Erythema Gydatum Repens with Esophageal Carcinoma

Langner D¹, Wollschläger S², Schönlebe J³, Wollina U^{1*}¹Department of Dermatology and Allergology²Department of Internal Medicine III³Institute for Pathology "Georg Schmorl" Academic Teaching Hospital Dresden-Friedrichstadt, Städtisches Klinikum, Dresden, Germany

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***Corresponding author:** Prof. Dr. U. Wollina, Department of Dermatology and Allergology, Academic Teaching Hospital Dresden-Friedrichstadt, Friedrichstrasse 41, 01067 Dresden, Germany. E-mail: wollina-uw@khdf.de

Abstract

Erythema gyratum repens represents a rare facultative paraneoplasia. Quite often the dermatosis precedes tumor diagnosis. We report a 76-year-old male patient who initially presented with non-characteristic erythematous papules. After the diagnosis of an adenocarcinoma of the lower third of the esophagus the morphology of the dermatoses transformed into typically figured erythemas with pronounced margins. Our case might support the hypothesis of cutaneous inflammation induced by crystallization of glutamine compounds in the skin. Tumor therapy was palliative by radiation. The erythema responded to a combined approach using topical corticosteroids and PUVA.

Keywords: Erythema Gydatum Repens; Paraneoplasia; Esophageal Carcinoma

Introduction

The first description of Erythema gyratum repens was made by Gammel who observed this rare skin disease in 1952 in a 55-year-old female with metastatic adenocarcinoma of the breast. Two days after mastectomy and axillary lymph node dissection erythema gradually disappeared. Six weeks later a complete remission was achieved [1].

In the majority of cases erythema gyratum repens is associated with a malignant tumor and represents a paraneoplastic dermatosis. The most common malignancy is lung cancer (32%), followed by esophageal cancer (8%) and breast cancer (6%) [2,3].

The current concept of pathophysiology assumes a tumor-induced humoral and/or cellular immune response resulting in a cross-reactivity to skin or deposition of tumor antigen-antibody immunocomplexes along the basement membrane [2].

The typical clinical presentation is that of annular, garland shaped or spiral shaped erythemas with elevated borders, slight infiltration and scaling also known as wood grain pattern. The speed of propagation reaches up to 10 cm per day [1].

Clinical presentation, however, may vary. About one third of patients do not suffer from malignant tumors, what fulfills the criterion of a facultative paraneoplastic dermatosis.

Case Report

Medical history

A 76-year-old male patient presented with pruritic and progressive cutaneous lesions localized mainly on his trunk. The differential diagnoses at this time included eosinophilic dermatosis or systemic mastocytosis due to peripheral blood hypereosinophilia. He reported that 6 years and 6 months before similar lesions developed, that responded to psoralen Plus UltraViolet (UV)-Irradiation (PUVA) and topical corticosteroids.

During the last weeks, he experienced an acute relapse associated with fatigue, loss of appetite, weight loss and pruritus.

Clinical investigations of internal organs were unremarkable. His skin, however, demonstrated multiple erythematous papules and plaques on trunk and proximal extremities. Darier sign was negative. During his stay in the hospital he developed target-like slightly elevated erythematous lesions (Fig. 1a, b).

A skin biopsy revealed an orthokeratotic epidermis with inclusions of serum and leukocytes and a psoriasisform pattern. In the central parts of the lesions spongiosis and parakeratosis was noted. There was a partly perivascular, partly interstitial inflammatory infiltrate composed of lymphocytes and monocytes, some neutrophilic and eosinophilic granulocytes, and occasional mast cells. There were no signs of a mycotic infection (Fig. 2).

Laboratory investigations: Hemoglobin 8.20 mmol/l (↓), hematocrit 0.398 l/l (↓), neutrophils 8.90 Gpt/l (↑), eosinophils 0.70 Gpt/l (↑), mast cell tryptase 22.1 µg/l (↑). The other parameters were in the normal range.

