

Leg pain – dermatological causes

Beinschmerz – dermatologische Ursachen

Author

Birgit Kahle

Affiliations

Schleswig-Holstein University Hospitals, Lübeck Campus,
Department of Dermatology, Allergology and Venereology

Key words

pain, lower limbs, skin

Schlüsselwörter

Schmerzen, untere Extremität, Haut

received 26.07.2019

accepted 31.07.2019

Bibliography

DOI <https://doi.org/10.1055/a-1013-6382>

Phlebologie 2109; 48: 358–362

© Georg Thieme Verlag KG Stuttgart · New York

ISSN 0939-978X

Correspondence

Prof. Dr. Birgit Kahle

E-Mail: Birgit.Kahle@uksh.de

ABSTRACT

Introduction Vascular diseases are often suspected of being the cause of acute or chronic leg pain. However, the question also arises as to whether dermatological conditions may be associated with leg pain.

Methods Dermatological conditions are systematically presented with respect to concomitant or causal painfulness.

Results Pain is prominent with infections of the skin, while allergic or toxic contact dermatitis, pruritic diseases, and cutaneous autoimmune diseases are associated with pain.

Conclusions An underlying dermatological condition should be considered whenever there is leg pain of unknown origin. Pain may occur as a prodromal symptom of herpes zoster (shingles).

ZUSAMMENFASSUNG

Einleitung Als Grund für akute oder chronische Beinschmerzen werden oft vaskuläre Erkrankungen vermutet. Es stellt sich die Frage, ob auch dermatologische Krankheiten mit Beinschmerzen einhergehen.

Methode Dermatologische Krankheitsbilder werden hinsichtlich einer begleitenden oder kausalen Schmerzhaftigkeit systematisch dargestellt.

Ergebnisse Bei Infektionserkrankungen der Haut steht der Schmerz im Vordergrund, allergische oder toxische Kontaktdermatitiden, Juckreizerkrankungen sowie kutane Autoimmunerkrankungen gehen mit Schmerzen einher.

Zusammenfassung Bei unklaren Beinschmerzen sollte auch an eine zugrundeliegende dermatologische Erkrankung gedacht werden. Der Schmerz kann als Prodromalsymptom bei Herpes zoster auftreten.

Introduction

Pain in the lower limbs is a common symptom. Suspecting a venous or at least a vascular origin of the pain, many patients seek an opinion from specialist in vascular diseases. Contrary to their expectations, a neuroskeletal cause in the lower back is often responsible [1]. Astonishingly, however, dermatological conditions are much less in focus than varicose veins when painful legs are the problem.

Methods

Starting with the symptom of non-vascular leg pain, this article presents skin diseases of varying aetiology. It focuses on dermatological diseases that more commonly affect the legs and describes

the clinical picture of conditions frequently seen in dermatology or phlebology outpatient clinics.

Results

A wide variety of dermatological conditions may affect the lower limbs and be associated with pain. Pain may occur in numerous skin diseases (► **Table 1**), so the following addresses specific examples of typical clinical conditions.

► **Tab. 1** Aetiology and symptoms of leg pain

Main group	
Allergic conditions	Urticaria, acute or chronic recurrent Drug rashes Toxic epidermal necrolysis Allergic vasculitis Allergic contact dermatitis
Dermatitis	Toxic or allergic contact dermatitis Solar dermatitis Atopic dermatitis (eczema)
Autoimmune diseases	Leukocytoclastic vasculitis Psoriasis Scleroderma Bullous pemphigoid Pemphigus vulgaris Acquired epidermolysis bullosa Pyoderma gangrenosum
Infections	Erysipelas Phlegmon Herpes zoster Herpes simplex Impetigo Wound infections
Livedo conditions	Livedo vasculopathy Livedo vasculitis Sneddon's syndrome with livedo racemosa
Pruriginous conditions	Prurigo nodularis Prurigo simplex
Tumours	Cutaneous metastases Cutaneous lymphoma Ulcerating malignant melanoma Ulcerating non-melanocytic skin cancer Neurinoma Lipoma/angiolioma
Genodermatoses	Epidermolysis bullosa dystrophica

Individual conditions

Soft tissue infections of the skin

Erysipelas

Erysipelas is a common infection of the skin. As a rule, the infection is due to β -haemolytic streptococci belonging to group A, more rarely to groups B, C, D or staphylococci. The organisms enter through small injuries (entry portals), penetrate the dermis, and spread through the lymphatic channels. The onset is typically acute with fever and shivering, while the characteristic sharply demarcated and very painful redness follows later. Erysipelas very commonly affects the legs, as the entry portal is often an area of tinea pedis (see ► **Fig. 1**). Erysipelas requires systemic antibiotic therapy for at least 7–10 days [2]. Blister formation, bleeding, and necrosis may occur as complications. In rare cases, erysipelas may lead to sepsis.

