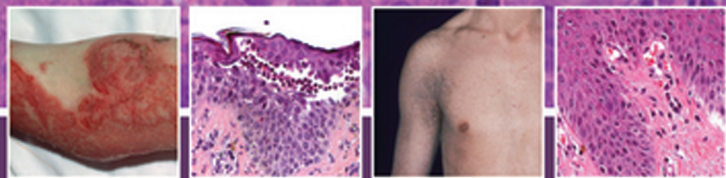
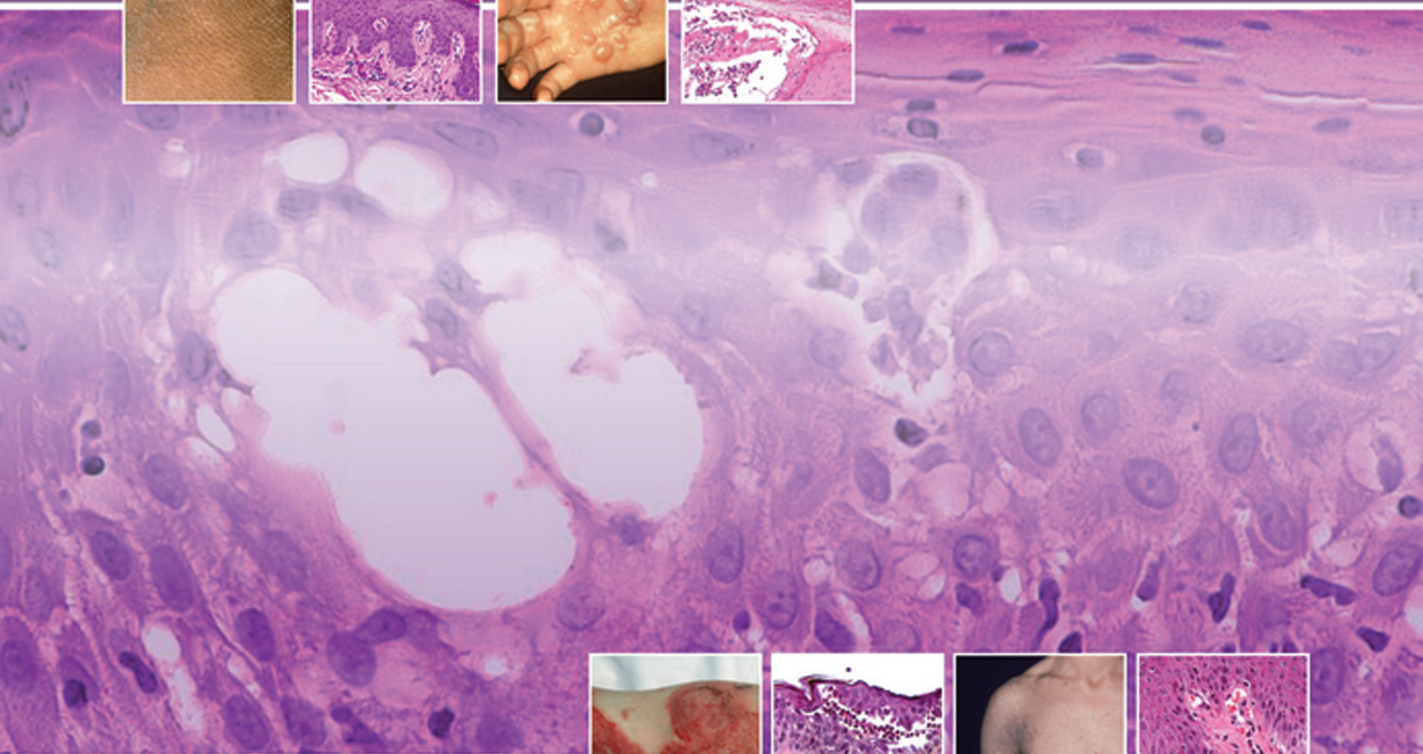
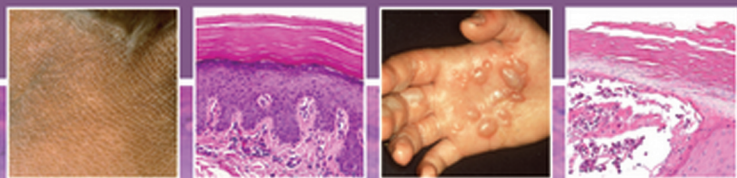


# ATLAS OF DERMATOPATHOLOGY



**PRACTICAL DIFFERENTIAL DIAGNOSIS  
BY CLINICOPATHOLOGIC PATTERN**

**Günter Burg**

Werner Kempf, Heinz Kutzner

Josef Feit, Laszlo Karai

**WILEY**



# Atlas of Dermatopathology



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Practical Differential Diagnosis  
by Clinicopathologic Pattern

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To our *families and teachers*



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# Preface

This atlas is addressed to pathologists and dermatologists who intend to become familiar with a practical approach to dermatopathology.

The structure of the book and of its chapters follows a basic approach to morphology. In histomorphology, as in clinical (macro-)morphology, the first step is to identify the localization of the pathological changes which is mostly done at scanning magnification; the second step includes assessing the distribution or pattern of pathologic elements at higher magnification and finally to search for the pathognomic elements – the so-called diagnostic clues.

