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Authors

Turrion Merino, L
Vano-Galvan, S
Garcia de la Vega, M Urech
et al.

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Case Presentation

Localized acneiform eruption following radiotherapy in a patient with breast carcinoma.

Turrion Merino, L.¹, Vano-Galvan, S.¹, Urech Garcia de la Vega, M.¹, Hermosa Zarza, E.¹, Moreno Garcia del Real, C.², Jaen Olasolo, P.¹

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¹Dermatology Department, Ramón y Cajal University Hospital, Madrid, Spain

²Pathology Department, Ramón y Cajal University Hospital, Madrid, Spain

Correspondence:

Lucia Turrion Merino
Carretera Colmenar Viejo km 9.100, 28034 Madrid, Spain
Tel: +34659432478
Fax: +34913735088
Email: luciaturrion@gmail.com

Abstract:

The vast majority of patients treated with radiotherapy develop dermatological side effects. Acute radiation dermatitis or chronic skin fibrosis are well known sequels of radiation, but there are also other infrequent skin toxicities following external radiotherapy we should be aware of. We present a case of a rare form of delayed radiation dermatitis consisting of a localized acneiform eruption, confirmed by skin biopsy, in the irradiated fields in a woman with breast cancer. We review the clinical characteristics and risk factors available in the literature about this unusual adverse effect of radiotherapy. It is important for dermatologists to recognize this rare adverse effect, owing to the important impact on physical and psychosocial health of the patients and because it may delay the surgical reconstruction.

Keywords: acne, acneiform, skin reaction, cutaneous reaction, comedones, radiotherapy, radiation, postradiotherapy, breast carcinoma, Favre-Racouchot,

Introduction

Cutaneous adverse effects are frequent after ionizing radiation treatment of tumors [1]. Several forms of atypical radiation dermatitis have been described such as irradiation-induced morphea, localized mastocytosis, atypical vascular lesion in irradiated skin, Sweet syndrome, and localized bullous pemphigoid [2, 3, 4, 5]. Comedo reaction is an unusual dermatologic condition, consisting of a localized acneiform eruption in the irradiated fields; it has rarely been described in association with different types of radiotherapy [6].

We present a case of this rare form of delayed radiation dermatitis in a patient diagnosed with breast carcinoma. To our knowledge there are few reports of this particular effect of radiation therapy in patients with breast cancer. We review the clinical characteristics and risk factors available in the literature.

Case synopsis

A 47-year-old woman presented with a 2-week history of asymptomatic inflammatory papules and plaques associated with open comedones localized to the right pectoral region. The patient had been diagnosed with right ductal breast carcinoma a year before. She received treatment with neoadjuvant chemotherapy (four cycles of standard chemotherapy regimen with adriamycin and cyclophosphamide and twelve cycles of taxol), surgery, and posterior radiotherapy. Neither anti-estrogen therapy nor other treatment was needed. Four months after finishing the last dose of radiation, she presented with a comedo-like acneiform eruption

clearly confined to the irradiated sites (Figure 1, a and b). She denied the application of any topical products, such as corticosteroids or tars, over this area. The plastic surgeons decided to delay the surgical reconstruction until the skin healing occurred. No other signs of radiation dermatitis were noted.

Based on clinical and histological findings, a diagnosis of localized acneiform eruption secondary to radiotherapy was determined. Treatment with topical retinoids and benzoyl peroxide was started with considerable improvement and resolution after manual extraction of comedones a few months later (Figure 1, c and d).

Skin biopsy showed a prominent and localized granulomatous inflammatory reaction, very suggestive of a ruptured follicular cyst (Figure 2, a and b).

