



A case of reactive perforating collagenosis accompanied by scabies and diabetes

Diyabet ve skabiese eşlik eden bir reaktif perforan kollagenozis olgusu

● Gizem Yağcıoğlu, ● Ekin Şavk*, ● Meltem Uslu*, ● Neslihan Şendur*, ● Canten Tataroğlu**

Acıbadem Kozyatağı Hospital, Clinic of Dermatology, İstanbul, Turkey

*Adnan Menderes University Faculty of Medicine, Department of Dermatology; **Department of Pathology, Aydın, Turkey

Abstract

Reactive perforating collagenosis (RPC) is characterized by hyperkeratotic papules and histopathologically transepidermal elimination of structural altered collagen fibers. It is often associated with diabetes mellitus and renal failure. Superficial skin trauma is thought to play a role in triggering the disease. In this article, we present a rare case of a 59-year-old woman with complaint of itching and scabs for 2 months. The patient diagnosed with scabies and RPC treated with 5% permethrin. After scabies treatment, the symptoms and clinical findings of RPC were successfully checked.

Keywords: Reactive perforating collagenosis, scabies, dermoscopy, diabetes mellitus

Öz

Reaktif perforan kollagenozis (RPK) hiperkeratotik papüller ve histopatolojik olarak yapısal değişikliğe uğramış kollajen liflerinin transepidermal eliminasyonu ile karakterizedir. Sıklıkla diabetes mellitus ve renal yetmezlik ile ilişkili bir hastalıktır. Yüzeysel deri travmasının hastalığı tetikleyici rol oynadığı düşünülmektedir. Bu makalede, 59 yaşında kadın, iki aydır kaşıntı ve kabuklu yara şikayetleri olan nadir bir olguyu sunduk. Skabies ve RPK tanısı konan hasta %5 permetrin ile tedavi edildi. Skabies tedavisi sonrasında RPK'nın semptom ve klinik bulguları başarılı bir şekilde kontrol edildi.

Anahtar Kelimeler: Reaktif perforan kollagenozis, skabies, dermoskopi, diabetes mellitus

Introduction

Reactive perforating collagenosis (RPC) is a rare disorder characterized by hyperkeratotic papules and histopathologically structurally altered collagen fibers showing transepidermal elimination. RPC is often associated with diabetes mellitus and renal insufficiency. It is classified into two types, the hereditary type seen in children and the acquired type seen in adults. It is thought that superficial skin trauma plays a trigger role in both types ¹.

Case Report

A 59-year-old woman was admitted to our outpatient clinic with a complaint of crusty scarring in the trunk, arms and legs and itching which was severe especially at night for 2 months. There was no similar complaint in the family of the patient who lives alone. The patient was diagnosed with diabetes mellitus for 15 years and was taking oral antidiabetic drugs.

On examination there were numerous lesions of 1-5 cm in diameter, with erythematous, centrally located crusts, some

Address for Correspondence/Yazışma Adresi: Gizem Yağcıoğlu MD, Acıbadem Kozyatağı Hospital, Clinic of Dermatology, İstanbul, Turkey
Phone: +90 555 602 83 63 E-mail: gizemyagcioglu@gmail.com **Received/Geliş Tarihi:** 11.05.2019 **Accepted/Kabul Tarihi:** 07.08.2019
ORCID: orcid.org/0000-0003-4936-9258



of which were necrotic umbilicated papules and plaques on the body and extremities, (Figures 1, 2). A few sillons were seen on the foot. In the dermoscopic examination, several *Sarcoptes scabiei* ranging from 1 to 11 per dermoscopic area were seen in many lesions by dermoscopy (Figures 3, 4).