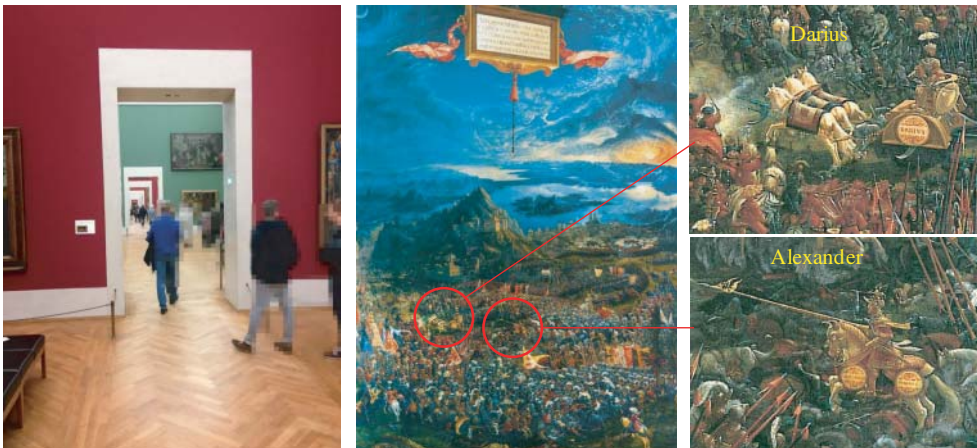
It is like approaching a painting. In one of the almost 50 cabinets of the Alte Pinakothek in Munich, German paintings of the 14th–17th century are displayed (step 1). Among them one can detect a wonderful painting by Albrecht Altdorfer (1529) (step 2). Looking more closely one will discover between the many

details Darius of Persia in flight and Alexander of Greece pursuing him (step 3). This is the clue for the “diagnosis,” telling us that the Battle of Issus (333 BC), occidant against orient, is the main theme of the painting.

Looking at a microscopic slide, our brain is following the same approach of overall orientation, identifying a prototypic pattern and finding the essential clue(s) for the diagnosis.

Therefore, in this book histo- and cytomorphologic elements should give guidance rather than any pathogenetic parameters we may have in our minds. Starting with the cornified layer of the epidermis, the chapters follow the pathological findings in the various levels of the epidermis, dermis and subcutaneous fat tissue and describe and display prototypes of diagnoses, their variants and the differential diagnoses, which may simulate the prototype. Each diagnosis is shown by its clinical appearance (Cl:) and by its histomorphology (Hi:) at

The Battle of Alexander at Issus 333 BC by Albrecht Altdorfer.  
(*bpk/Bayerische Staatsgemäldesammlung, München*)



scanning magnification and at high power magnification, pointing to special clues.

Descriptions in *italic* are not displayed as pictures in the same chapter, but may be demonstrated in another one.

Many of the histologic images shown are taken from the *Hypertext Atlas of Dermatopathology* ([www.atlases.muni.cz](http://www.atlases.muni.cz)).<sup>1</sup>

References are not comprehensive, but may be of some help for getting more detailed information.

---

<sup>1</sup> *Hypertext Atlas of Dermatopathology* Josef Feit, Hana Jedličková, Zdeněk Vlašín, Günter Burg, Werner Kempf, Leo Schärer, Luděk Matyska ([www.atlases.muni.cz](http://www.atlases.muni.cz))

# Abbreviations

**CI** Clinical features  
**CNS** Central nervous system  
**DIF** Direct Immunofluorescence  
**Hi** Histological features

**HPF** High power field  
**PAS** Periodic acid-Schiff  
**PCR** Polymerase chain reaction



# **Dermatopathology**

## **Text-Atlas for Practical Differential Diagnosis of Clinicopathologic Pattern of Inflammatory Skin Diseases**

**Editors: Günter Burg, Werner Kempf, Heinz Kutzner**

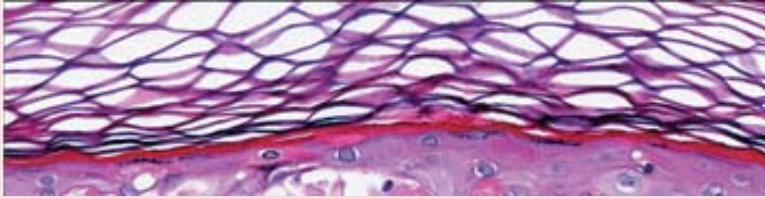
**Co-Editors: Josef Feit and Laszlo Karai**

## Introduction

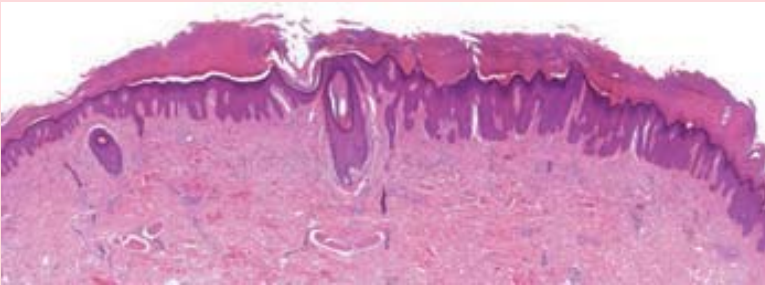
Some basic terms in dermatohistology

### Horny layer

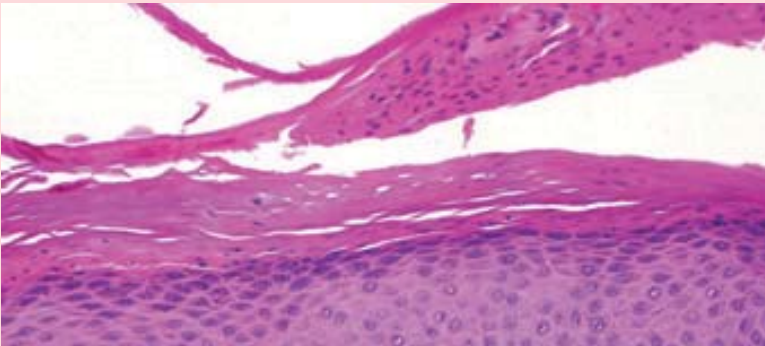
Orthokeratosis: Basket weave stratum corneum



