FACULTY OF MEDICINE AND HEALTH SCIENCES

SUPERFICIAL AND DEEP PERIVASCULAR DERMATITIS

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INTRODUCTION

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INFLAMMATORY DERMATOPATHOLOGY

- **Hard subject** because:

-the very broad and “non exhausting” terminology

-a significant histologic overlap between the different entities

-inflammatory skin disease is dynamic: a particular entity may have a completely different appearance early in the course of the disease from what it looks like late in the disease process: *“the life of lesions”*

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INFLAMMATORY DERMATOPATHOLOGY

What makes up **an ideal report of an inflammatory diagnosis**?

-All reports from biopsies require 3 elements:
1. microscopic description
2. comment
3. diagnosis

-when possible, it is important to provide a specific histopathological diagnosis

-unfortunately, a specific diagnosis is often not possible. In such cases is perfectly acceptable to provide a *“descriptive diagnosis”.*

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INFLAMMATORY SKIN PATHOLOGY

What is a **descriptive diagnosis**?

- A descriptive diagnosis is not synonymous of a ‘non-specific chronic dermatitis’!
- A descriptive diagnosis needs to be formulated in appropriate terms, in other words using the ***reaction pattern that is present***
- what gives meaning to the descriptive diagnosis are the *accompanying microscopic description and the comment section of the report*

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INFLAMMATORY SKIN DISEASES : UNDERSTANDING THE CONCEPT OF THE BASIC REACTION PATTERNS

- Predominant epidermal patterns (***spongiotic dermatitis, psoriasiform dermatitis, interface dermatitis***)
- Predominant dermal patterns (***perivascular dermatitis, nodular and diffuse dermatitis, neutrophilic and eosinophilic dermatosis, granulomatous dermatitis, sclerosing dermatitis***)
- ***Panniculitis (septal-lobular)***
- ***Infections***
- ***Vasculitis***
- ***Alopecia***
- ***Bullous dermatitis (intra-epidermal pattern, subepidermal pattern)***

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EPIDERMAL PATTERNS: DEFINITION

- ***Spongiotic*** pattern: epidermal accumulation of edema fluid
- **Psoriasiform** pattern: epidermal hyperplasia
- **Interface** pattern: damage to basal layer of the epidermis by an inflammatory infiltrate

→spongiotic and psoriasiform patterns frequently co-exist (overlap)

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DERMAL PATTERNS: DEFINITION

– **Perivascular** dermatitis: an inflammatory infiltrate predominantly around blood vessels in a superficial or superficial and deep distribution

– **Nodular/diffuse** dermatitis: the infiltrate is less vasculocentric
→there may be significant overlap between perivascular and nodular/diffuse patterns

- **Granulomatous** dermatitis: tuberculoid/sarcoid/palisaded/interstitial/suppurative granulomatous patterns

– **Sclerosing** dermatitis: fibrosis of the dermis usually with relatively little inflammation

INFLAMMATORY DERMATOPATHOLOGY: REACTION PATTERNS

- **Panniculitis**: *septal and lobular* patterns
- **Vasculitis** (primary versus secondary vasculitis; *small versus large* vessel vasculitis; *leucocytoclastic* vasculitis versus *"lymphocytic"* vasculitis versus vasculopathic disease)
- **Bullous pathology** (*intraepidermal and subepidermal* bullous pathology)

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INFLAMMATORY DERMATOPATHOLOGY: REACTION PATTERNS

- **Alopecia pathology** (*inflammatory and non-inflammatory* patterns)

- **Infectious pathology**: many of the infectious entities do not neatly fall into one reaction pattern! A very broad and heterogenic group.

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SUPERFICIAL AND DEEP PERIVASCULAR DERMATITIS

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PERIVASCULAR DERMATITIS: DEFINITION

- The inflammatory infiltrate is concentrated around the vessels of the superficial and/or deep vascular plexus. **There is no significant epidermal change.**

