Actinic Granuloma Developed in a Herpes Zoster Scar

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Wolf’s isotopic response describes the occurrence of a new, unrelated disease that appears at the location of a previously healed disease, most commonly herpes zoster. Several cutaneous reactions including granuloma annulare have been known to occur within resolved herpes zoster lesions. We report a case of actinic granuloma which developed on a site previously affected by herpes zoster, and is thought to be an isotopic response. (Ann Dermatol (Seoul) 19(1) 35-37, 2007)

Key Words: Actinic granuloma, Herpes zoster

INTRODUCTION

Several cutaneous reactions have been known to be occurring within resolved herpes zoster lesions. These include granulomatous reactions, malignancies, immune disorders, and infections. Among these entities, granuloma annulare is the most commonly reported reaction. Herein, we report a case of actinic granuloma which developed on a site previously affected by herpes zoster in a 47-year-old man.

CASE REPORT

A 47-year-old Korean man presented with a 1-month history of a pearly, erythematous, annular eruption on the right side of his posterior neck (Fig. 1). The eruption had a dermatomal distribution (C2-3 areas) exactly corresponding to an area which had been affected by a bout of herpes zoster 2 months before. The patient complained of a persistent burning pain, which was thought to be postherpetic neuralgia following complete healing of the herpes zoster, but he had no tenderness on the eruption itself. The patient also had a history of malignant melanoma of the paranasal sinus with cervical lymph node metastasis and had undergone endoscopic sinus surgery with bilateral radical neck dissection 18 months before. Laboratory tests including complete blood count, chemical battery and urine analysis were within normal limits. A 3-mm punch biopsy was obtained from a papule near the border of the lesion. The biopsy specimen showed granulomatous inflammation with many multinucleated giant cells engulfing elastotic material

![Fig. 1. Pearly, erythematous, confluent papules and plaques on the site of a previous herpes zoster. Note the dermatomal distribution (C2-3 areas) of the eruption.](image-url)
in the upper to mid dermis (Fig. 2A). A marked reduction of elastic fibers was noted within the zone of granulomatous inflammation (Fig. 2B). An alcian blue stain showed no mucin deposition on the granuloma (Fig. 2C). The histopathologic findings were consistent with actinic granuloma. The patient was treated by triamcinolone intraleisional injection. Six weeks later, the lesions had improved.

**DISCUSSION**

In 1995, Wolf et al.\(^4\) first suggested the term "isotopic response" to describe the occurrence of a new skin disorder at the site of another unrelated, and already healed skin disease, most commonly herpes zoster. Several cutaneous granulomatous reactions have been described in areas affected by varicella-zoster virus. Granuloma annulare is the most common disease. Sarcoïd and tuberculoid granuloma, granulomatous vasculitis, granulomatous folliculitis, and rarely, Rosai-Dorfman disease and ill-defined granulomatous reactions have also been reported\(^1,2,5\). Herein, we report actinic granuloma as a postherpetic isotopic response in herpes zoster.

Actinic granuloma is a rare inflammatory skin disorder which presents in chronically sun-damaged skin as normal-colored erythematous papules that coalesce to form centrifugally-enlarging annular patterns. The pathogenesis of actinic granuloma remains elusive. It is thought that ultraviolet radiation, heat, or other unknown factors transform the antigenicity of the elastic fibers and induce cellular immune reactions. Immunohistochemical studies showing that CD4\(^+\) cells predominated over CD8\(^+\) cells in the inflammatory infiltrate also support this theory\(^6,7\). The pathogenesis of isotopic response remains unclear. It was assumed that the viral particles remaining in the tissue were responsible for the occurrence of a second disease. A delayed hypersensitivity response to the virus is probably responsible for granulomatous isotopic responses\(^5\). However, the role of the viral particle does not seem to be important in all cases because the viral genome has only been detected in early lesions\(^2,8,9\). Ruocco et al.\(^1\) suggested that an indirect
Table 1. Histopathologic Distinction of Actinic Granuloma from Granuloma Annulare

<table>
<thead>
<tr>
<th></th>
<th>Granuloma annulare</th>
<th>Actinic granuloma</th>
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<tbody>
<tr>
<td>Epidermis</td>
<td>Normal</td>
<td>Normal or atrophic</td>
</tr>
<tr>
<td>Location of Lesion</td>
<td>Superficial dermis</td>
<td>Upper and mid dermis</td>
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<tr>
<td>Necrobiosis</td>
<td>Circumscribed or ill defined</td>
<td>Absent</td>
</tr>
<tr>
<td>Mucin</td>
<td>Common</td>
<td>Absent</td>
</tr>
<tr>
<td>Lipid</td>
<td>Occasional</td>
<td>Absent</td>
</tr>
<tr>
<td>Loss of elastic fibers</td>
<td>Yes</td>
<td>Very marked</td>
</tr>
<tr>
<td>Vascular thickening</td>
<td>Common</td>
<td>Absent</td>
</tr>
<tr>
<td>Giant cells</td>
<td>Relatively few</td>
<td>Abundant; contain elastic fiber</td>
</tr>
<tr>
<td>Asteroid bodies</td>
<td>Absent</td>
<td>Not uncommon</td>
</tr>
<tr>
<td>Palisading of histiocytes</td>
<td>Common</td>
<td>Infrequent</td>
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The influence of the nervous system is involved in developing isotopic response. In this hypothesis, the release of specific neuropeptides, triggered by a viral infection, might be the first step with subsequent impairment of immunologic function.

Actinic granuloma should be differentiated from granuloma annulare. It differs substantially from granuloma annulare because of the predominant elastolysis and elastophagocytosis in the absence of necrobiosis, mucin deposition and palisading granuloma. Points of distinction are summarized in Table 1.

In summary, we report a case of actinic granuloma which developed on a site previously affected by herpes zoster, and is thought to be an isotopic response in granuloma.

REFERENCES