Case Report

Dermatology

Dermatology 2006;212:253–257
DOI: 10.1159/000091253

Received: May 26, 2005
Accepted: October 2, 2005

Recurring Localized Scarlatiniform Scaled Erythema Féréol-Besnier

Markus Braun-Falco[a] Anna Kasche[b] Wolf-Ingo Worret[b]

[a]Hautklinik der Albert-Ludwigs-Universität Freiburg, Freiburg, und [b]Klinik und Poliklinik für Dermatologie und Allergologie am Biederstein, Technische Universität München, München, Deutschland

Key Words
Acral scaling · Scarlatiniform scaled erythema Féréol-Besnier

Abstract
Recurring scarlatiniform scaled erythema of Féréol-Besnier is a rare disease characterized by recurrent episodes of a prodromal phase with general malaise, head and muscle aches, gastrointestinal complaints and fever followed by an erythematous rash leading to extensive desquamation of the involved skin. It exists in a generalized and localized variant, the latter mainly involving the hands and feet. Its cause is unknown, although it has been speculated that a hyperergic reaction to infectious agents or medications may be etiopathologically involved. A typical case of the localized variant of this obscure disease is described and the common literature is reviewed.

Introduction

Recurring scarlatiniform scaled erythema of Féréol-Besnier, classically named 'erythema scarlatiniforme desquamativum recidivans' (ESDR), is a rare, but clinically distinct entity of unknown cause characterized by recurrent episodes of an erythematous rash, which leads to extensive desquamation of the involved skin, in particular that of the hands and feet, which peels off in a glove-like manner [1]. The rash is preceded by a prodromal phase with general malaise, head and muscle aches, gastrointestinal complaints and fever. ESDR was first described by Féréol in 1876 [2] but has probably been recognized since the 17th century [3]. According to Rosellen [4], approximately 60 cases of ESDR have been described until the mid-sixties of the last century; thereafter, only a few more reports appeared primarily in the French and German literature [1, 3–9].

In order to draw more attention to this distinct disease, stimulating the surge for its cause, we like to present a typical case of the localized variant of ESDR and review the literature.

Case Report

A 54-year-old man was visiting our clinic over a 3-year period with recurrent episodes of abrupt scaling of the palmoplantar horny layers. The first attack was remembered as having occurred more than 20 years previously. Over the last few years he had had an average of 3 eruptions per year. Approximately 2 weeks before acral scaling, he complained about sore throat, hoarseness, furred tongue and a general malaise, all of which subsided within a few days. In the meantime, burning sensations, erythema and thickening of the acral skin were noted and slowly increased in intensity. Finally, the rough and thickened palmar and plantar skin peeled off, leaving a thin smooth new surface underneath. In addition, he recognized slowing of nail growth and a few weeks later a transverse furrow in the nail plate, which occasionally resulted in breakage and loosening of a distal nail part. During the episodes, he never developed rash, fever, joint pain, bronchitis, enteritis or any other symptoms. His medical history included familiar hypercholesterolemia and a heart attack 3 years previously. Since then he had been regularly taking 100 mg/day acetylsalicylic acid, 40 mg/day fluvastatin and 2.5 mg/day bisoprolol. He worked as a motorcar mechanic and occasionally did some soldering causing metallic vapor, which was not related to the outbreaks.

On physical examination at the beginning of an episode the tongue was white-gray in color and had a relatively rough surface without scrapable material (fig. 1); no signs of strawberry tongue were detected. The rest of the mucous membranes was almost unchanged. The palmoplantar skin appeared slightly erythematous and thickened, having a rough and dry surface with prominent dermatoglyphs. The thickening became more intensive with time, but in-

