Indeterminate Cell Histiocytosis Presenting with Leonine Facies

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Indeterminate cell histiocytosis (ICH) is a rare disease characterized by the proliferation of histiocytic cells derived from indeterminate dermal cells. The clinical features of ICH include solitary or multiple, asymptomatic, papules and nodules on the trunk and extremities. In some cases, ICH presents as a generalized eruption. We report here the case of a patient with ICH who presented with “leonine facies”.

CASE REPORT

A 31-year-old Chinese man presented with a 4-year history of progressive, asymptomatic, scaly, skin-coloured and erythematous papules and nodules. The skin lesions initially appeared on the left cheek, spreading to his right cheek, trunk, and extremities. He did not report any preceding illness or associated constitutional symptoms, such as weight gain/loss, fevers, chills, night sweat, coughs, or chest pain. He had no personal or family history of skin rashes. The skin lesions regressed spontaneously over the subsequent 42 months without any treatment, leaving atrophic scars. Two months prior to his initial visit to our clinic, he experienced a recurrence of his skin lesions.

Dermatological examination revealed skin-coloured and erythematous, soft papules and nodules on his face and both auricles resembling “leonine facies” (Fig. 1A). The lesions ranged from 5 to 40 mm in diameter. There were similar lesions on the patient’s lower and upper extremities (Fig. 1B), but his back was relatively spared. A peripheral blood count, urinalysis, serum electrolytes, aspartate transaminase, lactate dehydrogenase, triglycerides, and an erythrocyte sedimentation rate. Abdominal sonography revealed a fatty liver. A chest X-ray was normal.

A punch biopsy revealed a well-defined Grenz zone with no evidence of histiocytic epidermotropism. A dense dermal infiltrate of histiocytes admixed with lymphocytes was present without eosinophilic infiltration. The histiocytes had abundant eosinophilic cytoplasm with vesicular nuclei. The nuclei of some histiocytes appeared coffee-bean or kidney shaped (Fig. 2A). The histiocytic cells were immunohistochromically reactive for CD1a (Fig. 2B), CD163, and CD68, and partly positive for S-100 protein; cells were negative for langerin. Acid-fast and Periodic Acid-Schiff staining were negative.

The constellation of skin morphology, histology, and immunophenotypic findings were compatible with ICH. Methotrexate (MTX), 15 mg weekly, was recommended. No improvement was seen at his follow-up visit. Given the lack of response to MTX, daily isotretinoin 30 mg and thalidomide 75 mg were recommended. The patient noted improvement in his skin, and remains under close observation in our clinic.

DISCUSSION

Wood et al. (1) first drew attention to ICH in 1985. Classically, skin lesions are found on the trunk and extremities, or are in a generalized distribution. Extracutaneous and systemic involvement in ICH are exceedingly uncommon. Pathological features include positivity for S-100 and CD1a antigens, and negativity for intracytoplasmic Birbeck granules.

The current case is of particular interest because of its unique morphology and cutaneous presentation. Leonine facies are rare (2), and are more frequent in association with lepromatous leprosy (3), cutaneous T-cell lymphomas (4, 5), lichen myxoedematosus (LM) (6), and pachydermoperiostosis (7) (Table 1). Clinical and histopathological features can help to differentiate these conditions from ICH (8–11).

Other mimickers of ICH include granulomatous diseases, such as Langerhans cell histiocytosis (LCH), xanthoma disseminatum, Rosai-Dorfman disease (RDD), and sarcoidosis. ICH shares morphological and immune-phenotypic features with both LCH and non-LCH. LCH is characterized by granulomatous lesions composed of clonal pathological histiocytes, with the most common affected sites being pulmonary, osseous, central nervous system, and skin (12). The cutaneous presentation is highly variable and includes dry scaly involvement,
Table I. Differential diagnoses of disorders presenting with leonine facies

<table>
<thead>
<tr>
<th>Disorders (reference)</th>
<th>Key clinical features</th>
<th>Tests</th>
</tr>
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<tbody>
<tr>
<td>Indeterminate cell histiocytosis (2)</td>
<td>Extracutaneous involvement is very rare, solitary or multiple, asymptomatic, papules or nodules on the trunk or extremities or generalized distribution.</td>
<td>Cutaneous histopathology indicates a monomorphic infiltrate of vacuolated, xanthomatized histiocytes throughout the entire dermis. Histiocytes were S-100(+), CD1a (+), and Birbeck granules (-). Acid-fast skin smear (+), antibodies to phenolic glycolipid I (+).</td>
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<tr>
<td>Leprosy (3, 8)</td>
<td>Sensory loss, thickened peripheral nerves, hypopigmented/erythematous macules.</td>
<td>Cutaneous histopathology indicates loss of adnexa at affected sites. An absolute Sézary cell count of least 1,000 cells/mm³.</td>
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<tr>
<td>Mycosis fungoides (4, 9)</td>
<td>Clinical heterogeneity, skin lesions presented with erythematous patches, plaques, or tumours.</td>
<td>Cutaneous histopathology indicates a monomorphic infiltrate of vacuolated, xanthomatized histiocytes throughout the entire dermis. An absolute Sézary cell count of least 1,000 cells/mm³.</td>
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<tr>
<td>Sézary syndrome (5,9)</td>
<td>Triad of erythroderma, generalized lymphadenopathy, and neoplastic T cells.</td>
<td>Cutaneous histopathology indicates that the disease is characterized by the presence of atypical lymphocytes.</td>
</tr>
<tr>
<td>Lichen myxedematosus (6, 10)</td>
<td>Waxy, closely set papules; accompanied by erythema and sclerosis.</td>
<td>Cutaneous histopathology indicates that the disease is characterized by the presence of atypical lymphocytes.</td>
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<td>Pachydermoperiostosis (7, 11)</td>
<td>Digital clubbing, skin thickening, periostosis, oily skin, acne, hyperhidrosis.</td>
<td>Cutaneous histopathology indicates periostosis and fibroblast proliferation.</td>
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References


Fig. 2. (A) Punch biopsy revealed a well-defined Grenz zone, and a dense dermal infiltration of histiocytes and lymphocytes; (A, insert) nuclei of some histiocytes were coffee-bean shaped (yellow arrow) or kidney shaped (white arrow) (haematoxylin and eosin (H&E) stain, bar = 20 μm). (B) Immunohistochemical studies demonstrated that the histiocytes were strongly positive for CD1a (streptavidin peroxidase (SP) staining, bar = 400 μm).