Hyperkeratosis: Thickened stratum corneum

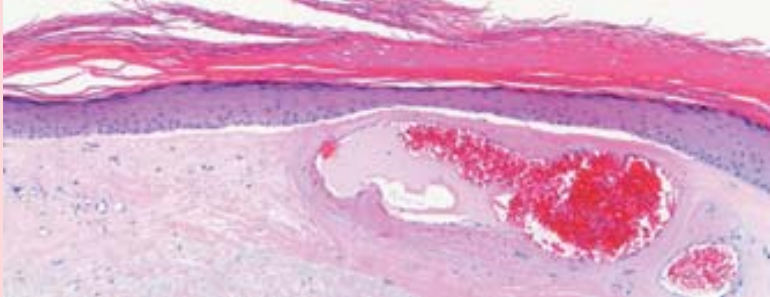


Parakeratosis: Remnants of nuclei in stratum corneum

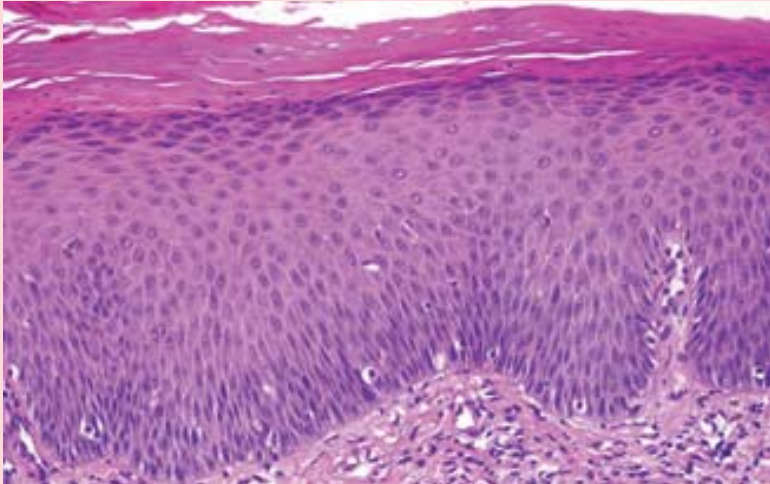


### Epidermis

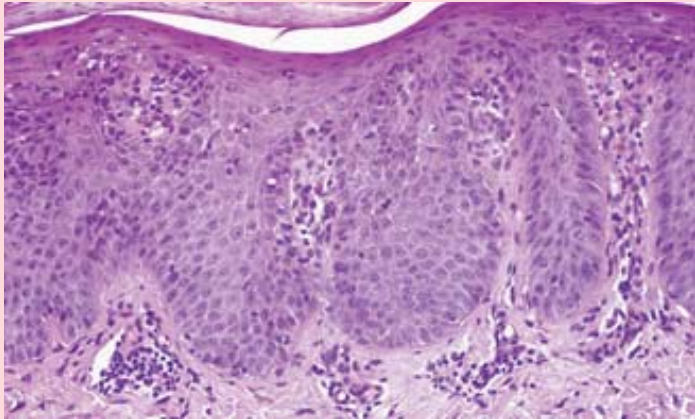
Atrophy



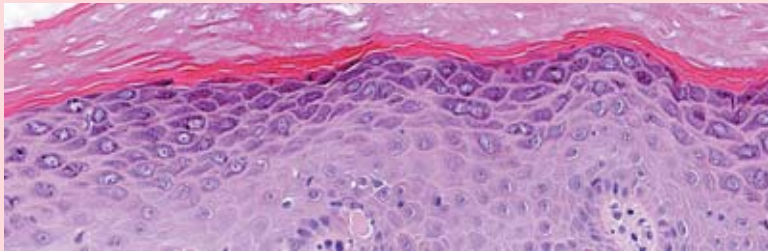
Acanthosis



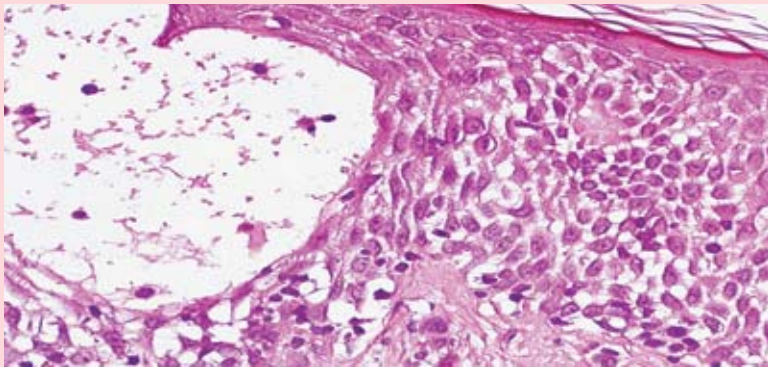
Papillomatosis



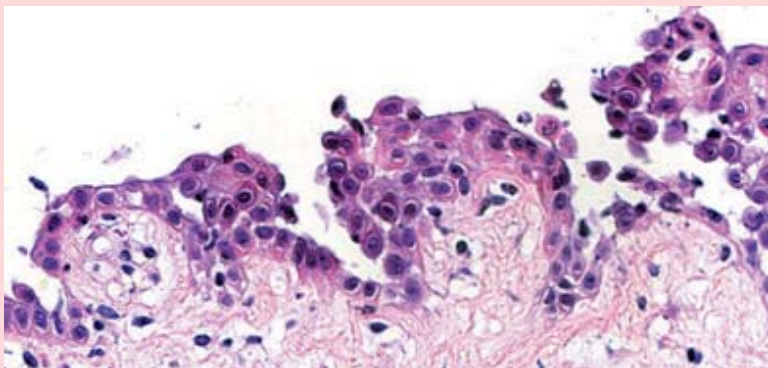
Hypergranulomatosis



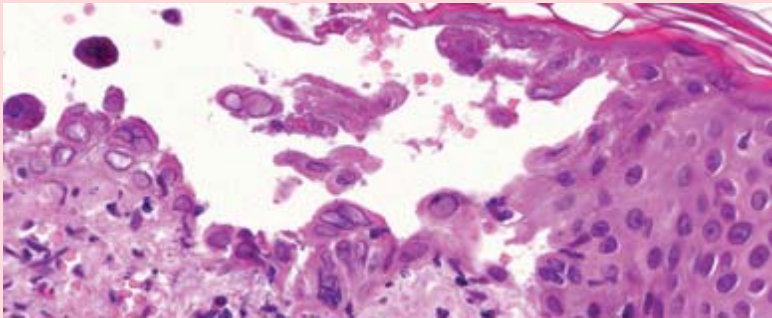
Spongiosis



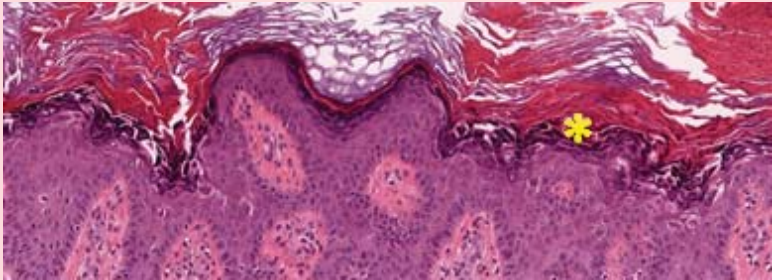
Acantholysis



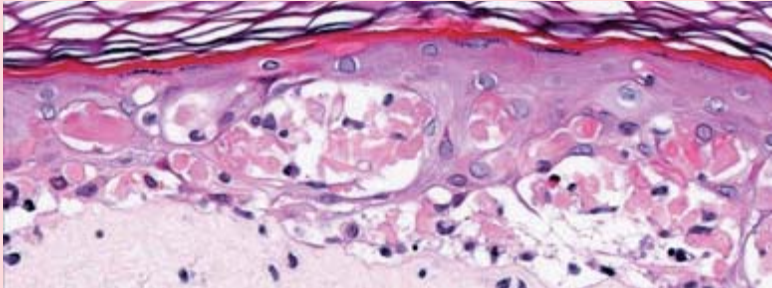
Ballooning



Dyskeratosis(\*)