Inadequate treatment of erysipelas or neglecting to treat the entry portal makes recurrence more likely. Recurrent erysipelas may lead to irreversible damage of the lymph channels and secondary lymphoedema may ensue [3]. This, in turn, may be the cause of further recurrences (see ► **Fig. 2**). Further risk factors for recurrent erysipelas are anatomical considerations such as a pretibial site



► **Fig. 1** Erysipelas on the right lower leg. Entry portal is an interdigital fungal infection between the toes.



► **Fig. 2** Recurrent erysipelas on the left lower leg.



► **Fig. 3** Phlegmon of the left foot and lower leg that required debridement.

[4], concomitant venous insufficiency and/or lymphoedema [5, 6], and previous surgical procedures [7]. Furthermore, in such cases of chronic recurrent erysipelas, chronic pain in the affected limb is a very common symptom. Given the potential development of secondary lymphoedema, appropriate compression therapy should be included in the therapeutic approach to erysipelas.



► **Fig. 4** Herpes zoster infection of the left leg, beneath the picture of vasculitis.



► **Fig. 5** The same patient as in figure 4, posterior view. It can be seen how the blisters are arranged within the dermatome.

Phlegmon

It is not easy to distinguish between erysipelas and a phlegmon. The course of a phlegmon involves deeper structures with purulent liquefaction and may result in extensive areas of necrosis or even sepsis (see ► **Fig. 3**). There is often a mixed streptococcal and staphylococcal infection. The clinical picture is to be taken seriously, as involvement of the fascia (necrotising fasciitis) may have a fulminating course [8]. Besides the necessary surgical intervention, systemic antibiotic therapy is the mainstay of treatment.

Herpes zoster

Triggered by the reactivation of varicella-zoster virus in the posterior spinal ganglion, initial paraesthesias, such as burning or pain, occur before the typical distribution of blisters appears in the corresponding dermatome (see ► **Fig. 4** and ► **Fig. 5**). Relevant dermatomes in the leg are L3 to S1. Underlying malignant disease or immune deficiency should be ruled out in cases where several dermatomes are affected. Herpes zoster infection is characterised by intense pain that requires adequate systemic analgesia. The WHO analgesic ladder is to be recommended [9, 10].

Dermatitis

The term dermatitis is generally used to describe inflammatory diseases of the skin of varying aetiology. Extensive acute inflammation in particular may be intensely painful. Solar dermatitis (see ► **Fig. 6**), toxic dermatitis (e. g. phytophotodermatitis), and allergic contact dermatitis (see ► **Fig. 7**) can be mentioned in relation

to painful cutaneous processes in the legs. The identification and future avoidance of the trigger are of key importance for these examples. Topical steroids are used in the first line of treatment.

Inflammation and pain as symptoms

Erythroderma

Erythroderma is understood to mean intense and usually widespread reddening of the skin due to inflammatory skin disease. It is a very severe form of disease and may be associated with pain, especially in the lower legs. The trigger may be acutely exacerbated psoriasis vulgaris [11, 12] or cutaneous lymphoma [13]. Erythroderma always needs a thorough diagnostic work-up, including dermatohistological and immunohistological examinations. Since erythroderma is not considered to be a clinical condition in its own right but rather a symptom or expression of a severe underlying disease, the various individual targeted treatments will not be considered in detail at this junction.

Urticaria

The characteristic symptom of acute and chronic urticaria is the presence of extremely itchy wheals that occur after the degranulation of mast cells lying in the subepidermal layers. Histamine and other inflammatory mediators are released. In some cases, headaches and joint pains or gastrointestinal symptoms occur together with the wheals. This can be explained by the activation and degranulation of extracutaneous mast cell populations [14]. The acute forms of urticaria are treated with antihistamines and,



► **Fig. 6** Solar dermatitis of the lower leg. The patient fell asleep on the beach.



► **Fig. 7** Allergic contact dermatitis of the lower leg and forefoot after using a lanolin-containing ointment.

in some cases, with systemic steroids. Chronic urticaria requires a thorough diagnostic work-up in a specialist facility – basically the chronic spontaneous form has to be distinguished from the chronic inducible form. The treatment of chronic urticaria follows a step-wise approach, in which second generation H₁-antihistaminien are first increased up to four times the dose, omalizumab is then added if the initial treatment is not effective, and lastly ciclosporin is prescribed [15].

Prurigo/chronic pruritus

In many cases intense itching is experienced as pain, for example, the patient cannot distinguish whether it currently itches or hurts. The reason for this may be that the neurophysiology of itching and of pain have a lot in common [16, 17]. A typical skin condition that is characterised by itching and pain is nodular prurigo (prurigo nodularis). Nodular prurigo may also occur as a prodromal symptom of myeloproliferative diseases. It has been described in association with Hodgkin's disease [18]. Prurigo usually responds very well to topical steroids.

