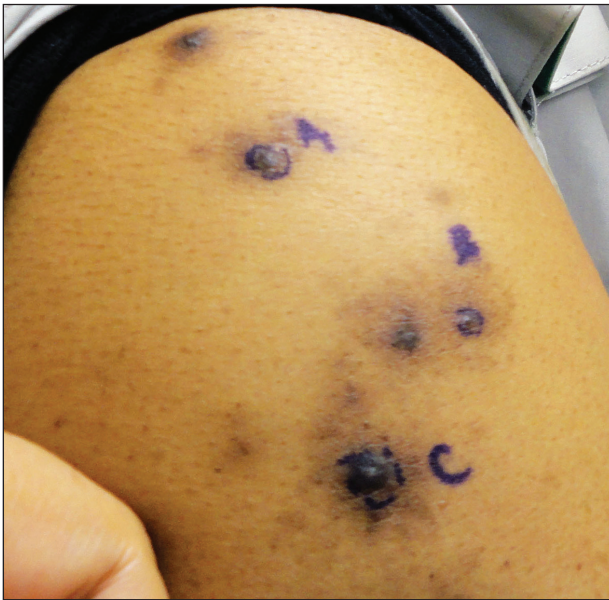


Brown-Black Papulonodules on the Arm

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A 63-year-old man presented with a pruritic rash on the right arm of approximately 3 months' duration. On physical examination, several discrete, 4- to 5-mm, brown-black papulonodules with a central punctum were identified along the extensor aspects of the upper and lower right arm. No foreign bodies were appreciated. Biopsies of nodules on the right upper arm were performed (sites marked with letters).

WHAT'S THE DIAGNOSIS?

- arthropod assault
- atypical mycobacteria
- eczema prurigo
- glochid dermatitis
- sporotrichosis

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THE DIAGNOSIS: Glochid Dermatitis

Biopsy of a nodule on the upper right arm showed chronic granulomatous inflammation and polarizable foreign material consistent with plant cellulose (Figure). A diagnosis of glochid dermatitis was made. The treatment plan included follow-up skin evaluation and punch excision of persistent papules 1 month after the initial presentation. The patient reported the rash began after he fell on a cactus plant while chasing his grandson. He was seen by various clinicians and was given hydrocortisone and clobetasol, which helped with pruritis but did not resolve the rash. His grandson developed a similar rash at the site of contact with the cactus plant. The patient and his grandson did not detect the presence of any cactus spines.

Injuries from cactus glochids most often occur due to accidental falls on cactus plants, but glochids also may be transferred from clothing to other individuals. The thin, hair-like glochids easily detach from the stem of the cactus and can become deeply embedded with virtually no pressure.¹

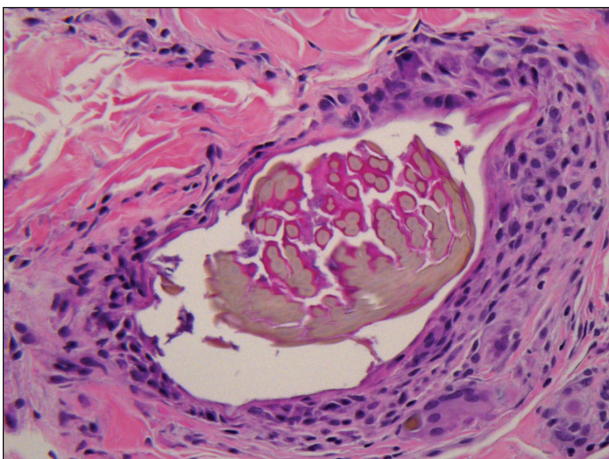
Glochid implantation from the prickly pear cactus commonly presents as a pruritic papular eruption known as glochid dermatitis. These penetrating injuries can lead to inoculation of *Clostridium tetani* and *Staphylococcus aureus*. Additionally, unrecognized and unremoved cactus spines may be highly inflammatory and may cause chronic granulomatous inflammation.²

Initially, acute glochid dermatitis occurs due to mechanical damage caused by the detached cactus spine and may not resolve for up to 4 months. Granuloma formation has been reported several weeks after exposure

and may persist for more than 8 months.³ Although an immune mechanism has been suggested, the literature has indicated that delayed hypersensitivity reactions are a more probable cause of the granulomatous inflammation after glochid exposure.³ Madkan et al⁴ reported that relatively few patients developed granulomas after implantation of glochids in the skin, thus suggesting that granuloma formation is an allergic response.

With regard to the pathogenesis of glochid dermatitis, the initial response to foreign plant matter in the dermis involves a neutrophilic infiltrate, which later is replaced by histiocytes; however, the foreign material remains undegraded in the macrophage cytoplasm.⁵ Activated macrophages secrete cytokines that intensify the inflammatory response, resulting in formation of a granuloma around the foreign body. The granuloma acts as a wall to isolate the foreign matter from the rest of the body.⁵

Regarding treatment of chronic granulomas, Madkan et al⁴ reported a case that showed some improvement with clobetasol ointment; however, clinical lesions resolved only after punch biopsies were performed to confirm the diagnosis of cactus spine granuloma. In a controlled study in rabbits, glochids were successfully removed by first detaching the larger clumps with tweezers then applying glue and gauze to the affected area.⁶ After the glue dried, the gauze was peeled off, resulting in the removal of 95% of the implanted glochids. Overall, removal of embedded spines is difficult because the glochids typically radiate in several directions.⁷ Treatment of foreign body granulomas caused by cactus spines can be achieved by expulsion of plant matter remnants and symptomatic treatment using midpotency topical steroids twice daily.⁴ Uncovering and performing punch biopsies of papules also can result in rapid healing of the lesions. Without manual removal of the glochid, lesions can persist for 2 to 8 months until gradual resolution with possible postinflammatory hyperpigmentation.⁴



Chronic granulomatous inflammation and polarizable foreign material consistent with plant cellulose in glochid dermatitis (H&E, original magnification $\times 400$).

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