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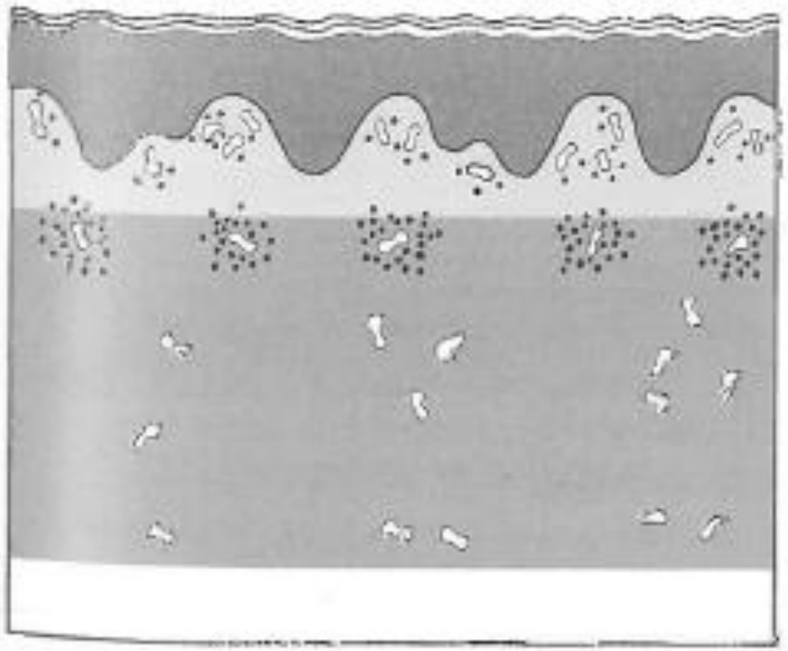

Figure 5.5. Superficial perivascular dermatitis.

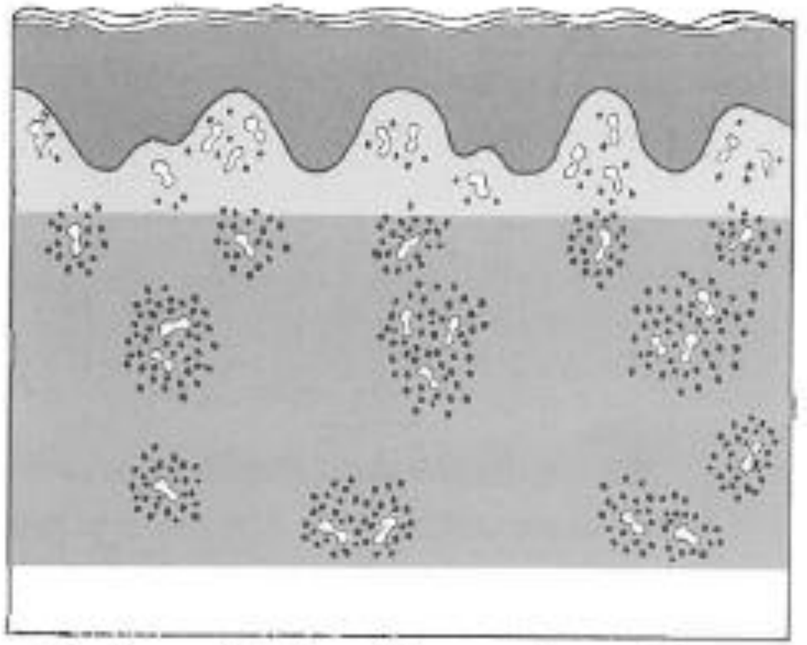

***Figure 5.6.** Superficial and deep perivascular dermatitis.*

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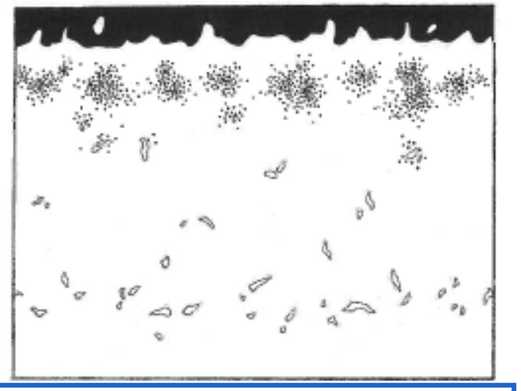


ure 5.14. Superficial perivascular dermatitis, vascular only.

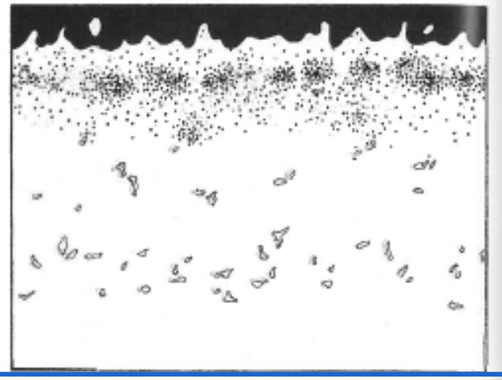
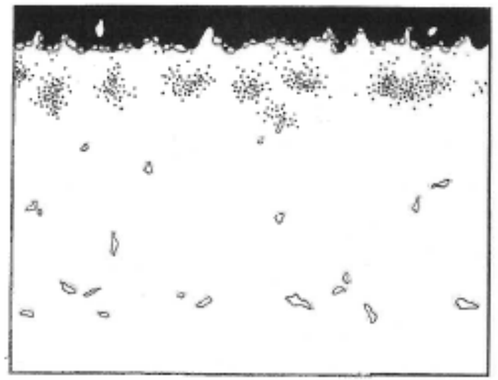