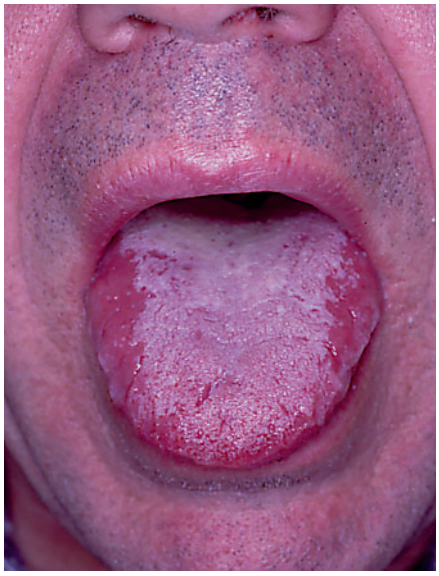
KARGER

Fax +41 61 306 12 34
E-Mail karger@karger.ch
www.karger.com

1018–8665/06/2123–0253$23.50/0

Accessible online at:
www.karger.com/drm

PD Dr. Markus Braun-Falco
Hautklinik der Albert-Ludwigs-Universität Freiburg
Hauptstrasse 7, DE–79104 Freiburg (Germany)
Tel. +49 761 270 6771, Fax +49 761 270 6829
E-Mail braun-falco@haut.ukl.uni-freiburg.de

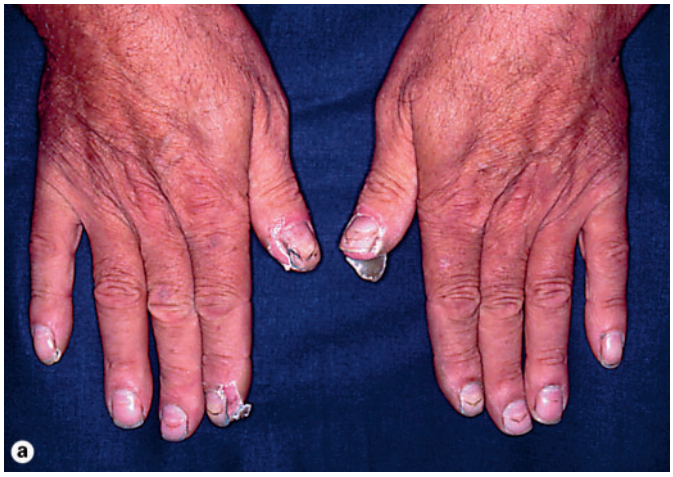


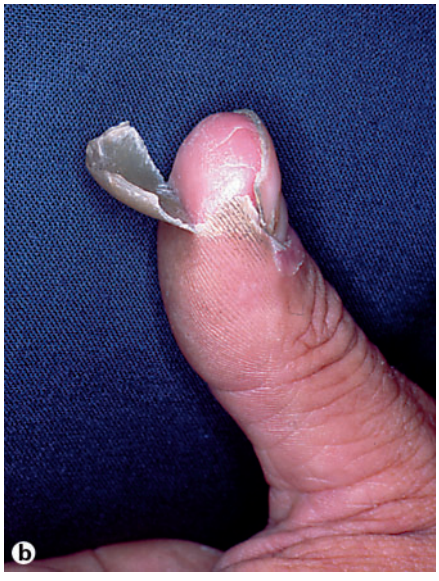
1

Fig. 1. White-gray tongue at the beginning of an episode of ESDR.

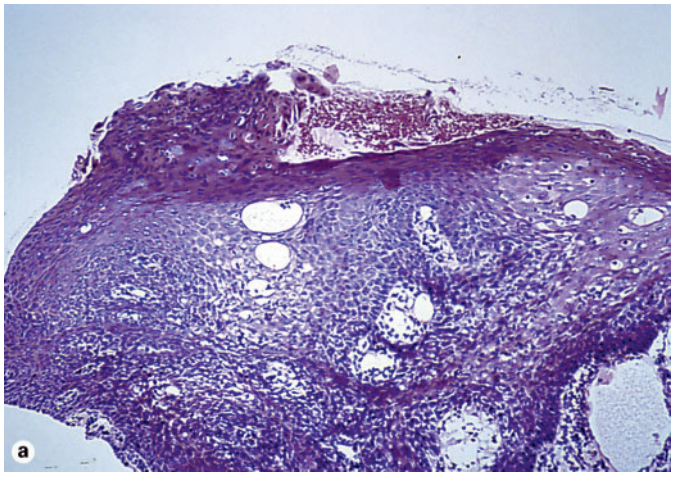
Fig. 2. a Acral scaling in ESDR starting at the fingertips. **b** Scaling in a glove-like desquamative manner.

