

CLINICAL REPORTS

Paraneoplastic Skin Manifestations of Lung Cancer

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Two cases are reported illustrating a parallel course of extensive skin manifestations and lung cancer. The cases presented features of paraneoplastic acrokeratosis (Bazex's syndrome) and erythema gyratum repens though they did not completely correspond to these well-defined conditions. In both cases the cutaneous eruption appeared more than a year prior to the diagnosis of lung cancer, and the skin disease resolved completely within half a year following surgical removal of the cancer. The need is stressed for repeated cancer screens when a cutaneous marker of internal malignancy is suspected. **Key words:** Bazex's syndrome; erythema gyratum repens; paraneoplastic syndrome; skin marker.

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It is important to recognize paraneoplastic skin manifestations as they can provide an opportunity for early diagnosis and treatment. Furthermore, surgical removal of the cancer is often the only effective treatment of the cutaneous eruption. Curth (1) has provided a number of criteria to be fulfilled in order to accept a certain cutaneous manifestation as associated with internal malignancy. Important among these is a parallel course of the skin symptoms and the cancer. The following 2 cases illustrate such a parallel course. Accordingly, in both cases skin eruptions resistant to therapy appeared more than a year prior to the diagnosis of lung cancer. The eruptions resolved completely following surgical removal of the cancer.

CASE REPORTS

Patient 1

A previously healthy 53-year-old male smoker, without predisposition for psoriasis, was referred by the local dermatologist under the diagnosis of dyshidrotic eczema. He presented with a two-and-a-half-year history of palmar and plantar eczema. The eczema had been treated with local steroids, antibiotics and oral prednisone resulting in clearing for only short periods of time. On the first examination there was marked hyperkeratosis of the palms and soles (Fig. 1) and 3 to 4 nummulate elements on the back. Nail involvement was not noticed.

Initially, the condition improved on treatment with neotigason. However, after 6 weeks there was a widespread appearance of moderately infiltrated, annular and gyrate elements with a slight scaling (Fig. 2). Several skin biopsies from arm and back showed unspecific lymphocytic infiltration; fungal scrapings were negative. There was a clinical suspicion of an underlying cancer, but blood biochemistry and X-ray of the chest were normal.

Treatment was initiated with oral prednisone, 30 mg a day tapered over 6 weeks, resulting in good clinical improvement of truncal lesions



Fig. 1. Patient 1 presenting marked plantar hyperkeratosis.



Fig. 2. Patient 1 with widespread, moderately infiltrated annular and gyrate elements associated with lung cancer.

and hyperkeratoses on palms and soles. However, shortly after, the skin disease relapsed. In addition to previous findings there was now a thick scaling on the vertex and the helix of the left ear, and fingernails showed onycholysis. Biopsies from arm and hand showed unspecific lymphocytic infiltration and psoriasiform dermatitis, respectively. Chest X-ray was normal.

During the following 2 months the patient was hospitalized twice for tar treatment and a third chest X-ray was normal. Finally, after another 6 months, the patient was hospitalized with generalized erythrodermia and hyperkeratosis of the hands and feet. Chest X-ray now demonstrated a dense round infiltrate (2 × 1.7 cm) in the left lung close to the hilus region. The patient had a long history of cigarette smoking, but did not suffer from lung symptoms except for an occasional, mild coughing.

Succeeding the diagnosis of cancer, the left lung was removed, harbouring an adenocarcinoma with spreading to the lymphatics. Three months following the operation the skin symptoms had completely disappeared and no lesions had reappeared at 6 months follow-up.



Fig. 3. Patient 2 with almost universal fine scaling erythrodermia associated with lung cancer. The photo illustrates the characteristic sparing demarcated by a red, inflamed borderline.

Patient 2

A 60-year-old female smoker with no previous dermatological disorders was admitted with an 18-month history of red papules initially appearing on the hands and subsequently spreading to most of the skin surface in the form of confluent papules and macules. Under the suspicion of a medical exanthema the drugs paracetamol, oestrogen, hydrochlorothiazide and amiloride were discontinued with no effect on the eruption. The condition was acceptably controlled by use of potent topical steroids. However, a few weeks prior to admission the patient developed a fine scaling erythrodermia with several sparing sharply demarcated by an inflamed red borderline (Fig. 3). The eruption was severely itching. Blood biochemistry was normal and skin biopsy showed a slight superficial lymphocytic dermatitis. The European standard patch-test and fungal scrapings were negative.