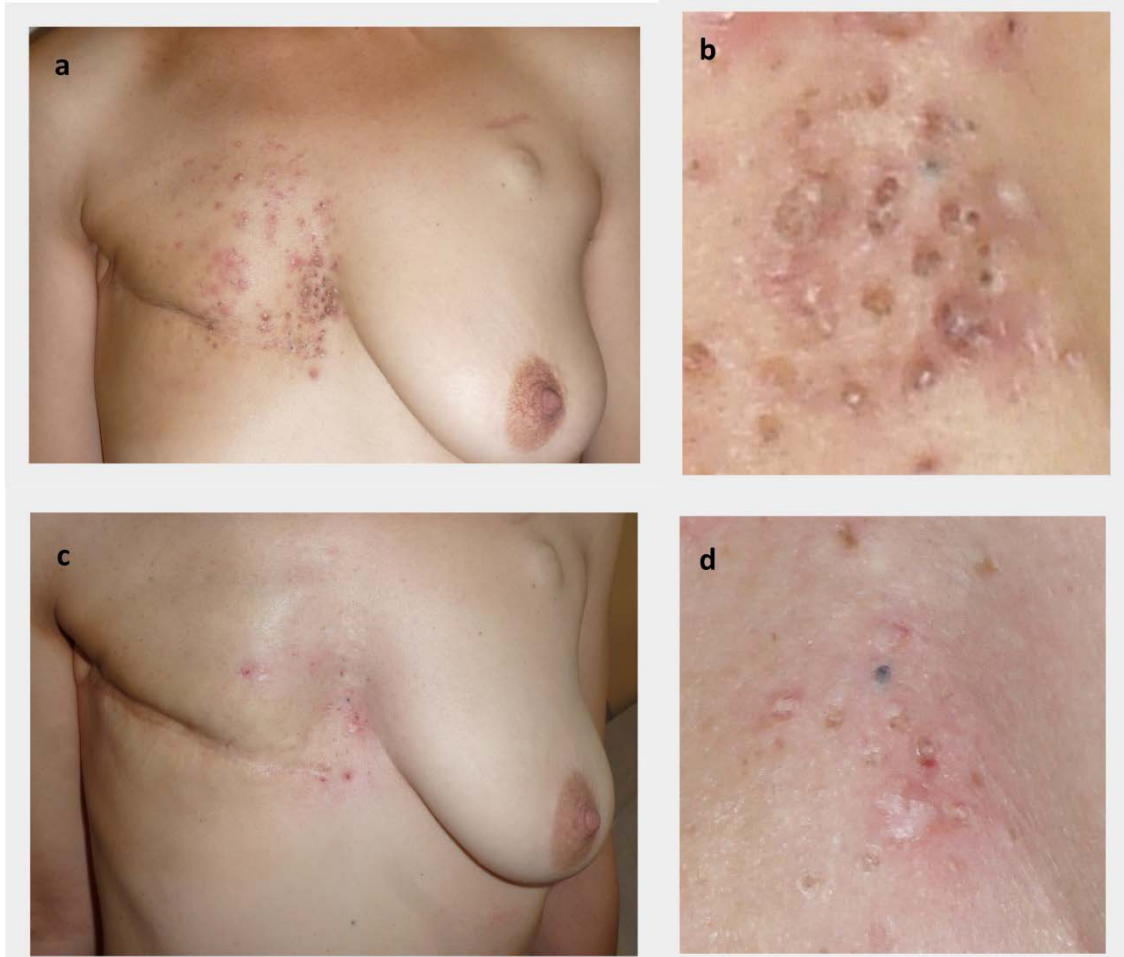


Figure 1. Acneiform eruption. Open and closed comedones on the irradiated skin field (a and b), and complete resolution with some residual depressed scars after treatment with topical retinoids and manual extraction (c and d).

