Acta Derm Venereol (Stockh) 1994; 74: 63–64

Mycosis Fungoides with Early Central Nervous System Involvement

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The authors present a rare case of mycosis fungoides with early central nervous system involvement mimicking an intramedullary tumour in a 38-year-old white male. ***Key words: Cutaneous T-cell lymphoma; Intramedullary tumour.***

(Accepted July 26, 1993.)

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CASE REPORT

A 38-year-old white male with mycosis fungoides (MF) was admitted to the Department of Dermatology of Lisboa for staging of the disease and therapeutic decision.

Four months before admission, this otherwise healthy man had noticed erythematous macules on the trunk and limbs, which were slightly scaly and pruritic. After some time some of these macules turned into indurated violaceous plaques. One month prior to admission, he was referred to a dermatologist. The clinical diagnosis of MF was confirmed by a skin biopsy performed on a dorsal plaque. A dermal epidermotropic infiltrate composed predominantly of small cerebriform lymphocytes, with hyperchromatic and irregularly shaped nuclei, and epidermal microabscesses were demonstrated. The neoplastic cells were CD45+, CD3+, CD30+ and CD20– (Fig. 1), confirming a T-cell phenotype.

At the time of admission, except for the cutaneous lesions, the physical examination was normal. There were no palpable lymph nodes. The neurological and ophthalmological examinations were also normal.

The laboratory results were unremarkable. Peripheral blood smears were normal, showing no Sézary cells. The serum protein electrophoresis was normal (total γ-globulin 6.9 g/l). Testing for HIV1, HIV2 and HTLV1 was negative. A radiograph of the chest and a computed tomographic scan of the thorax and abdomen showed no abnormal findings.

On the fifth day of hospitalization, when the patient was due to start PUVA-therapy, he gradually developed weakness of the left leg. Neurologic examination revealed a mild flaccid monoparesis of the left lower limb and impaired sensation to pain and temperature over the right side of the body below D5. Deep tendon reflexes were normal and plantar reflexes were in flexion. Twenty-four hours later, the patient became paraparetic. There was no clear sphincter involvement. Mental status, cranial nerves, and strength, sensation and coordination of upper limbs were normal. An asymmetric flaccid paraparesis, grade 1 on the left and 3 on the right, with hyperactive deep tendon reflexes on lower limbs was present. There was also loss of thermal and pain sensations below D4 mainly over the right side of the body. The superficial abdominal reflexes were absent and a left extensor plantar reflex was found.

Myelography demonstrated no spinal cord compression but the iodinated contrast material was poorly visualized above D5. No bone lesions were identified. The cerebrospinal fluid had an elevated protein concentration (1.07 g/l), a normal glucose content (3.4 mmol/l) and the cell count was normal. Magnetic resonance image of spinal cord revealed an intramedullary tumour, extending from D2 to D5 (Fig. 2). Computed tomographic scan of the brain was normal.

Subsequently, the patient was submitted to a thoracic laminectomy, and through a midline myelotomy a biopsy of the lesion was performed. This revealed a low-grade T-cell lymphoma, with the cytological features of mycosis fungoides. The lymphocytes were also CD45+, CD3+, CD30+ and CD20– (Fig. 3) and presented hematoxylin-eosin morphometry similar to skin homing lymphocytes. The patient underwent systemic corticosteroid treatment and local radiotherapy (total dose 30 Gy) of the spine lesion without improvement. Later he was started on intrathecal methotrexate and cytosine arabinoside therapy. His neurological status remained unchanged. He died on the second month of hospitalization from sepsis.

Post mortem examination showed, in spinal cord (from D2 to D6), infiltration by cells morphologically similar to those described in the biopsy. In the skin residual foci of infiltrates with similar histological appearance were found. Death was caused by multiple foci of bronchopneumonia patchily distributed through both lungs. There was no evidence of meningeal and brain involvement.

DISCUSSION

Mycosis fungoides is a cutaneous T-cell lymphoma (CTCL) typically beginning in the skin and pursuing a chronic, progressive, and indolent course eventually followed by visceral involvement. The extracutaneous disease in CTCL is commonly found at autopsy, but clinically apparent extracutaneous disease is detected much less frequently. Symptomatic disease has been identified *in vivo* in virtually every organ system (1).

Although rare, involvement of the nervous system in mycosis fungoides has been previously reported (2–4). Meningeal infiltration is the most common form of presentation and may manifest itself by headaches, confusion and progressive lethargy (2, 5, 6). Multiple cranial nerve palsies and compromise of the anterior and posterior spinal nerve roots also occur (3). Metastatic deposits in the brain and spinal cord, morphologically similar to the skin lesions, are occasionally found (2, 7). Progressive multifocal leukoencephalopathy (8) and peripheral neuropathy (9) have also been reported.