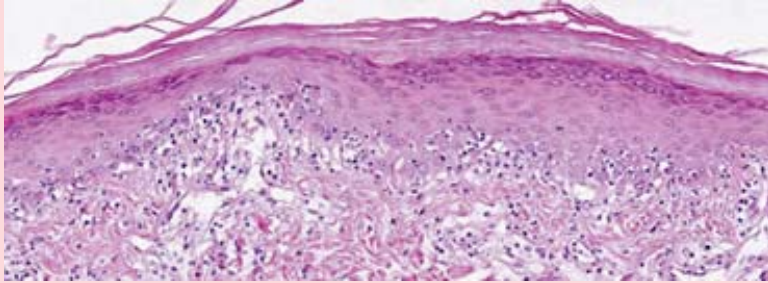


Necrotic keratinocytes

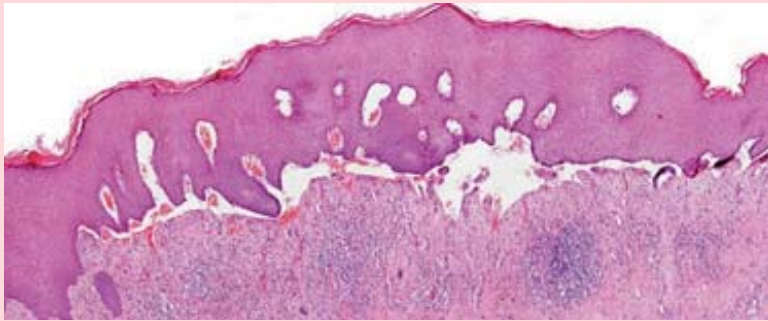


## Interface

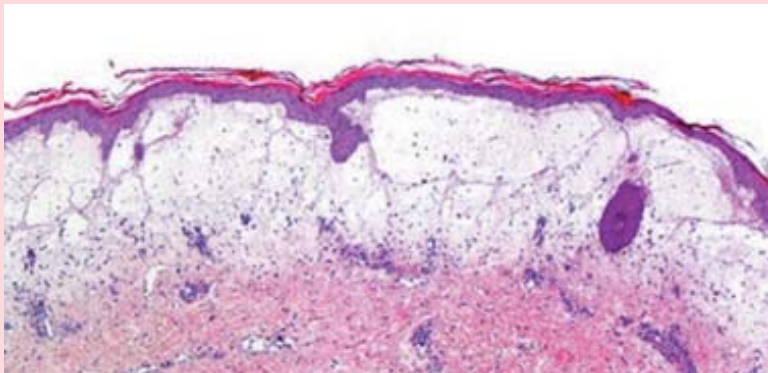
Interface dermatitis



Subepidermal blistering

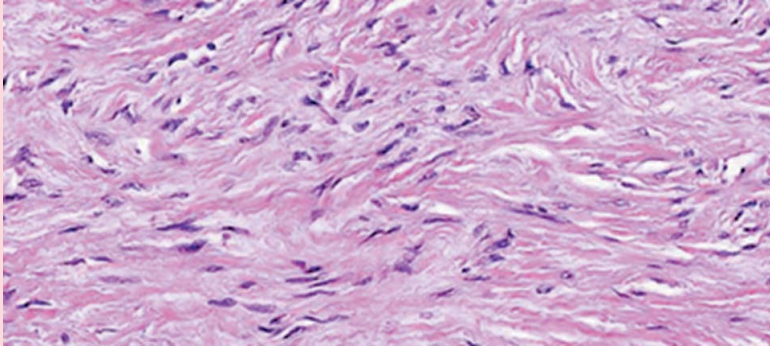


Subepidermal edema

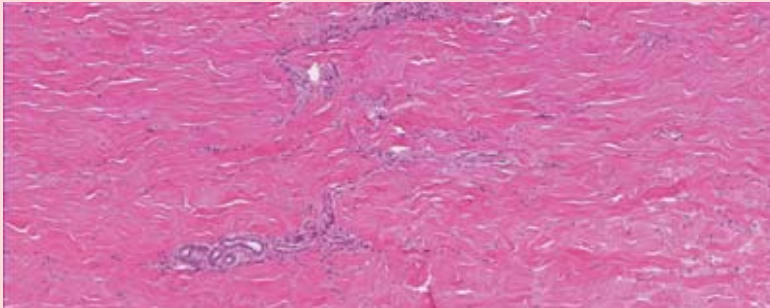


