Is Crusted (Norwegian) Scabies a Marker of Adult T Cell Leukemia/Lymphoma in Human T Lymphotropic Virus Type I–Seropositive Patients?

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Human T cell lymphotropic virus type I (HTLV-I)–induced immunosuppression has been suggested to explain the occurrence of crusted scabies in HTLV-I–infected patients. HTLV-I is the etiologic agent of adult T cell leukemia/lymphoma (ATL). Crusted scabies diagnosed in 6 HTLV-I–seropositive patients was studied to look for an association with ATL. Four of the 6 either had concomitant ATL when crusted scabies was diagnosed or developed ATL a few months later. These findings suggest that the occurrence of crusted scabies in patients seropositive for HTLV-I could represent a sign of marked immunosuppression related to ATL.

Lesions clinically consistent with crusted scabies (figure 1), with presence of multiple adult mites, larvae, or eggs of Sarcoptes scabiei on microscopic examination of the skin scrapings. ATL cases were diagnosed and classified on the basis of criteria defined by Shimoyama in 1992 [10].

Results

Between January 1990 and December 1994, 16 patients were seen in our department, for isolation and treatment of severe forms of scabies. The following were excluded from the study: 7 patients who had recurrent or surinfected scabies but not clinical and parasitologic characteristics of crusted scabies, 2 who had not been tested for HTLV-I, and 1 who was seropositive for both HTLV-I and HIV-1. Complete data were available for 6 patients (3 men, 3 women, aged 28–71 years). All were found to be seropositive for HTLV-I and negative for HIV-1 and HIV-2. They were not receiving immunosuppressive therapy prior to the occurrence of crusted scabies. They were referred from internal medicine units where they were treated for associated diseases (table 1). All patients selected had low socioeconomic backgrounds, living in villages along the Maroni River, an area where HTLV-I infection is endemic [9]. Three patients were found to have ATL at the time of diagnosis of crusted scabies. The characteristics of the ATL presented by patients 1, 4, and 6 have been previously described by Gérard et al. [10]. Patient 3 had crusted scabies and recurrent digestive strongyloidiasis in August 1992, but ATL was diagnosed 11 months later in July 1993. The two remaining patients, for whom ATL was not diagnosed, presented with severe recurrent digestive strongyloidiasis (patient 2) and pulmonary tuberculosis (patient 5) in association with their scabies. All patients were successfully treated for their scabies with topical 10% benzyl benzoate. Follow-up was possible for all patients except patient 3. The main characteristics of the patients are summarized in table 1.

Discussion

French Guiana is an area in which HTLV-I is endemic. The seropositivity rate depends on the locality and the ethnic group
been suggested that HTLV-I infection is associated with an increased risk of tuberculosis or leprosy [11]. Infective dermatitis has been linked to HTLV-I infection [13]. A total of 6 patients with both crusted scabies and HTLV-I seropositivity were seen over a period of 5 years in our department. Crusted scabies is a rare form of scabies that affects mainly immunosuppressed patients. The occurrence of such scabies has been reported in HTLV-I–seropositive patients, but infrequently [2–8]. Therefore, an association between severe scabies and HTLV-I–induced immunosuppression has been proposed [2, 3]. Most patients treated for scabies in our institution have low socioeconomic backgrounds; all with crusted scabies who were tested for HTLV-I were found seropositive. Our findings are in accordance with those of Mollison et al. [2], who found 5 of 5 aboriginal patients with crusted scabies to be seropositive for HTLV-I. Whether crusted scabies may be considered as a marker of HTLV-I infection is questionable, particularly in areas where both HTLV-I and scabies are endemic, but further larger studies are needed to exclude a coincidental association.

