

Single Case

Erythema Gydatum Repens in Long-Term Smoker

Andrew P. Sauvageau^a Jacob Mojeski^a Thomas W. Fiorica^a
Craig C. Miller^b

^aJacobs School of Medicine and Biomedical Sciences, University at Buffalo, Buffalo, NY, USA; ^bNiagara Dermatology Associates, Lewiston, NY, USA

Keywords

Paraneoplastic skin condition · Polycyclic erythematous rashes · Erythema gydatum repens

Abstract

Erythema gydatum repens (EGR) is a rare paraneoplastic skin condition characterized by the eruption of expanding, concentric, erythematous patches and plaques. The condition may precede a symptomatic appearance of internal malignancy, and therefore provides a unique opportunity to prevent additional morbidity and mortality secondary to undetectable cancer growth. We report the case of a 71-year-old female patient clinically diagnosed with EGR and subsequently diagnosed with otherwise asymptomatic adenocarcinoma of the lung.

© 2019 The Author(s)
Published by S. Karger AG, Basel

Introduction

Erythema gydatum repens (EGR) is a rare disease characterized by the cutaneous eruption of migratory concentric erythematous bands. The condition, first described by Gammel [1] in 1952, is also referred to as “Gammel’s disease”. The reaction primarily occurs in older individuals and has a strong association with internal malignancy; such an association presents in approximately 82% of cases [2]. The lesion is often indicative of subsequent complications, as it often precedes the diagnosis of the neoplastic process. Its morphology can be further described as the appearance of erythematous, rounded macules or papules that

coalesce into migratory concentric banded patches or plaques [2–6]. The characteristic “wood grain” appearance of EGR is quite unique, and therefore is useful when diagnosing the condition clinically. We report a case of EGR appearing prior to the diagnosis of an underlying adenocarcinoma of the lung.

Case Presentation

A 71-year-old white female with a past medical history of chronic obstructive pulmonary disease secondary to long-term tobacco use presented with a 3-month history of a rash in her right axilla. She did not have a primary care physician at the time of presentation, and therefore was self-referred for dermatologic evaluation. The rash began as a red bump that rapidly expanded to involve her entire axilla; it was described as red, burning, itchy, and painful. She reported no known allergies and denied recent irritation or substance exposure to the affected area. Treatment included daily over-the-counter hydrocortisone cream but failed to provide symptomatic relief. She denied associated fevers, hemoptysis, weight loss, fatigue, or blood in her stool, but endorsed mild cough and shortness of breath related to her chronic obstructive pulmonary disease. No other medical, surgical, or family history was reported. Examination revealed multiple red, concentric, raised, serpiginous plaques with associated desquamation confined to the right axillary vault (Fig. 1). No similar lesions were found upon further skin examination. Suspicious of the diagnosis, further examination with a chest radiograph was performed to screen for internal malignancy and showed an 8.0-cm mass in the medial right apex of the lung (Fig. 2). Prompt referral of the patient to oncologic care for further management was initiated.

Discussion

EGR is a rare paraneoplastic skin eruption known to be highly associated with visceral malignancy. The most commonly associated malignancy is lung cancer, followed by esophageal cancer and breast cancer [5–7]. The syndrome has also been reported to occur rarely in non-neoplastic diseases, such as tuberculosis, bullous dermatosis, and CREST syndrome [5]. The clinical appearance of EGR is unique, often described as an extensive eruption of concentric erythematous coils arranged in parallel across the body. It is this serpiginous and coiled pattern that gives EGR its distinctive “wood grain” appearance. The rash is known to progress at an impressive rate of approximately 1.0 cm/day. As it expands, scaling can be found on the edges of the erythema [6]. It should also be noted that the associated lesions are not static in appearance; rather, they migrate over time. As demonstrated in our patient, the eruption tends to spare the hands, feet, and face and is invariably pruritic [6].

The exact mechanism by which EGR develops is currently unknown. Underlying malignancy is strongly believed to play a role due to documented improvement with resolution of the primary neoplasm. Some studies suggest that the tumor alters skin antigens, leading to the formation of neoantigens. These neoantigens are then targeted, along with the tumor, in an immune-mediated inflammatory response [6]. This theory has been supported by a case describing IgG and C3 deposition within EGR-affected skin and in the tumor-associated bronchial basement membrane [8]. Despite this, the full pathogenesis of the condition remains to be described.

