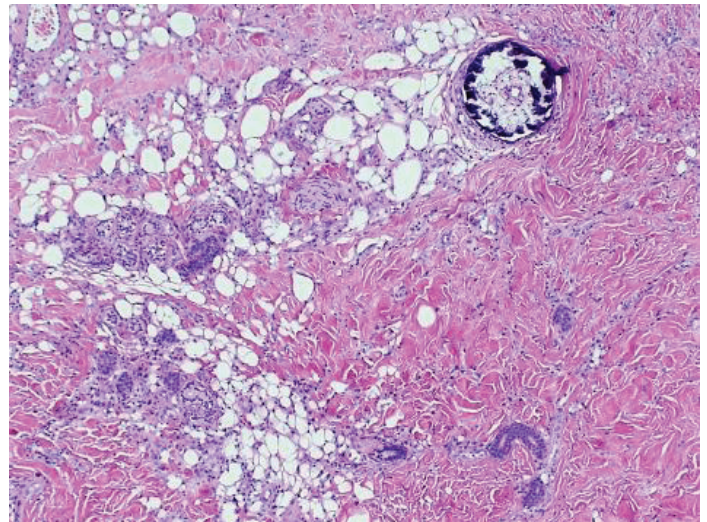


Figure 3. There is a superficial and deep, perivascular and interstitial, lymphocytic infiltrate in addition to numerous variably-sized vacuolated cells with surrounding histiocytes. The epidermis is focally ulcerated. Dystrophic calcification is noted within a few vessels.

DIAGNOSIS: Silicone granulomas with ulcers

Discussion

Liquid silicone is inexpensive and is a common, soft-tissue filler of choice for augmentation of the face, buttocks, and breasts. However, the use of silicone as a soft-tissue filler is controversial in the medical community. When medical-grade silicone is used under sterile conditions by an experienced practitioner, rapid soft-tissue filling may be achieved with satisfactory results. Silicone is biologically inert and is inexpensive, and proponents write that silicone is extraordinarily useful and provides excellent results for the majority of those who are treated [1]. In particular, for patients with human immunodeficiency virus (HIV)-associated facial lipodystrophy and transgender patients with large

volume filler needs, silicone has a better cost-to-benefit ratio than do other currently available fillers [2]. Silicone continues to be a filler of choice that is used by both experienced practitioners and inexperienced estheticians alike, who cite ease of use, efficacy for filling large areas, and economics.

Much of the silicone augmentation that is performed in developing countries and in garage spas in the United States involves illegal injections with non-medical -grade silicone by inexperienced estheticians. The poor quality of silicone used as well as non-sterile conditions may lead to a variety of immediate and distant complications, which include erythema, edema, and surface changes (immediate) as well as abscess formation, granulomatous reactions, chronic cellulitis, and, rarely, distant ulcers [3]. This patient experienced a variety of adverse effects that were related to her silicone injections, which included filler migration, a granulomatous reaction, and ulcers.

In this patient, the silicone migrated distally from her buttocks, down her thighs, and to her knees and lower legs and caused extensive woody induration. Filler migration is more commonly a complication of illegal silicone injections since inexperienced practitioners often inject high volumes of silicone at too frequent of intervals, which causes the silicone to track along tissue planes to distant sites as occurred in this patient. Physicians with experience using liquid silicone injections feel that the technique of serial microdroplet puncture and of injecting limited volumes no more frequently than on a monthly basis prevents filler migration [4].

Silicone, even in its pure medical-grade form, readily causes a foreign body reaction in the susceptible host. Fibrinogen in the dermis can adsorb to the silicone, which, in some cases, causes a conformational change in the fibrinogen and exposes two previously hidden epitopes. These newly exposed epitopes can induce an inflammatory response, which attracts neutrophils and macrophages and leads to the development of foreign-body granulomatous reactions in susceptible patients, regardless of whether the silicone is medical grade or not [5]. Granulomas can develop months to decades after the initial

injections. This patient had previously developed nodules in her lips from silicone injections; these lesions were presumably granulomatous nodules and were surgically excised five years prior to her presentation to our service.

Cutaneous ulcers in association with silicone granulomas rarely are reported sequelae of silicone injections. There are two reported cases of ulcerative silicone granulomas in the literature: one case of a granulomatous reaction with subsequent facial ulcers that showed a foreign-body reaction and ulceration into the underlying skeletal muscle; [6] the other case described indurated plaques and persistent ulcers in an HIV-positive patient [7]. In our patient, the ulcers developed around the same time as she began hemodialysis, and they were exclusively on her buttocks, which bear an appreciable amount of weight during hemodialysis treatments. The silicone granulomas formed in her buttocks may have impaired local vascular supply, which predisposed to venous stasis or pressure ulcers of the buttocks.

The treatment of silicone granuloma is challenging and usually is based on anecdotal information. An array of case reports suggests a variety of treatments, which commonly include oral glucocorticoids; nonsteroidal anti-inflammatory drugs, such as celecoxib; and tetracycline antibiotics, such as minocycline and doxycycline [8, 9]. Minocycline, at least anecdotally, appears to be regarded as the most effective; one case reports a dramatic response to a three-week course of minocycline 100 mg twice daily [1]. Etanercept also has been described as a successful treatment in patients who have failed other therapies [10]. Procedural treatments also are an option as smaller nodular lesions may be surgically excised; however, diffuse granulomatous plaques are too widespread for surgical excision. Dermabrasion has been reported to be helpful for more diffuse lesions, especially when the material resides more superficially in the dermis [11]. In this patient, her treatment is complicated by her multiple comorbidities i.e., end-stage renal disease thought to be related to dissemination of silicone to her kidneys as well as congestive heart failure, which is due to idiopathic non-ischemic cardiomyopathy.

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