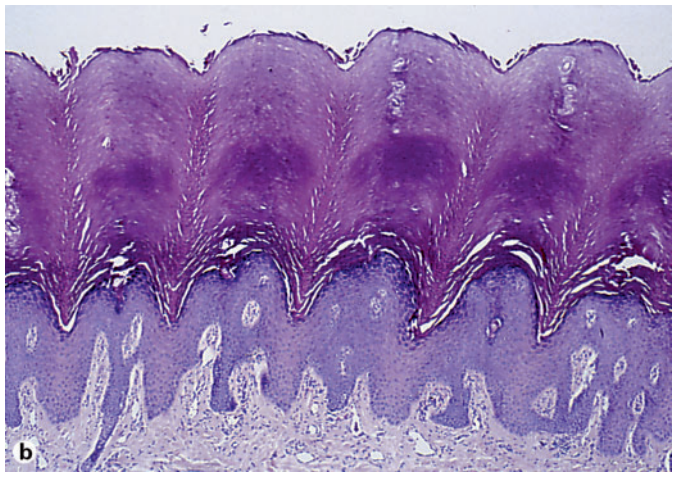
Fig. 3. Histology of the tongue (**a**) and the hand (**b**) in ESDR. **a** Hyperparakeratosis, acanthosis with small spongiform microabscesses and superficial perivascular lymphocytic infiltrate. Hematoxylin and eosin. Magnification ×200. **b** Marked thickening of the stratum corneum with orthokeratosis at the outside and parakeratosis at the inside. Hematoxylin and eosin. Magnification ×100.





2





3

Table 1. Summary of symptoms and pathogenetic findings in several cases of ESDR

Case	Sex	Age years	Episodes n/years	Symptoms (highest values) and pathogenetic findings	Ref.
1	f	56	3/4	ASL ↑, intake of salicylates and diuretics	1
2	m	48	20/8	BSR 45/70, leukocytosis 13,000/μl, CRP ↑, *Staphylococcus aureus* from TS	1
3	m	30	7/10	benign recurrent aseptic meningitis	9
4	f	72	2/2	BSR ↑, leukocytosis, eosinophilia, bronchitis, nephritis, arthritis	6
5	m	8	4/4	fever 41°C, 1 × hemolytic streptococci from TS	4
6	m	58	4/1	BSR 48/80, leukocytosis, eosinophilia 40%, fever 39.3°C, hemolytic streptococci from stool smear	7
7	f	35	10/13	BSR 30/64, leukocytosis 30,000/μl, eosinophilia 11%, fever 38.5°C	3
8	m	52	3/20	BSR 18/45, leukocytosis 10,500/μl	3
9	f	62	n.d.	BSR 23/50, leukocytosis 10,000/μl, eosinophilia 8%	3
10	m	40	4/36	fever 38°C	3

Age = Anamnestic at first episode; episodes = approximate number of episodes over years; ↑ = elevation; BSR = blood sedimentation rate; CRP = C-reactive protein; TS = tonsillar smear; n.d. = not determined.

flammation remained minimal. Extensive desquamation started at the tips of the digits in form of large glove-like sheets of thickened stratum corneum (fig. 2). Underneath, intact skin appeared with a smooth surface. Some of the nail plates had one or two transverse depressions consistent with Beau's lines.

