

# Cactus Spine Granuloma

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*We describe the case of a 45-year-old woman with a 2-week history of painful erythematous papules on the palmar aspect of the fingertips of her right hand, resulting from contact with a cholla cactus 3 weeks prior in Arizona. The patient initially was given clobetasol propionate ointment, resulting in some improvement; however, the lesions resolved only after punch biopsies were performed to confirm the diagnosis of cactus spine granuloma.*

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## Case Report

A 45-year-old woman presented with a 2-week history of several painful pink papules on the palmar aspect of the fingertips of her right hand (Figure 1). She had come in contact with a cholla cactus 3 weeks prior in Arizona (Figure 2). Several spines, also known as glochidia, had penetrated her skin after contact. Her husband was able to remove many of the spines with a tweezer and she remained asymptomatic until the following week. In the next 2 weeks, the patient developed painful lesions at the sites of penetration.

Results of a physical examination revealed multiple erythematous papules on the fingertips of her right hand. At the patient's first visit to our clinic, we attempted to unroof 2 papules with a No. 15 blade; however, we were unable to identify a foreign body. The patient was given clobetasol propionate ointment 0.05% and was directed to apply it to the affected areas twice daily. On return to the clinic, the patient's pain had decreased slightly; however, the papules had not decreased in size or number.

Three separate 3-mm punch biopsies were performed on lesions on the third and fourth fingers of her right hand. Hematoxylin and eosin stain,

applied to enable microscopic examination of the biopsy specimens, revealed a foreign-body giant cell reaction to the cholla spines (Figure 3). The spines stained strongly positive with periodic acid-Schiff (PAS) stain (Figure 4).

After punch biopsies of the most symptomatic lesions were performed and the remaining smaller papules were treated with gentle paring and clobetasol propionate ointment, the patient continued to improve.

## Comment

Schreiber et al<sup>1</sup> observed that *Opuntia* is the only genus of the family Cactaceae that causes dermal granulomas after penetration of the cactus spines, or glochidia. The cholla cactus, also known as the "jumping cholla" because of the ease with which its



**Figure 1.** Numerous painful pink papules on the palmar aspect of the fingertips of the patient's right hand.

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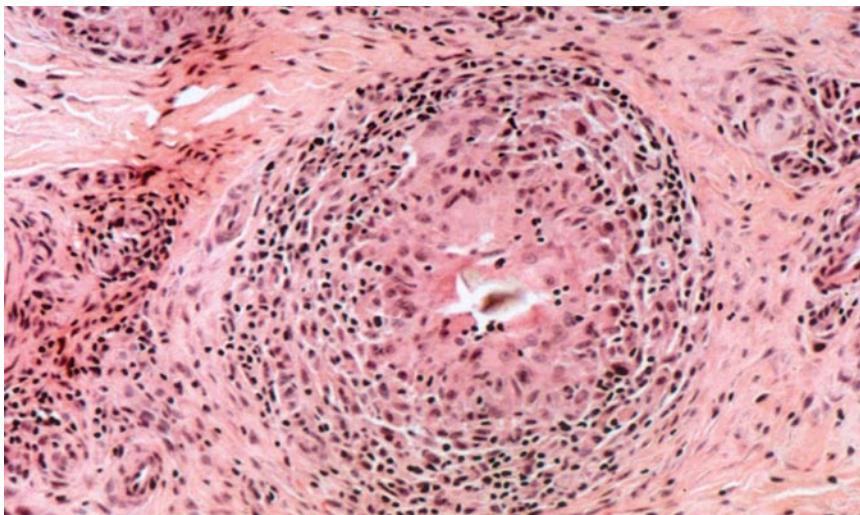
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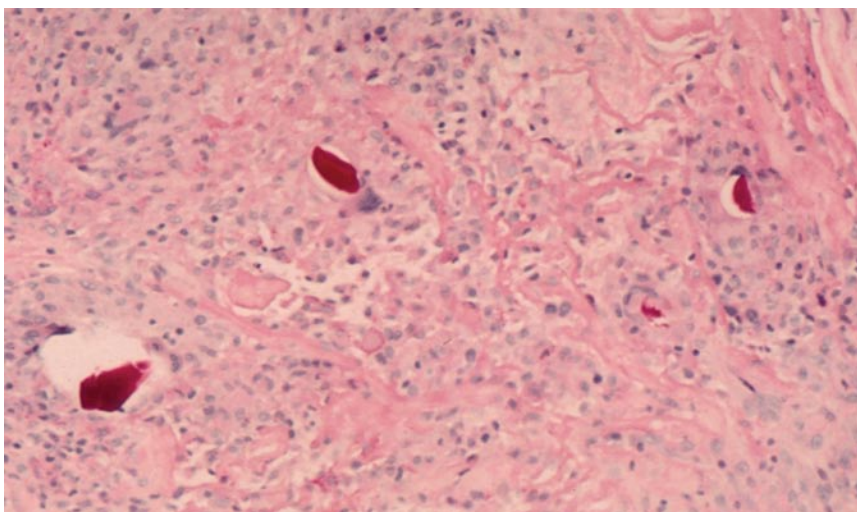
**Figure 2.** Cholla cactus attached to the patient's right hand.