After 1 month the patient was readmitted presenting a flare-up reminiscent of erythema gyratum repens. Therefore, she was intensely screened for internal malignancy. The only findings were an elevated ESR at 41 mm/h and a slight leukocytosis. Chest X-ray showed non-specific changes in the right superior lobe and additional apex, side and oblique shots revealed discrete chronic changes. Skin pathology was still unspecific with a slight lymphocytic dermatitis. A positive borrelia IgG titre was observed and the patient was treated with tetracycline under the suspicion of borreliosis.

A further skin biopsy showed chronic inflammation and dermatophytes. There was a moderate hyalinization in the upper papillary dermis, indicating it could be a skin marker of malignant disease. Several skin scrapings and cultures from vertex, body and arms did not show dermatophytes. However, because dermatophytes were seen on histology the patient was treated with oral itraconazole, 100 mg daily for 4 weeks, without any clinical improvement, supporting that the eruption was not due to tinea.

Shortly after, the patient was seen again and a repeated search for internal cancer was performed. The only abnormal findings were an enlarged liver with cirrhotic changes and ESR now elevated to 69 mm/h. Based on a low level of zinc in serum, a zinc-depletion dermatosis was suspected and supplementary zinc treatment initiated.

During the following 2 months the cutaneous lesions varied in intensity. Finally, chest X-ray showed a dense infiltrate in the central region of the right lung. A plano-cellular lung cancer was diagnosed and the tumour was subsequently removed. Three months after the operation there was only a slight redness of the skin on the extremities. After 6 months the patient was clear of skin symptoms.

DISCUSSION

A number of well-defined cutaneous signs and symptoms have been reported as markers of lung cancer including acanthosis palmaris (tripe palms), dermatomyositis, erythema gyratum repens, paraneoplastic acrokeratosis (Bazex's syndrome), bullous exanthema, migratory thrombophlebitis (Trousseau's sign), punctate keratoses of hands and feet, hypertrophic pulmonary osteoarthropathia and clubbing (2, 3). The cutaneous eruptions of the 2 patients reported here did not correspond exactly to any of these conditions. However, they presented elements of several of these.

Patient 1 showed a number of similarities with paraneoplastic acrokeratosis (4). Accordingly, this disease almost exclusively affects males older than 40 years and it typically presents with erythema and psoriasiform scaling on fingers and toes in the form of keratoderma. In addition, the helices of the ears are frequently affected. Nails may show subungual hyperkeratoses and onycholysis. Over time, the eruption spreads to involve the truncus and extremities with psoriasis-like lesions, though the plaques may be less well defined. When associated with lung cancer, the tumour is typically located in the upper third of the lungs (4). In contrast to patient 1, erythrodermia is not a part of paraneoplastic acrokeratosis and the associated tumour is most often a plano-cellular carcinoma and rarely an adenocarcinoma (4). Also the back of the nose is often involved, and diffuse palmar and plantar hyperkeratosis alone is not typical, as the lesions are situated distally with involvement of the upper side of the distant phalanges.

Both patients showed an exfoliative erythrodermia which is known to be associated with malignant disease in 10–15% of cases. Most often the associated disease is a malignant affection of the lymphoreticular system, but solid tumours have also been reported (5).

Patient 1 showed profound palmar and plantar hyperkeratosis during the full course of the disease. Such hyperkeratosis have, by some authors, been linked to internal cancer including lung cancer. This is especially true for the so-called "tripe palms" presenting a curious accentuation of normal dermatoglyphics (6), and also for certain kinds of familiar punctate keratoderma (5). The potential association of more diffuse palmar and plantar hyperkeratosis and malignancy is less well documented.

In both cases a figurate erythema evolved resembling erythema gyratum repens. This is an uncommon but highly characteristic dermatosis presenting with the appearance of rings or gyrate bands of erythema inside already existent patterns. "Gyratum repens" means creeping rings and the lesions enlarge centrifugally at 0.2–0.5 cm a day (7). The inner border of the figurate lesions may be scaly and commonly the condition is accompanied by severe itching. Only about 50 cases have been reported in the literature and most of these have been associated with a solid cancer located in the lungs (8, 9).

In our patients, the suspicion of an underlying cancer was awoken early in the course of disease. However, it took several screenings before the malignancy was recognized by X-ray examination of the chest. There was no clinical signs other than the skin disease. Though the skin eruptions did not exactly correspond to any previously well-defined condition, the parallel course with the lung cancer strongly supports

them as paraneoplastic eruptions. This stresses the need to be aware also of less characteristic paraneoplastic skin manifestations and to perform repeated cancer screens based on the suspicion. Maybe a more aggressive attitude, including thorax CT-scan and bronchoscopy, would have been of benefit.

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