Laboratory studies from different time points indicated normal white blood cells and differential counts; only a temporarily elevated CD4/CD8 ratio with 3.65 was recognized and interpreted as nonspecific. In the serum, an elevated C-reactive protein (8.8 mg/dl) was detected. All other standard parameters including serum fatty acids and thyroid-stimulating hormone were within the normal range. The patient was tested seronegative for antistreptolysin, antistreptococcus hyaluronidase, antistreptococcus DNase B, antistaphylolysin and *Treponema pallidum* hemagglutination test. Screening for viral infections demonstrated non-acute infection titers for coxsackievirus B_1 (1:16), B_3 (1:4), B_5 (1:4), cytomegalovirus (IgG 1:16,000, IgM negative), echo virus (IgG 28 U/ml; IgM negative), RS virus (IgG 1:141, IgM negative) and negative/normal titers for adenovirus, coxsackievirus B_2, B_4, B_6, influenza A and B, parainfluenza 1–3, hepatitis virus A, B, C, HSV IgM, parvovirus B_{19} and VZV IgM. Bacterial cultures of the nasal and pharyngeal cavities revealed normal flora. Urine cultures were negative for bacteria or fungi.

Histology from a gray area of the tongue revealed hyperparakeratosis, acanthosis with small spongiform microabscesses and a superficial perivascular lymphocytic infiltrate (fig. 3a). A biopsy from a fingertip showed marked orthohyperkeratosis with parakeratotic areas above the stratum granulosum and only slight inflammation (fig. 3b); it was PAS negative.

Discussion

ESDR, transformed into English as 'recurring scarlatiniform scaled erythema', is divided into two different forms – a generalized and a localized variant. The generalized variant starts with a nonscaling macular exanthema on the trunk and extremities lastly involving the face, hands and feet. Usually, there is a prodromal phase with general malaise, head and muscle aches, gastrointestinal complaints, fever and sometimes transient proteinuria and microhematuria. While the erythema diminishes, a crack-like desquamation of the involved areas occurs, which on the face appears more pityriasiform, on the trunk as lamellar flakes and on the acral sides as glove-like exfoliative sheets. In the localized form, the prodromal phase may be less intense and general complaints may be almost absent as in the present case. Noteworthy here is the impressive gray fur on the tongue. A generalized exanthema may be present, but cases without any rash as the present one have been described previously [1, 3]. In the localized cases, the striking feature of exfoliative desquamation seems to be restricted to the hands and feet preceded by burning sensations and erythema. The rate of recurrences may vary among individuals (months, years), but it seems that the disease-free intervals shorten over time. The histology does not specifically lead to the diagnosis. At the tongue, the spongiform microabscesses in combination with hyperkeratosis recall psoriasis, but the acral changes do not support this idea. Nevertheless, the horizontally divided stratum corneum with a thick orthokeratotic above a parakeratotic layer is suggestive of an internal process rather than an external stimulus. Desquamation occurs above the stratum granulosum. One may speculate that the outermost orthokeratotic layer belongs mostly to the 'old' stratum corneum before ESDR starts and the parakeratotic area to the active phase. The parakeratosis may have a diminished adherence to the malpighian layers underneath and peels off.

The etiopathology is unclear, but infections or medications have been accused as trigger factors for ESDR. Table 1 summarizes the main pathological findings detected in cases published over the last few decades. The majority of patients showed elevation of inflammatory markers like blood sedimentation rate or C-reactive protein and leukocytosis, occasionally with eosinophilia.