Fewer than 15 cases of crusted scabies in HTLV-I–infected patients have been reported in the literature [2–8]. Among these patients, some had ATL when crusted scabies was diagnosed [5–8]. Therefore these reports raise the question of the significance of the occurrence of severe scabies in HTLV-I–seropositive patients. Our study was to evaluate the risk of ATL in these patients. We have found that 4 of 6 either had concomitant ATL when crusted scabies was diagnosed or developed ATL a few months later. Suzumiy et al. [7] noted that the serum IgA level was low in a patient with crusted scabies and ATL; however, the IgA level in 2 patients in our study was normal. The immunosuppression associated with ATL is well-documented [1, 14], and various infections may occur. Septicemia, pyogenic skin infections, pneumonia, and urinary tract infections have been reported [11, 14, 15]. Opportunistic infections with pathologic fungi, cytomegalovirus, or parasitic infection have been documented [11, 14, 15]. These infections may occur before treatment or after therapy-induced immunosuppression [15]. The severity of the scabies is supposed to be related to the immunosuppression associated with ATL [6].

### Table 1. Clinical and biologic characteristics of 6 HTLV-I–seropositive patients with crusted scabies.

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age (years)/sex</th>
<th>ATL (subtype)</th>
<th>Lymph nodes</th>
<th>Hepatosplenomegaly</th>
<th>LDH</th>
<th>Hyper-Ca++</th>
<th>IgA (normal, 70–350/dL.)</th>
<th>Associated disease</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>71/F</td>
<td>Lymphoma</td>
<td>+</td>
<td>–</td>
<td>1500</td>
<td>+</td>
<td>350</td>
<td>None</td>
<td>Death (5 months)</td>
</tr>
<tr>
<td>2</td>
<td>34/F</td>
<td>None</td>
<td>–</td>
<td>–</td>
<td>1500</td>
<td>–</td>
<td>350</td>
<td>Intestinal strongyloidiasis</td>
<td>Lost to follow-up</td>
</tr>
<tr>
<td>3</td>
<td>28/M</td>
<td>Acute</td>
<td>–</td>
<td>–</td>
<td>1700</td>
<td>+</td>
<td>330</td>
<td>Intestinal strongyloidiasis</td>
<td>Death (48 months)</td>
</tr>
<tr>
<td>4</td>
<td>28/M</td>
<td>Acute</td>
<td>+</td>
<td>–</td>
<td>1500</td>
<td>+</td>
<td>350</td>
<td>Tinea corporis</td>
<td>Death (48 months)</td>
</tr>
<tr>
<td>5</td>
<td>41/M</td>
<td>None</td>
<td>–</td>
<td>–</td>
<td>550</td>
<td>–</td>
<td>330</td>
<td>Pulmonary tuberculosis</td>
<td>Death (6 months)</td>
</tr>
<tr>
<td>6</td>
<td>71/F</td>
<td>Acute</td>
<td>+</td>
<td>–</td>
<td>1500</td>
<td>–</td>
<td>350</td>
<td>None</td>
<td>Death (6 months)</td>
</tr>
</tbody>
</table>

NOTE. LDH: serum lactate dehydrogenase; Hyper-Ca++: hypercalcemia (>2.75 mmol/L).
Whether latent HTLV-I infection alone can favor the occurrence of crusted scabies remains unclear. Two patients in our study had no ATL (patients 2 and 5); however, these patients with latent HTLV-I infection had concurrent infectious diseases (severe recurrent strongyloidiasis and tuberculosis) at the time of the diagnosis of the crusted scabies, which may have contributed to affect the immune function together with HTLV-I. Therefore, in none of the patients we have studied was latent HTLV-I infection alone associated with crusted scabies. Furthermore, the rare reports suggesting an association of crusted scabies with latent HTLV-I infection give little information on follow-up [2–4], and we have shown that ATL could occur some months after the scabies.

Our findings suggest that the occurrence of crusted scabies in patients seropositive for HTLV-I could represent a sign of marked immunosuppression related to ATL. We believe careful follow-up of these patients is required, because crusted scabies may be associated with ATL or precede its development.

**Acknowledgments**

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**References**