Benign lichenoid keratoses with histologic features of mycosis fungoides: clinicopathologic description of a clinically significant histologic pattern

**Background:** Benign lichenoid keratoses (BLK) is a well-known clinicopathologic entity and several histopathologic patterns have been described. Features mimicking mycosis fungoides (MF) in clinically typical BLKs have not yet been emphasized. The aim of this study was to confirm the occurrence of an MF-like pattern of BLK.

**Methods:** A retrospective survey was conducted on cases diagnosed as BLK over a 9-month period in a regional dermatopathology service. Seven histologic parameters, previously confirmed as diagnostically suggestive of MF, were applied. Inclusion criteria were: three or more MF-related histologic features and a size less than 2 cm. The clinical features were reviewed.

**Results:** Fifteen cases of MF-pattern BLK were identified. The number of MF-like parameters present in individual cases exceeded the inclusion criteria by variable amounts. Pautrier microabscesses and alignment of lymphocytes along the basal layer were the most frequent (14/15). The age of the patients ranged from 28 to 83 years, with a mean of 50. The size of the lesions ranged from 0.2 to 1.8 cm, with a mean of 0.6 cm. The upper trunk was the favored site. Most of the lesions had been removed because of suspicion of cutaneous malignancy; basal cell carcinoma was the most frequent clinical diagnosis.

**Conclusion:** We describe an MF-like histologic pattern of BLK. Pathologists and dermatopathologists should be aware of this novel histologic pattern to facilitate distinction between the two disorders.

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Table 1. Frequency of histopathologic parameters*

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pautrier microabscesses (intraepidermal aggregation of three or more lymphocytes)</td>
<td>14</td>
<td>93%</td>
</tr>
<tr>
<td>2. Epidermotropism (haloes around lymphocytes without spongiosis)</td>
<td>12</td>
<td>80%</td>
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<tr>
<td>3. Lymphocytes aligned along the basal layer (three or more without overlying intraspinous lymphocytes or spongiosis)</td>
<td>14</td>
<td>93%</td>
</tr>
<tr>
<td>4. Lymphocytes with hyperconvoluted nuclei</td>
<td>7</td>
<td>47%</td>
</tr>
<tr>
<td>5. Epidermal atrophy</td>
<td>4</td>
<td>27%</td>
</tr>
<tr>
<td>6. Lymphocytes in the epidermis larger than those in dermis (on the average)</td>
<td>1</td>
<td>7%</td>
</tr>
<tr>
<td>7. Papillary dermal fibrosis</td>
<td>6</td>
<td>40%</td>
</tr>
<tr>
<td>8. Hypergranulosis</td>
<td>8</td>
<td>53%</td>
</tr>
<tr>
<td>9. Necrotic keratinocytes (three or more throughout the lesion)</td>
<td>11</td>
<td>73%</td>
</tr>
<tr>
<td>10. Eosinophils (one or more)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>11. Solar lentigo or seborrheic keratosis adjacent to the lesion</td>
<td>9</td>
<td>60%</td>
</tr>
<tr>
<td>12. Pointed (rather than rounded) contour of the inflamed rete ridges</td>
<td>11</td>
<td>73%</td>
</tr>
<tr>
<td>13. Plasma cells (one or more)</td>
<td>9</td>
<td>60%</td>
</tr>
</tbody>
</table>

*1–7: Histopathologic features of mycosis fungoides.
8–13: Histopathologic features of benign lichenoid keratosis.

Differentiation of this pattern from a solitary lesion of MF both clinically and microscopically is addressed.

Materials and methods

The impetus for this study was the consultative review of two cases of BLK interpreted by other pathologists as suspicious for MF. BLK cases in the primary-review dermatopathology service at St Paul's Hospital, Vancouver, Canada in the period between August 1997 and April 1998 were subsequently reviewed microscopically and clinically in a retrospective setting. Cases received for secondary, consultative review, including the two consultation cases that had prompted this study, were not included in the study. A total of 13 histopathologic parameters were selected for application to these cases (Table 1). Of these parameters, seven were features found to be of significance in the diagnosis of MF in a recent detailed study, while the other six were features we anticipated would support the diagnosis of BLK. Features that have been considered common to both disorders were not assessed. We used a size of less than 2 cm, a minimum of three MF-related histologic features and absent or mild keratinocyte atypia as inclusion criteria. Clinical features of the selected cases were subsequently reviewed, including sex and age of the patients as well as site, size, morphology and clinical diagnosis (Table 2).