Our patient had a number of unusual features, one of which

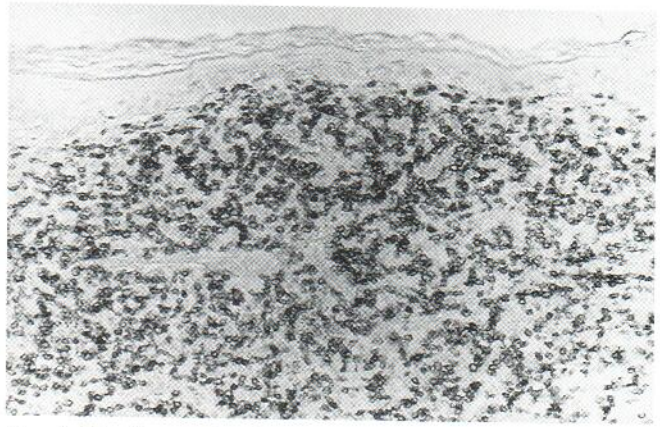

Fig. 1. Skin biopsy of a dorsal plaque showing an extensive dermal infiltration composed of CD3+ cells (×60).

 ISSN 0001-5555

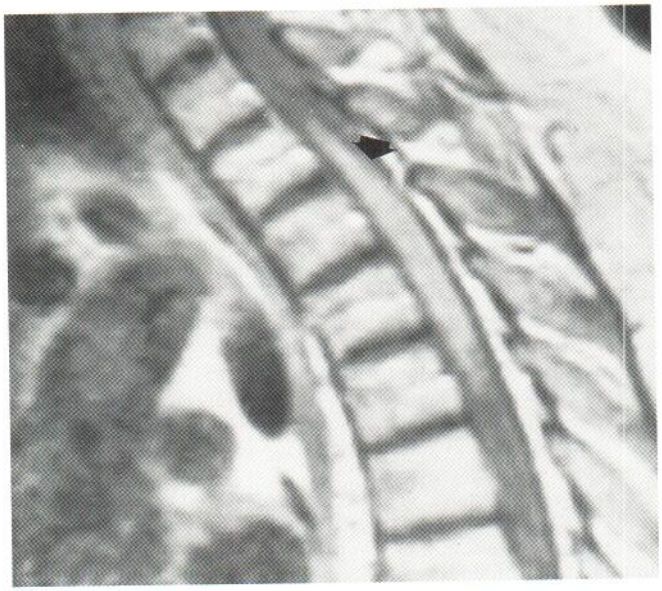

Fig. 2. Magnetic resonance image of the thoracic spine, sagittal section enhanced with gadolinium, revealing a hyperdense intramedullary lesion (*arrow*).

was the relatively early involvement of the nervous system, only 4 months after the initial diagnosis, whereas in most series the average time is 3 years (2). Moreover, in all patients in whom there are neural symptoms, Sézary cells are present in peripheral blood smears or there is already visceral involvement (2), and this did not occur in our case.

Intramedullary deposits have not been previously reported. Hallahan et al. (2) published a case in whom an epidural block was demonstrated by myelography, with bilateral paraspinal masses, extending through the foramina to the epidural space, but the exact origin of the lesion could not be determined. An infiltrative lesion of the cord was also postulated in another case report (4), but an unequivocal anatomic documentation is lacking. In the present case the magnetic resonance image clearly demonstrated the location of the lesion, which was further documented by surgical biopsy.

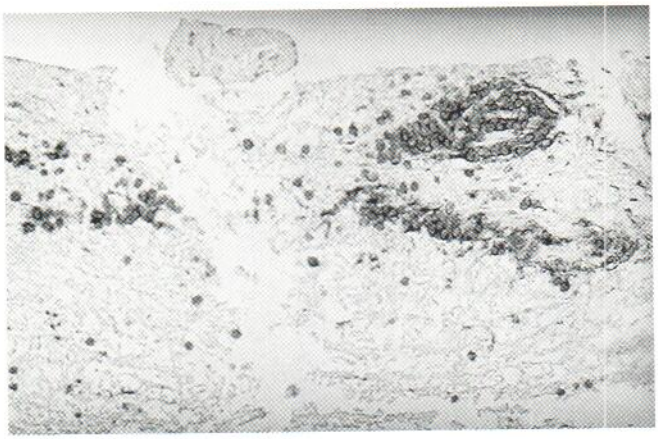

Fig. 3. Medullary biopsy performed during the laminectomy that reveals an agglomerate of CD3+ lymphocytes (×60).

In the presence of an expanding lesion in the central nervous system (CNS) in cases of mycosis fungoides, it is mandatory to exclude other possible causes, namely an infection or a second neoplasia as has been described recently (10). Biopsy of the lesion, if possible, is therefore necessary. Although the proof of a relationship between the two peripheral T-cell lymphomas could have been performed with Southern blotting of the T-cell receptor gene, in this case it is unlikely that the patient had two different T-cell lymphomas simultaneously. This case is a pivotal paper regarding clinical consequences of lymphocyte homing. The CNS lymphocytes should not express the cutaneous lymphoid antigen, but this was not possible to perform because our patient had a fulminant course, leading to death within a few months following the initial symptoms.

The rapid onset of the disease was similar to a unique case of CTCL reported by Lang et al. (11) as a fulminant Sézary syndrome. The clinic and pathological features of the patient resemble those seen in acute leukemias and in non-Hodgkin's high-grade lymphomas. Early and aggressive therapy is advisable, due to the ominous prognosis in such cases.

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