**Dermis**

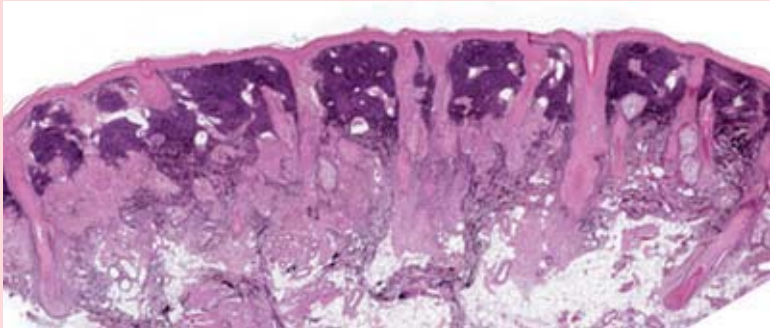
Fibrosis



Sclerosis

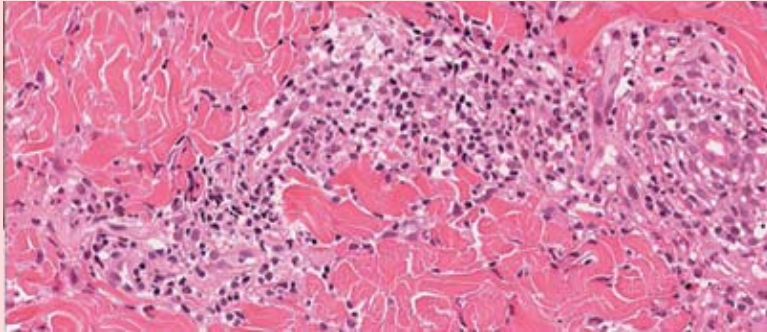


Elastosis, actinic

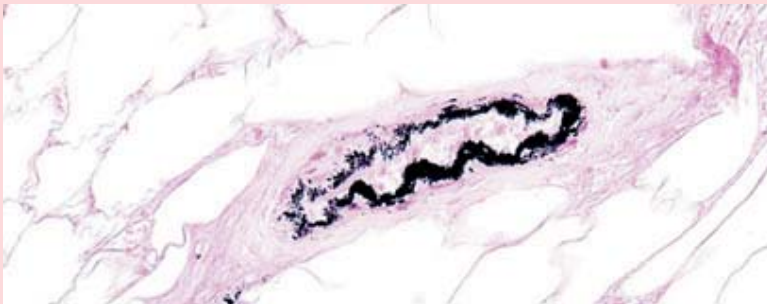


Elastica stain

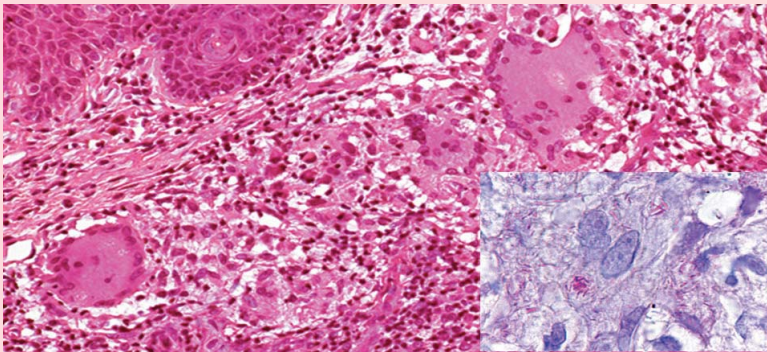
Vasculitis



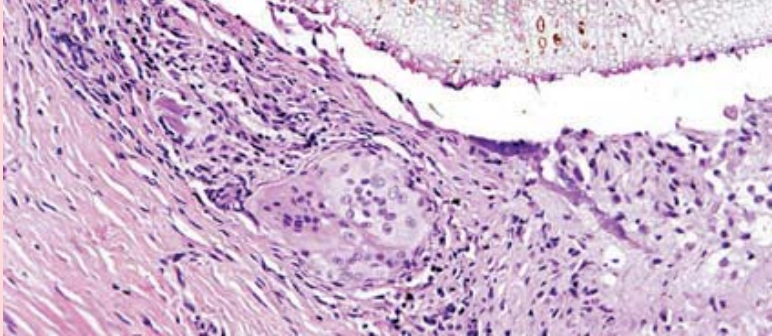
Calcification (vessel wall)