Imaging: X-ray and computerized tomography demonstrated some mediastinal calcified lymph nodes. Abdominal sonography and colonoscopy were unremarkable. Gastroscopy demonstrated erosions and inflammatory lesions in the distal third of the esophagus and erosions on the antrum (Fig. 3). Under the suspicion of a Barrett syndrome (Differential diagnosis: erosive antrum gastritis) a biopsy was taken. Histologic investigations revealed a moderately differentiated adenocarcinoma of the esophagus on Barrett syndrome (Fig. 4a,b).

Figure 1: Clinical presentation of erythema gyratum repens. (a) Periumbilical figurated erythema. (b) On the legs erythematous plaques with slightly elevated borders.

Figure 2: Histopathology of erythema gyratum repens with an inflammatory infiltrate in upper dermis and around skin appendages (HE x 10).

Figure 3: Endoscopy of distal esophagus with Barrett syndrome but without a primary tumor suspicion.

Figure 4: Histology of esophageal adenocarcinoma. (a) HE x 10; (b) PAS-stain (x10).

Diagnosis

Erythema gyratum repens associated with esophageal adenocarcinoma and Barrett syndrome (G2, category 4.3 of the modified Vienna classification [4].

Therapy and course

Topical treatment was realized using fluocinolone acetonid ointment twice daily in combination with bath-PUVA (8 sessions). Antipruritic oral treatment was realized by fexofenadin and ranitidin. This resulted in significant improvement of cutaneous lesions and complaints.

The cancer was treated by radiotherapy. Cutaneous lesions changed into wood grain pattern erythema but disappeared step by step thereafter.

Discussion

In case of paraneoplastic erythema gyratum repens, skin lesions often develop several months before detection of cancer [5]. Differential diagnosis include erythema gyratum repens-like mycosis fungoides [6], paraneoplastic bullous üemphigoid [7] or erythema gyratum-like bullous lupus erythematosus [8]. Other figurated erythemas also need consideration (Table 1).

Our case is remarkable because of initially unspecific cutaneous lesions. After the diagnosis of esophageal adenocarcinoma the lesions shape-shifted into the characteristic wood grain pattern. The case illustrates that erythema gyratum repens may develop from nonspecific cutaneous erythemas.

The etiology of erythema gyratum repens remains unclear. Recently, Forrester discussed a possible relationship to L-glutamine cristallization in living tissues. Glutamine is released

Table 1:

Disease	Remarks
Bullous pemphigoid	rare manifestation, BP-antibodies
Dermatitis herpetiformis Duhring	antibodies to endomysium and transglutaminase
Erythema annulare centrifugum	association to allergy, infections, tumors
Eosinophilic annular erythema	subtype of Wells syndrome
Erythema chronicum migrans	Borelliosis
Erythema gyratum repens	facultative paraneoplasia
Erythema papulosa semicircularis recidivans	acute phases during hot summer time, unknown etiology
Erythrokeratoderma variabilis	genodermatosis, disorder of keratinization
Granuloma annulare	histopathology with dermalen granulomas
IgA-lineäre Dermatose	rarely figurate erythemas, akantolysis
Lupus gyratum repens	rare Lupus erythematosus variant
Neutrophilic figurated erythema	may be associated with leukemia/lymphoma of childhood
Psoriasis	rarely with figurated erythemas
Sweet-Syndrom	figurate erythemas possible, neutrophilic dermatosis
Urticaria	may show with elevated borders

by tumor cells. Self-assembled multi-ring formations of these compounds in aqueous solutions resemble formally the shape of skin lesions in erythema gyratum repens [9]. Based on this hypothesis, the initial uncharacteristic skin lesions may be a result of low concentrations of glutamine in tissue. Only after clinical manifestation of cancer typical wood grain like lesions developed.

Due to the age of the patient palliative tumor management by radiotherapy was an option. Cumulative doses of 50-70 Gy ensure 5-year-survival rates of 23%. Tumors of the upper third of the esophagus have a better outcome with a 5-year survival rate of 44.5% [10].

Summary and Conclusions

Erythema gyratum repens is a rare facultative cutaneous paraneoplasia. Initial symptoms can be uncharacteristic, wood grain pattern lesions develop only in mature stages. In about 1/3 of cases the disease is not tumor-associated. Nevertheless, a diagnosis of erythema gyratum repens warrants an in depth search for possible underlying malignancies.

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