Results

Fifteen cases met the inclusion criteria. The number of MF-related histopathologic parameters present in individual cases was variable. Nine cases (60%) showed four or more MF-related parameters. The frequency of BLK-related histopathologic features also varied from case to case; however, 87% (13/15) of cases had at least one feature to corroborate the diagnosis of BLK (Table 1).

The clinical data are demonstrated in Table 2. The age ranged from 28 to 83 years, with a mean of 50 years. The size of the lesions ranged from 0.2 to 1.8 cm, with a mean of 0.6 cm. Three lesions were described as a nodule, while no morphologic description was given for the other 12 cases. The upper trunk was the favored site. Cutaneous malignancy was suspected clinically in nine of 15 cases (60%), with basal cell carcinoma the most frequent (six of 15). None was suspected clinically to represent MF, other cutaneous lymphomas or "parapsoriasis".

Discussion

Since BLK has been described, several efforts have been made to clarify different histopathologic presentations. Nevertheless, no study to this point has described an MF-like pattern of BLK. In our study, we identified the prevalence in BLK of histologic features previously found to be of significance in the diagnosis of MF in a recent detailed study.

We noted that individual MF-related histopathologic features carry different frequencies (Table 1). While Pautrier microabscesses (Fig. 1) and character-
Histologic features of MF

We observed lymphocytes with hyperconvoluted nuclei and papillary dermal fibrosis (Fig. 3) in about half of the cases. We confirmed that classic BLK-related histopathologic features, which may help in the distinction of BLK from MF, were necrotic keratinocytes, wedge-shaped hypergranulosis, pointed rete ridges, and features of solar lentigo or seborrheic keratosis adjacent to the pathology in question. The latter feature has been observed in several studies and it has been suggested that BLK represents a regressive stage of these lesions. Although we found plasma cells in 60%, we were unable to identify eosinophils in any of our cases, although they have been reported to be a helpful diagnostic feature for BLK. Because the histologic criteria that we proposed to examine in support of the diagnosis of BLK were few in number, it is not surprising that two of our cases did not show these specific distinctive features.

From a clinical point of view, cases were selected to represent small lesions to avoid potential clinical ambiguity with the diagnosis of MF. We observed that the clinical diagnoses were predominantly of cutaneous cancer, especially basal cell carcinoma, in concordance with others' experience. Microscopic features mimicking MF have been observed in drug eruptions, allergic contact dermatitis and persistent pigmented purpuric dermatitis. Moreover, a description of a solitary variant of MF, which differs from localized pagetoid reticulosis, has been designated. In contrast to our cases, almost all lesions of solitary MF are described as patches and plaques, which presumably are larger than 2 cm. One case presented as a nodule. There are conflicting arguments that can be advanced to classify these lesions as either "cutaneous T-cell pseudolymphoma", because they failed to exhibit the biologic behavior of MF, or "solitary MF". In his comment, Kossard reported his experience with three patients presenting with solitary lesions showing histopathologic features of MF in whom subsequent clinical and laboratory review revealed no other evidence of MF. He interpreted these cases as a possible variant of BLK. However, he did not elaborate on features that would allow distinction from MF clinically or microscopically.

We believe that the finding of histologic changes of MF in a proportion of lesions of BLK has significant implications. Pathologists considering suggesting the diagnosis of MF on a histologic basis should first search for clinical or histologic clues that the biopsied lesion might be a BLK masquerading as MF. On the other hand, clinicians who receive a pathologic interpretation of MF in an incongruous clinical setting should consider BLK as a potential explanation.
Future studies may refine the concept of MF-like BLK as a diagnostically reproducible distinct variant of BLK. Moreover, a retrospective study of these lesions with prolonged follow-up could confirm the lack of MF-like biologic behaviour.

Acknowledgements

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References