Table 2. Differential diagnoses of acral desquamative erythema

Scarlet fever
Staphylococcal scalded skin syndrome
Toxic epidermal necrolysis
Kawasaki syndrome
Peeling skin syndrome
Erythrokeratolysis hiemalis
Hereditary palmoplantar keratoses
Necrolytic acral erythema
Chemotherapy-related acral erythema
Metal intoxication
Psoriasis vulgaris
Pityriasis rubra pilaris
Dyshidrosis lamellosa sicca
Desquamatio aestivalis
Pellagra

ESDR has been interpreted by some authors as an abortive form of staphyloccocal scalded skin syndrome [1], which belongs to the group of toxin-mediated staphylococcal and streptococcal diseases, which in addition include toxic shock syndrome, scarlet fever, recalcitrant erythematous desquamating syndrome and recurrent toxin-mediated perineal erythema among others [10]. In these diseases, the production of circulating toxins by certain bacterial strains has major implications in their pathogenesis. The bacterial toxins may not only contribute to the virulence of the bacteria, they may also function as superantigens, which have the ability to directly interact with T cells promoting a massive cytokine production. These toxin-mediated illnesses have certain clinical signs in common, for instance erythematous eruptions with frequent perineal and flexural accentuation, pharyngitis with strawberry tongue and acral erythema with subsequent desquamation. Some tend to have recurrent flares as described for recurrent toxin-mediated perineal erythema [11]. Although a certain clinical overlap exists between toxin-mediated diseases such as recurrent toxin-mediated perineal erythema and ESDR, a positive proof for toxin-producing bacteria is a regular finding in toxin-mediated diseases, whereas in ESDR, bacteria – staphylococci or β-hemolytic streptococcal species – were only detectable in a minority of cases. In most instances, no bacteria could be detected, which has been verified in our case by multiple smears taken at different episodes and by repeated negative serological titers.

Some viruses can cause scarlatiniform eruptions, for instance parvovirus B_{19} in 'gloves and socks syndrome' [12]. In gloves and socks syndrome, acral desquamation is preceded by a pruritic, edematous, petechial eruption demonstrating histologically vacuolar interface changes with necrotic keratinocytes and dermal hemorrhage, distinct from ESDR.

Systemic ingestion or inhalation of metal compounds such as arsenic or mercury may cause acral erythema with desquamation and Beau's lines [13]. Although after acute poisoning patients develop profuse nausea and vomiting, we thought about any influence of the soldering work our patient carried out, but an episode occurred even after he had quit for weeks. A variety of drugs are known to cause exfoliative skin eruptions, which have been summarized recently [14, 15]. It is noteworthy that we were not able to find examples of exfoliative dermatitis caused by the drugs the patient was taking [16]. Moreover a drug cause is rather unlikely for two reasons: ESDR in our patient started before he was taking drugs, and the intake of any drug on a daily basis is difficult to correlate with a disease arising at irregular weekly or monthly intervals.

Apart from the fact that ESDR is rare and not well recognized, it is difficult to diagnose, since the list of differential diagnoses is long (table 2). Kawasaki syndrome may clinically run in a rather identical course than ESDR including repeated episodes of desquamation [17], but it almost exclusively affects children at a very early age and is associated with a high risk of coronary artery dilatation, both not evident in ESDR. Interestingly, Kawasaki syndrome has occasionally been associated with aseptic meningitis as has been ESDR [9, 10].

The desquamation peeling skin syndrome, a newly recognized genodermatosis that exists in a generalized and localized form, is rather similar to ESDR, in particular due to its spontaneous scaling with separation of hyperkeratotic stratum corneum just above the stratum granulosum, but it always lacks any prodromi and starts either congenitally or before the sixth year of life [18]. Erythrokeratolysis hiemalis, another rare genodermatosis, demonstrates palmoplantar erythema, but peeling is continuous especially during winter, starts in early childhood and histologically features apoptosis of keratinocytes in the malpighian layer [19].

Therapy of ESDR is difficult and not well established. Antibiotics as well as systemic glucocorticosteroids both given ex juvantibus at different episodes did neither weaken the course of a current attack nor helped to prevent new attacks.

