Photo-Induced Sarcoidosis

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CASE REPORT

A 61-year-old woman, who was a farmer, suffered from flesh to reddish annular skin rash over face, trunk and the extremities on and off for more than 20 years. The eruptions initially occurred on the face, and then involved the neck, chest, upper back and dorsal aspects of upper limbs indicating sun-exposed areas. The lesions revealed as annular, erythematous, shiny-surfaced, infiltrated papules or plaques (Fig. 1). The physical examination revealed no abnormal findings on chest, and no lymphadenopathy was noted. The rash usually exacerbated after sunlight exposure 12 to 24 hours. The patient had no other systemic disease and denied taking medications which would cause photosensitivity. Laboratory studies including complete blood count, renal and liver function, serum calcium, angiotensin-converting enzyme, antinuclear antibody, Anti-extractable nuclear antigen antibodies, complement component 3, complement component 4, and serum immunoelectrophoresis were all within normal limits. Tuberculin purified protein derivative (PPD) test revealed as a 20 mm in diameter indurated plaque.

The histopathology of a papule on chest revealed dermal noncaseating granulomas composed of epithelioid cells and multinucleated giant cells and few lymphocytes (Fig. 2). Histochemical stains, including acid-fast, periodic acid-Schiff, alcian-blue, and elastica van Gieson stains, were negative. The pathological findings were compatible with cutaneous sarcoidosis. Further evaluations including the chest X-ray film, ophthalmologic examination, chest computed tomography (CT), abdominal sonography, and whole body gallium-67 scan revealed no systemic involvement.

According to the clinical manifestations and pathological findings, the patient was diagnosed as photo-induced sarcoidosis. We initially used potent topical steroid (dermovate® cream) for treatment, but could not control the disease. Then, systemic prednisolone (30 mg, qd) was given, and the disease responded well and resulted in a complete remission in 3 weeks. In the meanwhile, we observed that avoiding sun-exposure was beneficial to control the disease activity in the 2-year follow-up period.

DISCUSSION

Sarcoidosis is a multi-system disease of unknown etiology characterized by noncaseating epithelioid granuloma. Lung is the most frequently affected organ (90%), and cutaneous involvement occurs in 20-35% of patients with systemic sarcoidosis.1 The prevalence of a particular type of cutaneous lesion varies among races as well as individual cases.
Photo-Induced Sarcoidosis

Tuberculin skin test with PPD is a diagnostic aid-screening tool to detect individuals infected with mycobacterium. However, a false positive reaction in an individual who is not infected with Mycobacterium tuberculosis are ascribed to either infected with a mycobacteria other than tuberculosis or vaccination with bacilli Calmette-Guerin (BCG). In addition, tuberculin sensitivity induced by BCG vaccination may last indefinitely, and although sensitivity disappears in a substantial proportion of cases. PPD test was considered as false positive for our patient because the patient had history of BCG vaccination, no evidence and no history of pulmonary TB, and the lesions had good response to systemic steroid.

Photo-induced sarcoidosis was proposed as a rare variant of cutaneous sarcoidosis distributed in mainly on sun-exposed areas by Truchot et al., and only five cases was documented (Table 1). In 1955, Kindler firstly observed a woman with pulmonary sarcoidosis developed disseminated small nodular sarcoid localized on the face and chest exacerbated in spring and summer, and improved in winter. Goujon et al. described a case of systemic sarcoidosis with infiltrative papules limited to the sun-exposed area with

Fig. 1
Multiple annular, flesh to reddish, shiny-surfaced, infiltrated papules or plaques over face, neck, and dorsal aspects of upper limbs.

Fig. 2
(A) The histopathology revealed non-caseating granulomatous inflammation in the upper dermis. (H&E, original magnification x40)
(B) There is few lymphocytic infiltrate surround the epithelioid granuloma. (H&E, original magnification x400)

Fig. 3
(A) Photo-distributed, erythematous, infiltrated papules or plaques on the face before treatment.
(B) The skin lesions were diminishing and responded well in 3 weeks.
good response to systemic corticosteroid.\textsuperscript{5} Schnitzler reported a case with coalescent micropapules over the face, neck and dorsal hands, and developed systemic sarcoidosis 18 years later.\textsuperscript{6} Jullien \textit{et al.} reported a case of cutaneous sarcoidosis strictly limited on the face after sun-exposure.\textsuperscript{7} Standard therapies for cutaneous sarcoidosis include the administration of corticosteroids, antimalarials and methotrexate.\textsuperscript{8} A stepwise approach to patient care is topical or intralesional corticosteroids in mild skin-limited disease, and systemic corticosteroids alone or in combination with antimalarials or methotrexate may be indicated for recalcitrant or widespread disease.\textsuperscript{3} Our patient had a widespread distribution, and potent topical steroid could not control the disease, but responded well to systemic steroids to reach a complete remission in 3 weeks (Fig. 3).

The etiology of sarcoidosis is unknown, and has been attributed to a combination of genetic, immunologic, and environmental factors.\textsuperscript{1} To no surprise, mechanism of photo-induced sarcoidosis is still unclear, but the role of the sun in inducing the eruption is undeniable.\textsuperscript{3} Although the patient refused photo-test, based on clinical, laboratory, and histopathological examinations, the patient was diagnosed as a case of photo-induced sarcoidosis.

We herein present a case of photo-induced sarcoidosis, and in our observation, oral prednisolone is of great benefit to the patient with widespread cutaneous sarcoidosis; however, adequate photoprotection is helpful to control the disease’s activity.

**REFERENCES**

6. Schnitzler L: [Besnier-Boeck-Schaumann dis-

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**Table. 1 Reported Cases of Photo-Induced Sarcoidosis**

<table>
<thead>
<tr>
<th>Age / Sex</th>
<th>Cutaneous manifestations</th>
<th>Systemic involvements</th>
<th>Treatment</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>51 / F</td>
<td>Papular erythema on the face</td>
<td>None</td>
<td>chloroquine</td>
</tr>
<tr>
<td>Case 2</td>
<td>NA</td>
<td>Small disseminated nodules on the face, neck and dorsal areas of the forearms</td>
<td>Pulmonary involvement</td>
<td>NA</td>
</tr>
<tr>
<td>Case 3</td>
<td>58 / F</td>
<td>Several hundreds papules on the face, neck and extensor areas of limbs</td>
<td>Pulmonary, glandular involvement</td>
<td>corticosteroids</td>
</tr>
<tr>
<td>Case 4</td>
<td>7 / F</td>
<td>Coalescent micro-papules on the face, neck, and back of the hands</td>
<td>Pulmonary, ocular involvement</td>
<td>corticosteroids</td>
</tr>
<tr>
<td>Case 5</td>
<td>56 / F</td>
<td>Acute, painful papular erythema on the face</td>
<td>None</td>
<td>quinolones and corticosteroids</td>
</tr>
<tr>
<td>Our patient</td>
<td>61 / F</td>
<td>Annular papular erythema on the face, neck, chest, upper back and dorsal aspects of upper limbs</td>
<td>None</td>
<td>corticosteroids</td>
</tr>
</tbody>
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