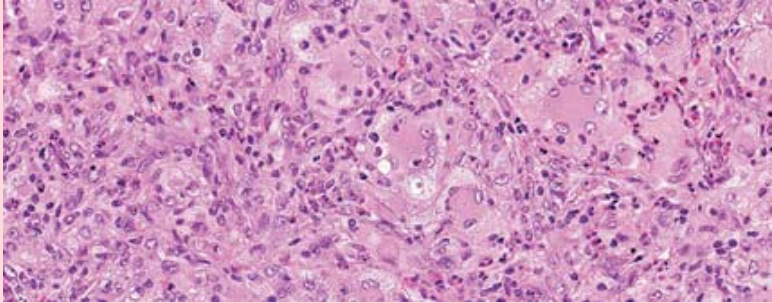
Langhans giant cells with *acid fast bacilli* (inset)



Foreign body giant cells



Touton giant cells

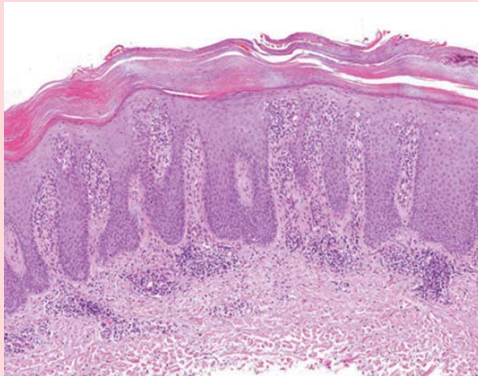


## Clinicopathologic Correlation

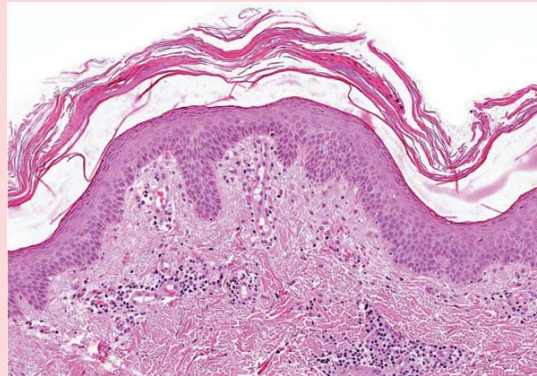
When considering clinicopathologic correlations in approaching a diagnosis there basically are four scenarios, in which the diagnostic impact of histopathology may be high, moderate, low or none.

### 1. High diagnostic impact of histology, when the clinical presentations are almost identical

Psoriasis (left) vs seborrheic dermatitis (right)



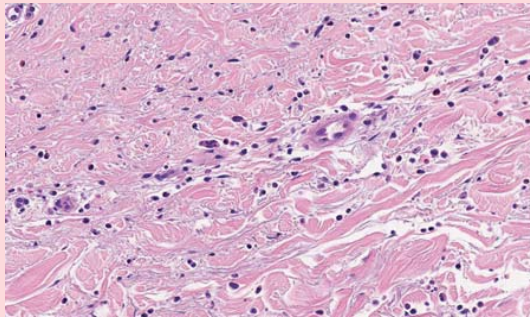
Psoriasisiform acanthosis



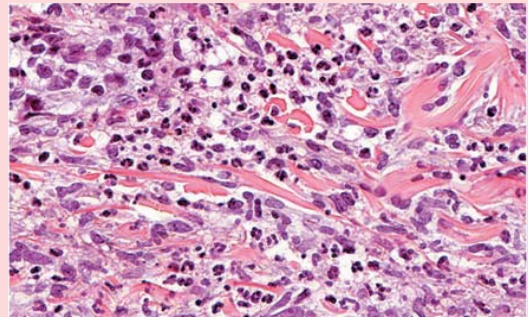
Free floating parakeratotic scale without psoriasisiform acanthosis

Urticaria (left) vs Sweet's syndrome (right)



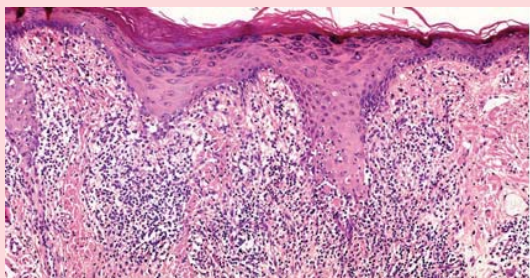


Sparse granulocytic infiltrate

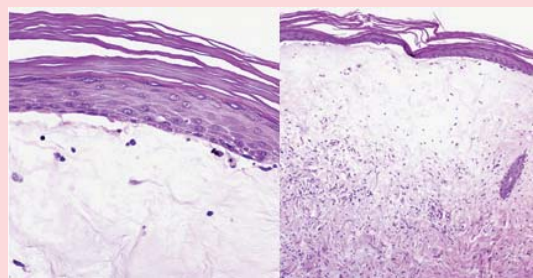


Densely packed sheets of neutrophils

Lichen planus (left) vs lichen sclerosus et atrophicus (right)