CONCLUSIONS

Leg pain may occur in association with dermatological conditions. It is of significance in infections of the skin, as it may occur even before the appearance of the typical inflammatory lesions. In particular, it is a prodromal symptom of herpes zoster infection.

Leg pain may be present in non-infectious dermatological conditions as a symptom of an underlying inflammatory or autoimmune disease.

Conflict of interest

The authors declare that they have no conflict of interest.

References

- [1] Stynes S, Konstantinou K, Dunn KM. Classification of patients with low back-related leg pain: a systematic review. *BMC Musculoskelet Disord*. 2016; 17:226
- [2] Jendoubi F, Rohde M, Prinz JC. Intracellular Streptococcal Uptake and Persistence: A Potential Cause of Erysipelas Recurrence. *Front Med (Lausanne)* 2019; 6: 6. Published 2019 Jan 29, doi:10.3389/fmed.2019.00006
- [3] McNamara DR, Tleyjeh IM, Berbari EF et al. A predictive model of recurrent lower extremity cellulitis in a population-based cohort. *Arch Intern Med* 2007; 167 (7): 709–715
- [4] Pavlitsky F, Amrani S, Trau H. Recurrent erysipelas: risk factors. *J Deutschen Dermatol Gesellschaft* 2004; 2: 89–95
- [5] Cox NH. Oedema as a risk factor for multiple episodes of cellulitis/erysipelas of the lower leg: a series with community follow-up. *Br J Dermatol* 2006; 155: 947–950
- [6] Bjornsdottir S, Gottfredsson M, Thorisdottir AS et al. Risk factors for acute cellulitis of the lower limb: a prospective case-control study. *Clin Infect Dis* 2005; 41: 1416–1422
- [7] Abrego MO, Saba JES, Halliburton C et al. Fasciitis and Streptococcal Toxic-shock Syndrome: The Importance of Early Diagnosis and Surgical Management. *J Orthop Case Rep* 2018; 8 (5): 57–60, doi:10.13107/jocr.2250-0685.1212
- [8] Guerreiro de Moura CA, de Assis LH, Góes P et al. A Case of Acute Generalized Pustular Psoriasis of von Zumbusch Triggered by Hypocalcemia. *Case Rep Dermatol* 2015; 7: 345–351. Published 2015 Dec 3, doi:10.1159/000442380
- [9] Klemke CD, Booken N, Weiss C et al. Histopathological and immunophenotypical criteria for the diagnosis of Sézary syndrome in differentiation from other erythrodermic skin diseases: a European Organisation for Research and Treatment of Cancer (EORTC) Cutaneous Lymphoma Task Force Study of 97 cases. *Br J Dermatol* 2015; 173: 93–105
- [10] Maintz L, Bieber T, Novak N. Die verschiedenen Gesichter der Histaminintoleranz: Konsequenzen für die Praxis. *Dtsch Arztebl* 2006; 103 (51–52): A 3477–3483
- [11] Schmelz M. Neurophysiologie des Juckreizes. *Aktuelle Dermatologie* 2013; 39: 218–222
- [12] Pereira MP1, Agelopoulos K, Köllner J et al. Selective Nerve Fibre Activation in Patients with Chronic Generalized Pruritus May Indicate

- a Central Sensitization Mechanism. *Acta Derm Venereol* 2019, doi: 10.2340/00015555-3261. [Epub ahead of print]
- [13] Dumont S, Péchère M, Toutous T, Trellu L. Chronische Prurigo: eine ungewöhnliche Manifestation des Hodgkin-Lymphoms. *Karger Kompass Dermatol* 2018; 6: 227–229
- [14] S2k Leitlinie: Kalkulierte parenterale Initialtherapie bakterieller Erkrankungen bei Erwachsenen AWMF-Registernummer 082–006, aktualisiert 2. Januar 2019
- [15] Maurer M, Zuberbier T, Siebenhaar F et al. Chronische Urtikaria – Was bringt die neue Leitlinie? *J Deutsch Ges Dermatol* 2018; 16: 585–595
- [16] Werner RN et al. European consensus-based (S2k) guideline on the management of Herpes Zoster – guided by the European Dermatology Forum (EDF) in cooperation with the European Academy of Dermatology and Venereology (EADV), part 2: treatment. *J Eur Acad Dermatol Venereol* 2017; 31 (1): 20–29
- [17] World Health Organization. *Cancer pain relief: with a guide to opioid availability*. 2nd ed., Geneva, World Health Organization, 1996
- [18] Lemmenmeier E, Gaus B, Schmid P et al. A case of erythrodermia from exacerbated psoriasis vulgaris due to treatment of acute hepatitis C. *BMC Dermatol* 2016; 16 (1): 5. Published 2016 May 26, doi:10.1186/s12895-016-0042-5