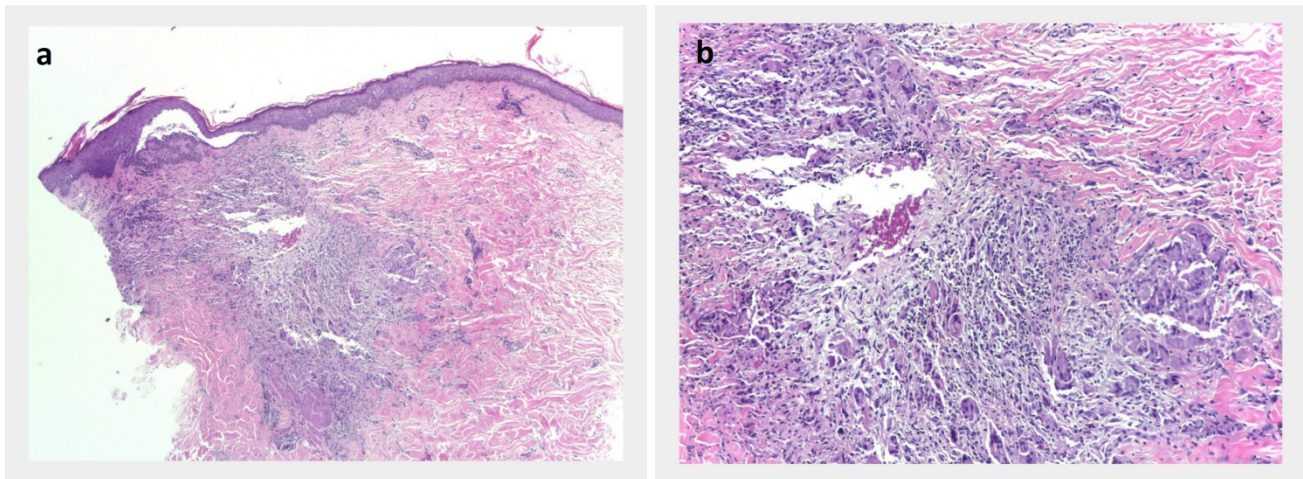


Figure 2. Acneiform lesion Hematoxylin-Eosin stain Prominent and localized granulomatous inflammatory reaction (a, 40x magnification) with a few neutrophils and numerous multinucleate giant cells of foreign body (b, x200 magnification), very suggestive of a ruptured follicular cyst

Discussion

The vast majority of patients treated with radiotherapy develop dermatological side effects [1, 7]. Acute radiation dermatitis or chronic skin fibrosis are well known sequels of radiation. However, there are also other infrequent skin toxicities following external radiotherapy we should be aware of owing to the important impact on physical and psychosocial health of the patients [8].

Comedo-like acneiform reaction is a rare effect of external radiation. There are only a few cases reported in the literature [6, 9, 10, 11] and almost all of them were described in patients with head and neck carcinomas or brain tumors who received local radiation with curative or palliative intention. Martin and Bardsley reviewed 27 cases of radiation acneiform eruption and described its clinical presentation [6]. All body sites can be affected, but 16 of these 27 cases occurred on the face, neck, or scalp. Notably the upper trunk was also frequently involved. Only 4 cases apart from ours were located in the breast region [6, 11]. The latent period was widely variable, from 2 weeks to 6 months. Our patient developed the skin lesions 4 months after finishing radiation therapy. In half of the cases [6, 9, 10], potential risk factors for developing acneiform eruptions such as past history of acne vulgaris or therapeutic association with systemic corticosteroids or other drugs (sex hormones, isoniazid or anticonvulsants) were identified, but none of these were relevant in our patient. In most cases, the acneiform reaction resolved after a few months of treatment with topical retinoids and manual extraction of comedones. In one case, the authors reported the use of low dose systemic isotretinoin [8]; in another case oral doxycycline produced a good response [11].

As others authors postulate [9,10,12], we support that radiation can produce chronic follicular inflammation and hyperkeratosis and produce the development of follicular cysts and comedones, similar to the etiopathogenesis of Favre-Racouchot syndrome in which prolonged exposure to sunlight radiation leads to nodular elastoidosis with open and closed comedones. Another factor implicated in its pathogenesis is a change in the lipid composition of sebum related to irradiation [6].

In conclusion, the development of localized comedones and an acneiform eruption should be included as atypical delayed skin reactions to ionizing radiation in patients with breast carcinoma. It is important for dermatologists to recognize this rare adverse effect because it may delay the surgical reconstruction; patients and plastic surgeons should be reassured about the transient course of these skin lesions.

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