Histopathological examination with hematoxylin-eosin stain revealed infiltration of mixed mononuclear cells with mixed eosinophils and



Figure 1. Numerous numbers of 1-5 cm in diameter, with erythematous, centrally located crusts, some of which are necrotic, umbilic papules and plaques



Figure 2. Numerous numbers of 1-5 cm in diameter, with erythematous, centrally located crusts, some of which are necrotic, umbilic papules and plaques on glutea

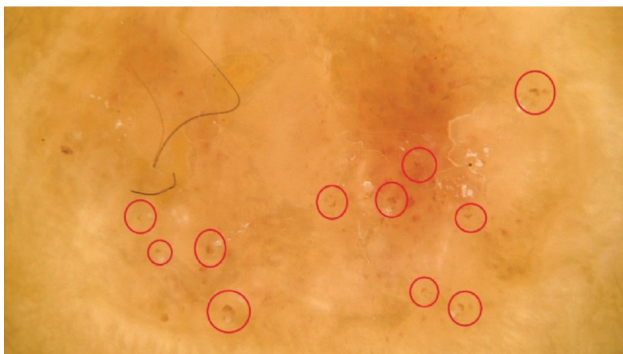


Figure 3. Brown triangular signs compatible with mite, delta-wing jet with contrail sign (x40)

leukocytes, pustules and crusts in the skin below the epidermis. In the superficial dermis, collagen bundles extending perpendicular to the surface were observed and also scabies mites were seen in the subcorneal epidermis (Figure 5, 6). Masson trichrome stain showed collagen.

The patient was diagnosed with scabies and RPC with clinic, histopathological and dermoscopic findings and treated with 5% permethrin lotion twice at a ten day interval. Hemoglobin A1c (HbA1c) was 8.8 and blood glucose was not regulated, thus insulin was



Figure 4. Brown triangular signs compatible with mite, delta-wing jet with contrail sign (x20)

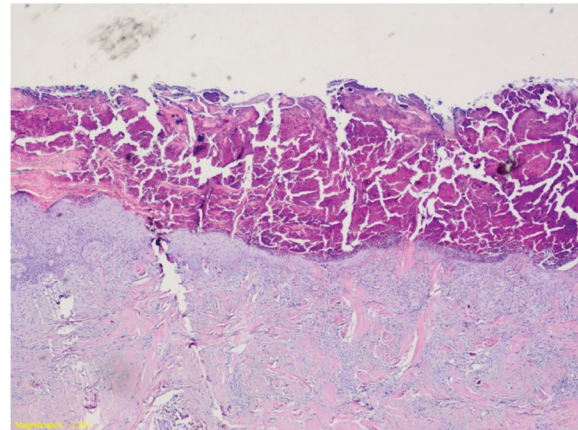


Figure 5. Infiltration of mixed mononuclear cells with mixed eosinophils and leukocytes, pustules and crusts in the skin below the epidermis. In the superficial dermis, collagen bundles extending perpendicular to the surface were observed (x10)

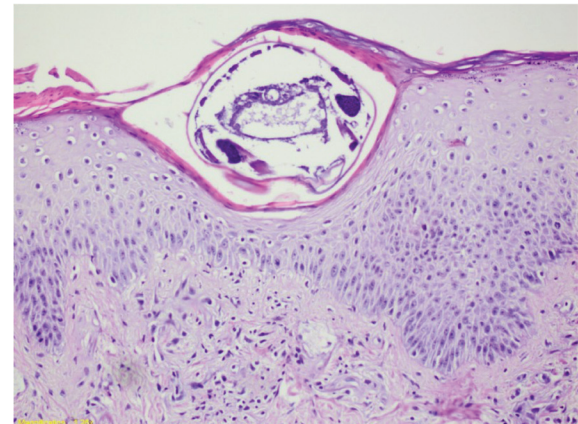


Figure 6. Scabies mite is seen in the subcorneal of epidermis (x40)

added to the existing oral antidiabetic treatment.

On the 10th day after treatment, symptoms had improved significantly and the dermoscopy showed no mites. In subsequent follow-ups, there was no itch and the lesions regressed completely leaving mild depression and hyperpigmentation marks. Informed consent was obtained.