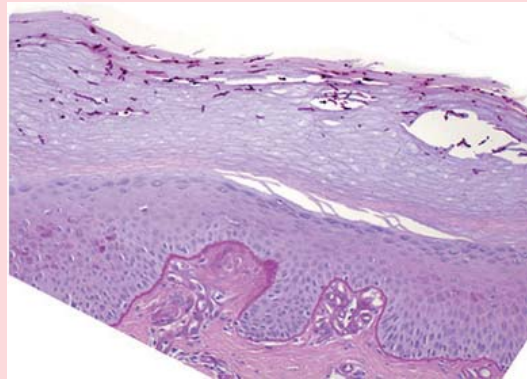
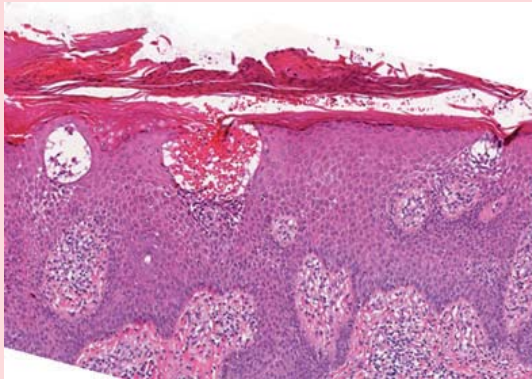
Sawtooth pattern with hypergranulosis and lichenoid interface dermatitis



Tricolore pattern with red epidermis, white sclerosis, and blue band-like infiltrate.

**2. Moderate diagnostic impact of histology, when the histology is just confirmation of the clinical diagnosis and is not mandatory as such**

Nummular dermatitis (left) vs fungal infection (tinea) (right)



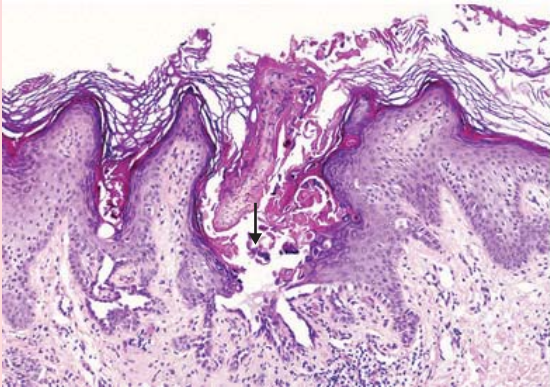
Scale crust without fungal organisms.

Hyphae and spores within cornified layer.

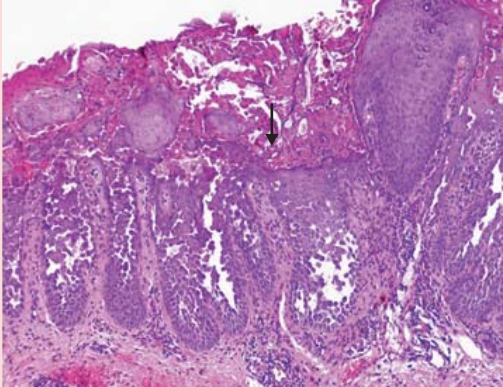
**3. Low diagnostic impact of histology, when the clinician has to make the diagnosis based on the clinical presentation**

Transient acantholytic dermatosis (Grover's disease) (left) vs benign chronic familial pemphigus (Hailey-Hailey disease) (right)



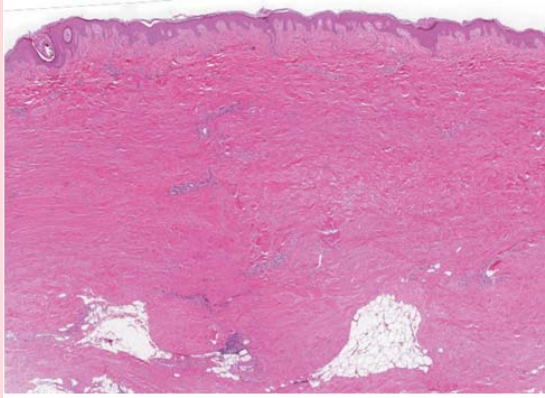
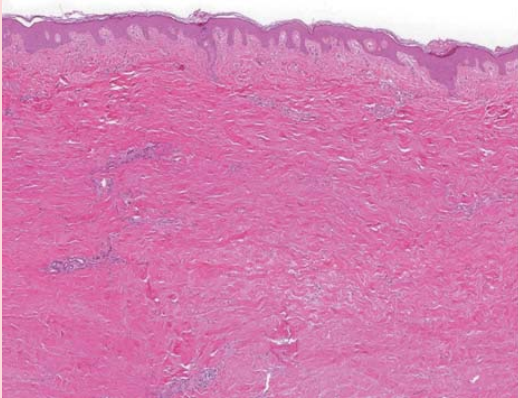


Focal acantholytic dyskeratosis (arrow)

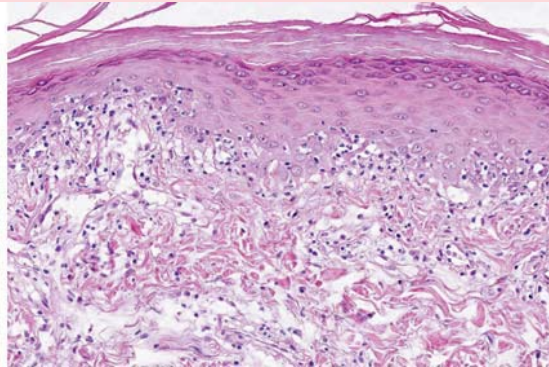
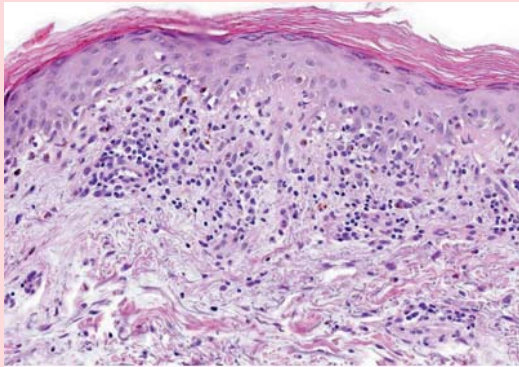