Diagnosis of EGR remains clinical. Although supportive, histopathology for EGR is non-specific and insufficient for diagnosis. Histopathological features can include, but are not limited to acanthosis, hyperkeratosis, parakeratosis, and epidermal and superficial dermal spongiosis with occasional perivascular inflammatory infiltrate within the superficial plexus [9].

Treatment of EGR should primarily be directed toward the underlying malignancy, as most cases experience full resolution with clearance of the associated neoplasm. There is only one reported case in which EGR manifested after chemotherapy was started [4, 5]. Although topical and systemic steroids have been used to treat EGR, they rarely provide a clinical benefit [2].

Our case demonstrates a subtle, yet distinctive, appearance of EGR that was sufficient for an accurate clinical diagnosis without pathological support. This reinforces the importance of including EGR in the differential diagnosis of concentric appearing rashes and the option to forgo unnecessary biopsies if clinical suspicion for the condition is high.

Acknowledgement

We appreciate your consideration of our report.

Statement of Ethics

The authors have no ethical conflicts to disclose. Written consent was obtained from the patient for submission of this report and research was conducted ethically in accordance with the World Medical Association Declaration of Helsinki.

Disclosure Statement

The authors have no conflicts of interest to declare.

Funding Sources

This article has no funding source.

Author Contributions

All authors contributed to the formation of the article.

References

- 1 Gammel JA. Erythema gyratum repens; skin manifestations in patient with carcinoma of breast. *AMA Arch Derm Syphilol*. 1952 Oct;66(4):494–505.
- 2 Tchernev G, Chokoeva AA, Vidolova NG, Ivanova B, Mangarov H, Nikolovska D, et al. Erythema gyratum repens: a pathogenetic mystery and therapeutic challenge. *Wien Med Wochenschr*. 2017 Apr;167(5-6):117–9.

- 3 Liao MM, Long V, Yang SS. Erythema gyratum repens: a paraneoplastic eruption. *BMJ Case Rep.* 2016;2016:bcr2016214665.
- 4 Müller CS, Lorenz MT, Tilgen W, Rass K. Primary manifestation of erythema gyratum repens as a transient erythroderma in a patient with bronchial carcinoma. *Int J Dermatol.* 2010 Jun;49(6):676–8.
- 5 De La Torre-Lugo EM, Sánchez JL. Erythema gyratum repens. *J Am Acad Dermatol.* 2011 May;64(5):e89–90.
- 6 Stone SP, Buescher LS. Life-threatening paraneoplastic cutaneous syndromes. *Clin Dermatol.* 2005 May-Jun;23(3):301–6.
- 7 Boyd AS, Neldner KH, Menter A. Erythema gyratum repens: a paraneoplastic eruption. *J Am Acad Dermatol.* 1992 May;26(5 Pt 1):757–62.
- 8 Eubanks LE, McBurney E, Reed R. Erythema gyratum repens. *Am J Med Sci.* 2001 May;321(5):302–5.
- 9 Gore M, Winters ME. Erythema gyratum repens: a rare paraneoplastic rash. *West J Emerg Med.* 2011 Nov;12(4):556–8.



Fig. 1. “Wood grain” appearance of erythema gyratum repens rash. Erythema gyratum repens presenting as multiple red, concentric, raised, serpiginous plaques with associated desquamation in the right axillary vault.

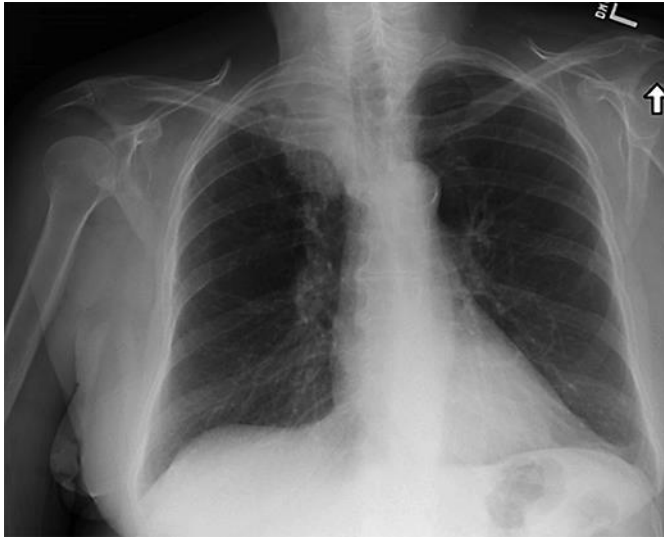


Fig. 2. Chest X-ray of patient. Posteroanterior X-ray film depicting an 8.0-cm density in the medial right apex of the lung.