Discussion

The prevalence and incidence of RPC, which is characterized by transepidermal elimination of structurally altered collagen, is not precisely known but is thought to be rare. Only 10 cases of reactive perforating dermatoses were detected in one dermatology department, out of 5202 patients hospitalized between 2007 and 2011. Similar frequencies have been reported in other studies^{1,2}.

The commonly accepted pathogenesis of RPC is microtrauma (such as itching, rubbing, herpes zoster, insect bite, acne, abrasion) which triggers disease. Especially epidermal damage is important. It is supported by the fact that itching is present in almost all RPC cases and is a characteristic feature of RPC-related diseases¹. Following epidermal reaction with microtrauma, necrobiosis of collagen fibers and transepidermal elimination of necrobiotic connective tissue occurs in dermal papillae. This process is accompanied by an inflammatory reaction³. In our case, the lesions were formed following severe scratching due to the itch of scabies.

In an immunohistochemical study, Gambichler et al.⁴ demonstrated that the expression of transforming growth factor beta-3 and extracellular matrix proteins were higher in the intralesional skin of RPC patients. This implies the importance of growth factors and enzymes in the extracellular matrix in the pathogenesis of the disease in relation to tissue renewal due to skin trauma.

In addition, diabetic microangiopathy and neutrophil leukocyte activity can be included in pathogenesis. It is thought that dermal necrosis develops as a result of microtrauma and the weak blood flow due to diabetic microangiopathy, followed by necrotic dermal material being taken through the epidermis⁵. In our patient, the presence of high HbA1c level and unregulated blood glucose could be the possible cause of microangiopathy. It has also been suggested that enzymes cleaved from fragmented polymorphonuclear leukocytes play a trigger role in initiating the transepidermal elimination process⁶.

Diseases frequently accompanying RPC are diabetes and renal insufficiency. The most common cause of renal insufficiency seen in RPC patients is diabetes². Thirteen cases with both RPC and scabies have been reported in the literature^{4,7-10}. Of special interest is one study where 41% of the 17 RPC patients had scabies⁴. Diabetes and/or renal insufficiency have been shown to be coexistent in RPC patients with scabies^{4,7-10}. Our RPC patient is also accompanied by scabies and diabetes.

Treatment of the underlying systemic disease is crucial in order to achieve a successful treatment outcome in RPC. The first goal in treatment is to treat the itch. There is no standard treatment in RPC. In a small number of cases and case series, various treatment options have been reported. Allopurinol, antihistamines, topical steroids, acitretin, systemic steroids, narrow-band ultraviolet B and doxycycline are some of these¹¹. In our patient, the blood glucose level was regulated and both the itching and the lesions regressed completely after 5% permethrin treatment, so no additional treatment was required. Pruritus was controlled with standard scabies treatment in 5 cases reported by Kurschat et al.⁹ and Hinrichs

et al.⁷. However; in one case reported by Brinkmeier et al.⁸ in addition to standard scabies treatment topical steroids, oral antihistamines and low dose ultraviolet treatment had to be added in order to control the pruritus. Due to the persistence of the lesions after antiscabetic treatment also required twice daily doxycycline for 2 weeks to heal. Tetracyclines are known to inhibit leukocyte function and increase matrix metalloproteinase levels in diabetic patients. As leukocyte dysfunction is also responsible in the pathogenesis of RPC, it is thought that tetracyclines are useful with this mechanism.

Our patient is reported because of limited number of cases reported with RPC and scabies. Scabies should be kept in mind when RPC cases with severe pruritus are present and the patient should be carefully investigated.

Ethics

Informed Consent: It was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: G.Y., E.Ş., M.U., N.Ş., C.T., Concept: G.Y., E.Ş., Design: G.Y., E.Ş., Data Collection or Processing: G.Y., M.U., Analysis or Interpretation: G.Y., E.Ş., Literature Search: G.Y., Writing: G.Y.

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