glochidia are released after contact,<sup>2</sup> belongs to this genus and is found in the deserts of the southwestern United States. Cholla glochidia typically measure 3 to 6 mm in length.<sup>3</sup> Lindsey and Lindsey<sup>4</sup> noted that because the glochidia radiate in several directions, removal of all embedded spines is difficult. Additionally, smaller barbs are rearwardly angulated and might remain lodged in the skin, even after the larger spine is removed,<sup>1</sup> providing a foreign body that could develop into a granuloma.

Although cactus spine implantation is relatively common in geographic areas of heavy cacti growth, relatively few patients develop granulomas, prompting the theory that the development of granulomas is an allergic response.<sup>1</sup> Schreiber et al<sup>1</sup> supported this theory by performing a scratch test in 7 patients and an intradermal test in 6 patients (all 13 patients had previously developed cactus granulomas), with antigens from *Opuntia* cacti. Two patients had immediate positive reactions to the scratch test.



**Figure 3.** Foreign-body giant cell reaction to the cholla spines (H&E, original magnification  $\times 20$ ).



**Figure 4.** Cholla spines stained positive with periodic acid-Schiff stain (original magnification  $\times 40$ ).

Five patients had immediate positive reactions to the intradermal injection; 4 of these patients also developed positive delayed reactions to the intradermal injection. Schreiber et al<sup>1</sup> postulated that a higher percentage of these patients would have tested positive had the antigen stayed in the dermis longer, as would be the case in a clinically embedded barb.

The development of granulomas also is supported by the histologic findings of biopsy specimens. Synder and Schwartz<sup>3</sup> found PAS-positive fragments of foreign material in a biopsy specimen of a patient who had developed a tender, papular, erythematous eruption from cactus glochidia implantation 4 weeks earlier. The specimen included a mixed cellular granulomatous infiltrate with foreign-body giant cells.

Similar histologic findings were discovered in the case of a 24-year-old Japanese man who came in contact with an *Opuntia* cactus.<sup>5</sup> PAS-positive fragments were surrounded by well-demarcated granulomas consisting of foreign-body giant cells. Snyder and Schwartz<sup>3</sup> argued that immunogenic granulomas would be expected to show an organized epithelioid tubercle formation rather than foreign-body giant cells. The biopsy specimen from our patient showed similar histologic findings, supporting the theory that the lesion was a typical foreign-body granuloma.

Treatment of cactus spine granuloma can be achieved most quickly through expulsion of foreign remnants and symptomatic treatment with midpotency topical corticosteroids twice daily.<sup>6</sup> Unroofing papules and performing punch biopsies on papules have both resulted in rapid healing of

lesions.<sup>6,7</sup> Without manual expulsion of foreign remnants, the lesions persist for 2 to 8 months, often accompanied by significant pain and discomfort, and gradually resolve with some postinflammatory hyperpigmentation.<sup>1</sup>

### Conclusion

We presented the case of a 45-year-old woman with a history of painful erythematous papules that developed on the palmar aspect of the fingertips of her right hand after contact with a cholla cactus in Arizona. The patient initially was given clobetasol propionate ointment after paring of 2 lesions. There was some improvement; however, the lesions completely resolved only after punch biopsies were performed to confirm the diagnosis of cactus spine granuloma.

### REFERENCES

1. Schreiber MM, Shapiro SI, Berry CZ. Cactus granulomas of the skin. an allergic reaction. *Arch Dermatol.* 1971;104:374-379.
2. Goodheart HP, Huntley AC. Rash after visiting Tucson. *Dermatol Online J.* 2001;7:10.
3. Snyder RA, Schwartz RA. Cactus bristle implantation. *Arch Dermatol.* 1983;119:152-154.
4. Lindsey D, Lindsey WE. Cactus spine injuries. *Am J Emerg Med.* 1988;6:362-369.
5. Suzuki H, Baba S. Cactus granuloma of the skin. *J Dermatol.* 1993;20:424-427.
6. Doctoroff A, Vidimos AT, Taylor JS. Cactus skin injuries. *Cutis.* 2000;65:290-292.
7. Winer LH, Zeilenga RH. Cactus granulomas of the skin; report of a case. *AMA Arch Derm.* 1955;72:566-569.