Transepidermal acantholysis (arrow)

Systemic diffuse scleroderma (left) vs circumscribed scleroderma (morphea) (right)



Dermatomyositis (left) vs acute systemic lupus erythematosus (right)



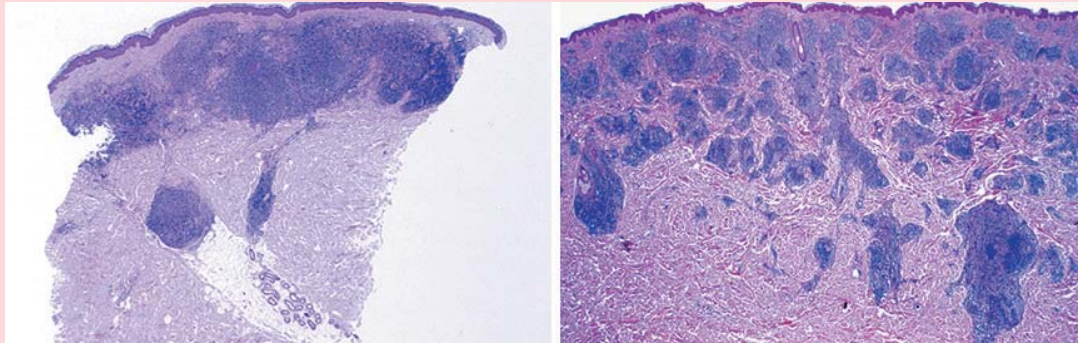
Denser infiltrate.

Less round cell infiltrate, more mucin deposits.

**4. Little or no diagnostic impact of histology, when neither the clinical nor the histological presentation allows a definite diagnosis, which often is revealed only by the clinical course or the therapeutic susceptibility**

Pseudolymphoma (left) vs cutaneous B-cell lymphoma (right)



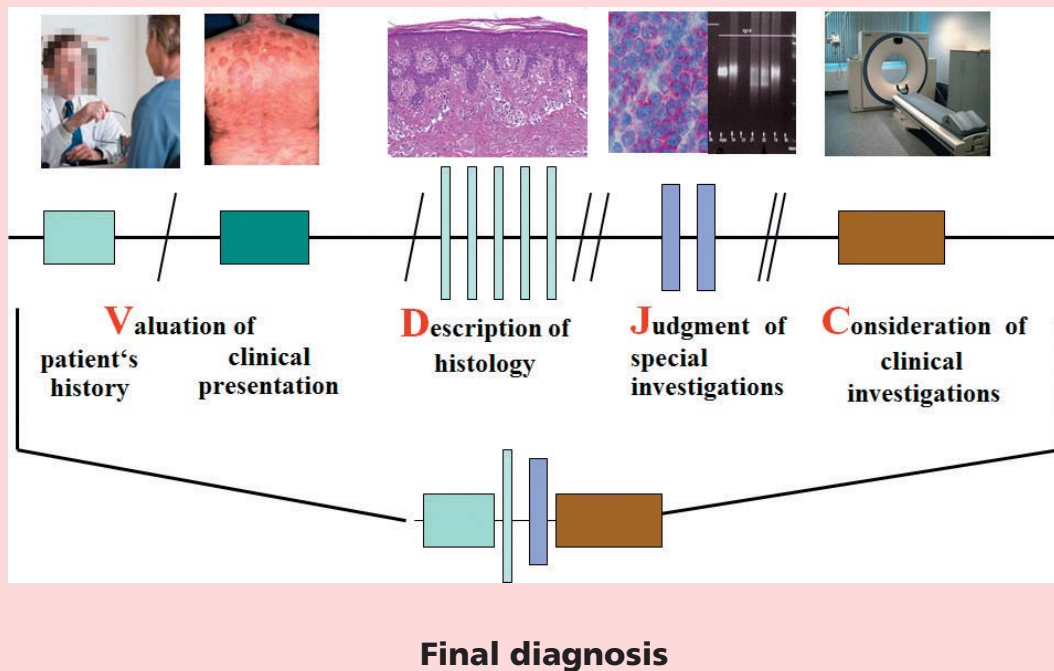


Similar pattern and immunophenotype in both lymphatic infiltrates.

### The Diagnostic Puzzle

Even though apart from a thorough history, clinical presentation and histomorphology are the basic elements in reaching a proper diagnosis, additional investigations like immunophenotyping, genotyping and molecular techniques in conjunction with laboratory investigations sometimes are very helpful in completing a complex puzzle by “rearrangements” of various facts.

### Stepwise approach to diagnosis by VDJC rearrangement of information



## Helpful links

For more information on common skin diseases you can register and login free of charge at DOIT (Dermatology Online with Interactive Technology; [www.cyberderm.net](http://www.cyberderm.net)).

For guidance through the program have a look on YouTube: [https://www.youtube.com/watch?v=3ekhor35w0w&feature=em-upload\\_owner#action=share](https://www.youtube.com/watch?v=3ekhor35w0w&feature=em-upload_owner#action=share).

A Collection of high resolution histological images are presented free of charge in the Hypertext Atlas of Dermatopathology ([www.atlases.muni.cz](http://www.atlases.muni.cz)).