In conclusion, ESDR is a rare generalized or localized eruption with scaling as the major symptom. Its cause remains unknown and medical support is mostly symptomatic. Perhaps more and detailed collections of patients may give new insights into this distinct, but obscure disease. In this issue of *Dermatology*, Beltraminelli and Itin [20] confirm our observations.

References

1 Landthaler M, Michalopoulos M, Schwab U, Dorn M: Erythema scarlatiniforme desquamativum recidivans localisatum. Hautarzt 1985; 36:581–585.

2 Féréol N: Pseudo-exanthème scarlatiniforme récidivant. Bull Soc Méd Hôp Paris 1876; 2/12:30.

3 Lausecker H: Das Erythema scarlatiniforme desquamativum recidivans. Arch Dermatol Syphil 1954;198:529–548.

4 Rosellen E: Erythema scarlatiniforme desquamativum recidivans. Med Welt 1966;48: 2648–2649.

5 Bieber T: Erythème scarlatiniforme généralisé, éruption toxique par hautes doses de vitamines B_1. Bull Soc Fr Dermatol 1957;64:747–748.

6 Kresbach H: Erythema scarlatiniforme recidivans (Féréol, Besnier) Dermatol Monatsschr 1969;155:365–366.

7 Riegel K, Korting GW: Zur Kenntnis viscerocutaner Wechselwirkungen mit hoher Bluteosinophilie unter dem Bilde des Löfflerschen Lungeninfiltrates und des Erythema scarlatiniforme desquamativum recidivans. Arch Exp Dermatol 1957;205:235–244.

8 Thiers H, Fayolle J, Coeur P, Laurent J: Erythème scarlatiniforme fixe avec rushs congestifs, symptomatique d'une hémopathie lymphoréticulaire chronique. Bull Dermatol Syphil 1969;76:879–880.

9 Meyer-Lindenberg A, Hotz M: Féréol-Besnier disease with associated recurrent meningitis. J Neurol Neurosurg Psychiatry 1997;62:297.
10 Manders SM: Toxin-mediated streptococcal and staphylococcal disease. J Am Acad Dermatol 1998;39:383–398.
11 Manders SM, Heymann WR, Atillasoy E, Kleeman J, Schlievert PM: Recurrent toxin-mediated perineal erythema. Arch Dermatol 1996;132:57–60.
12 Smith SB, Libow LF, Elston DM, Bernert RA, Warschaw KE: Gloves and socks syndrome: early and late histopathologic features. J Am Acad Dermatol 2002;47:749–754.
13 Uede K, Furukawa F: Skin manifestations in acute arsenic poisoning from the Wakayama curry-poisoning incident. Br J Dermatol 2003; 149:757–762.
14 Karakayli G, Beckham G, Orengo T, Rosen T: Exfoliative dermatitis. Am Fam Physician 1999;59:625–630.
15 Sehgal VN, Srivastava G, Sardana K: Erythroderma/exfoliative dermatitis: a synopsis. Int J Dermatol 2004;43:39–47.
16 Kaufman DW, Kelly JP: Acetylsalicylic acid and other salicylates in relation to Stevens-Johnson syndrome and toxic epidermal necrolysis. Br J Clin Pharmacol 2001;51:174–176.
17 Michie C, Kinsler V, Tulloh R, Davidson S: Recurrent skin peeling following Kawasaki disease. Arch Dis Child 2000;83:353–355.
18 Brusasco A, Veraldi S, Tadini G, Caputo R: Localized peeling skin syndrome: case report with ultrastructural study. Br J Dermatol 1998; 139:492–495.
19 Danielsen AG, Weismann K, Thomsen HK: Erythrokeratolysis hiemalis (keratolytic winter erythema): a case report from Denmark. J Eur Acad Dermatol Venereol 2001;15:255–256.
20 Beltraminelli H, Itin P: Erythema scarlatiniforme desquamativum recidivans – A forgotten disease (Recurring localized scarlatiniform scaled erythema). Dermatology 2006;212:211–213.