CASE REPORT

Dermatoscopic features of acute granulomatous ulceronecrotic herpes zoster of the face

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Key words: dermoscopy; granuloma; herpes zoster; ulcer.

INTRODUCTION
Herpes zoster is caused by the reactivation of latent infection with varicella-zoster virus (VZV). A typical infection is characterized by a unilateral dermatomal eruption of erythematous papules and vesicles, preceded by prodromal burning pain. Despite its characteristic morphology, atypical presentations may mimic various neoplastic and inflammatory conditions, posing diagnostic challenges even to experienced physicians. In the recent years, dermatoscopy has gained recognition as a valuable tool to support the clinical diagnosis of infective and inflammatory skin conditions. Although postherpetic granulomatous dermatitis occurring weeks to years following acute infection is appreciated, granulomatous reactions occurring during acute herpes zoster infections are less well-described. Herein, we present the case of a man who developed acute ulceronecrotic herpes zoster of the face while undergoing concurrent chemoradiotherapy. Dermatoscopic features in herpes zoster infections from a review of existing literature will also be discussed.

CASE REPORT
A 51-year-old Chinese man was being evaluated for a painless ulcerated plaque over his left temple, which had been increasing in size over 1 week. He had no prior history of a similar rash. His background was significant for nasopharyngeal carcinoma, for which he had received radiotherapy and concurrent chemotherapy with gemcitabine and high-dose cisplatin. Examination showed a 2.2-cm hyperpigmented plaque with areas of ulceration and surrounding erythema over the left temple. Scattered, small, crusted erosions were appreciated over the left eyelid and forehead (Fig 1). Dermatoscopy of the ulcerated plaque showed an erythematous border, cloudy white polyglobular structures, orange globules, and grayish structureless areas (Fig 2). A working diagnosis of acute herpes zoster was made, and he was prescribed a course of oral acyclovir. Polymerase chain reaction of the ulcer base swabbed was positive for VZV. Histology from skin biopsy showed nonnecrotizing granulomatous inflammation, necrotic pilosebaceous units, and acantholytic keratinocytes demonstrating herpetic cytopathic changes (Fig 3). Acid-fast bacilli stains were negative. Marked clinical improvement was seen during his outpatient review 1 week later. Repeat dermatoscopy showed resolution of the orange globules.

DISCUSSION
A review of published studies describing dermatoscopy of herpes zoster yielded 89 cases (Table I). These cases were largely from the descriptive studies conducted in India (Table I). The most common dermatoscopic features described included an erythematous background (100%); central brown dots (100%); cloudy white polyglobular structures, orange globules, and grayish structureless areas (Fig 2). A working diagnosis of acute herpes zoster was made, and he was prescribed a course of oral acyclovir. Polymerase chain reaction of the ulcer base swabbed was positive for VZV. Histology from skin biopsy showed nonnecrotizing granulomatous inflammation, necrotic pilosebaceous units, and acantholytic keratinocytes demonstrating herpetic cytopathic changes (Fig 3). Acid-fast bacilli stains were negative. Marked clinical improvement was seen during his outpatient review 1 week later. Repeat dermatoscopy showed resolution of the orange globules.

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Abbreviation used:
VZV: varicella-zoster virus

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blue-gray globules (80%); white globules (20%-80%); orange-yellow or brown-red globules (10%-50%); gray, brown, or black dots (30%-50%); and grayish, amorphous areas (20%). The different patterns observed may correlate with the clinical course of the disease. An erythematous border, cloudy white polyglobular structures, orange globules, and grayish structureless areas were the features appreciated in our patient. The erythematous border corresponds to dilated blood vessels. White globules represent spongiosis within the epidermis. Yellow-orange globules have been believed to correlate with the serum and red blood cells within the blister cavity.

In our case, orange globules may represent regions with high granuloma number instead. Gray areas correspond to the necrotic pigmented epithelium. It is believed that postherpetic granuloma formation occurs because of Wolf isotopic response, which describes the development of a new cutaneous disorder at the site of a previous unrelated dermatosis. The pathogenesis of this phenomenon might be related to delayed hypersensitivity to viral envelope glycoproteins. Granulomatous reactions have also been described in chronic herpes zoster infections. However, literature describing granulomatous inflammation occurring within days of acute herpes zoster infections is scarce.

We postulate the following hypothesis for accelerated granuloma formation in our patient, who had been receiving concurrent chemoradiotherapy for 1 week before symptom onset. First, it is believed that radiation therapy augments the immunoreaction of immune cells, contributing to the formation of granulomas within a short time. In our case, we hypothesize that radiation therapy over the head and neck region could have hastened granuloma formation as a response to VZV reactivation. Second, the concurrent administration of chemotherapy could have also accelerated granuloma formation in our patient because cisplatin upregulates immune responses through the activation of macrophages and other immune cells. Other common causes of granuloma formation, such as sarcoidosis, leprosy, and tuberculosis, were less likely in our case with negative acid-fast bacilli stains. Our patient did not have a prior history of herpes zoster infection or a previous onset of a similar eruption in the same anatomic area. Hence, it is unlikely that the pathogenesis of granulomatous inflammation was related to recurrent VZV infection in this case.

CONCLUSION
We describe an unusual presentation of acute herpes zoster where dermatoscopic features led to accurate clinical diagnosis. This article highlights the utility of dermatoscopy as a powerful adjunct in the clinical diagnosis of infective conditions such as herpes zoster. Dermatoscopic clues are valuable when faced with diagnostic conundrums where common disease entities present atypically. Additionally, we provide a review of the existing literature of dermatoscopic studies of herpes zoster infections. Finally, our case illustrates that the diagnosis of acute herpes zoster should be considered in the differential diagnosis of granulomatous inflammation.

Conflicts of interest
None disclosed.
### Table I. Dermatoscopic features in herpes zoster infections

| No. of cases | Duration, d | Dermatoscopic features                                      | Frequency (%) | Reference |
|--------------|-------------|-------------------------------------------------------------|---------------|-----------|
| 50           | Mean = 4    | Erythematous background                                     | 100           | 2         |
|              | Range = 1-21| White lines and reticular networks                           | 90            |           |
|              |             | Blue-gray globules                                          | 80            |           |
|              |             | White globules                                               | 20-80         |           |
|              |             | Orange-yellow or brown/red globules                          | 10-50         |           |
|              |             | Gray, brown, black dots                                      | 50            |           |
|              |             | Grayish, amorphous, structureless areas                      | 20            |           |
| 15           | NS          | Multiple confluent, round, cloudy white polyglobular structures with central brown dots | 53            | 4         |
| 13           | ≤ 3         | Vesicles                                                    | NS            | 6         |
| 10           | NS          | Central brown dots                                           | 100           | 5         |
|              |             | Multiple confluent, round, cloudy white polyglobular structures | 80            |           |
|              |             | Erythematous background                                      | 80            |           |
|              |             | Gray-to-black centrally placed dots                          | 30            |           |
|              |             | Erosion                                                      | 20            |           |
| 1            | 2           | Erythematous areas, dilated vessels                          | 100           | 3         |

*NS, Not specified.*
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