***Figure 5.15.** Superficial perivascular and interstitial dermatitis.*



***ure 5.16.** Interface dermatitis, vacuolar, superficial.*

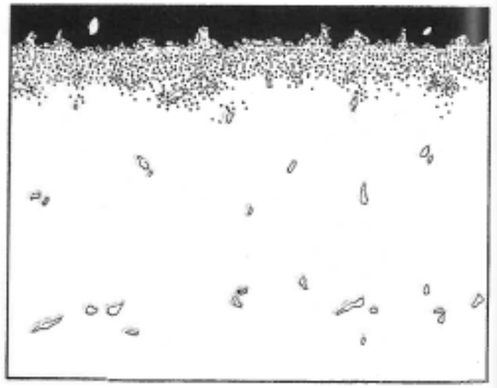


***Figure 5.17.** Interface dermatitis, lichenoid, superficial.*

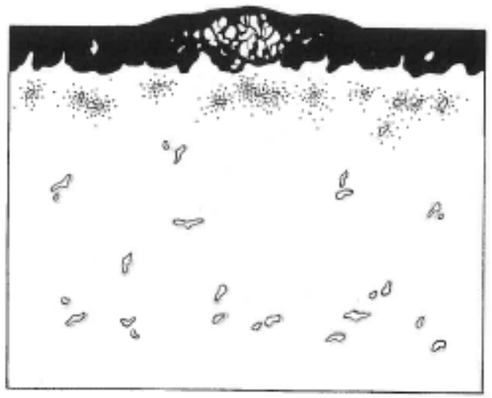


Figure 5.18. Ballooning dermatitis, superficial.

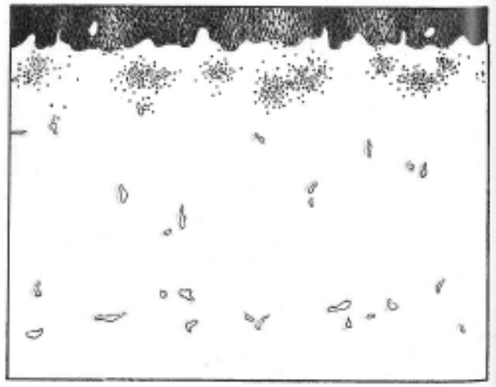


***Figure 5.19.** Spongiotic dermatitis, superficial.*

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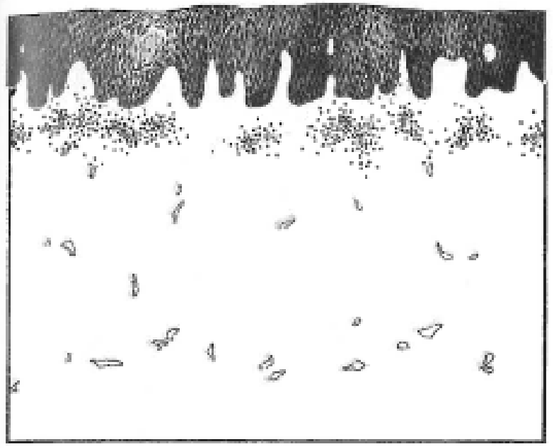

Figure 5.20. Spongiotic psoriasiform dermatitis, superficial.

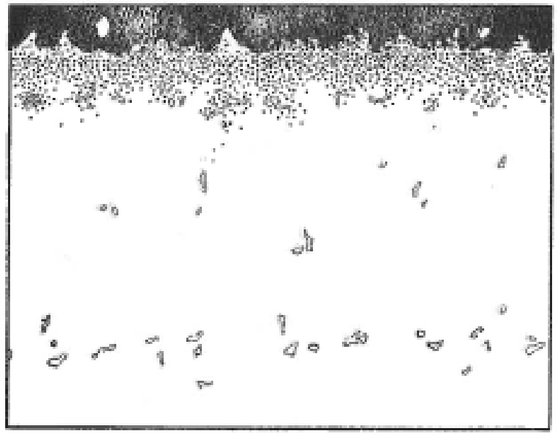

Figure 5.21. Spongiotic lichenoid dermatitis, superficial.

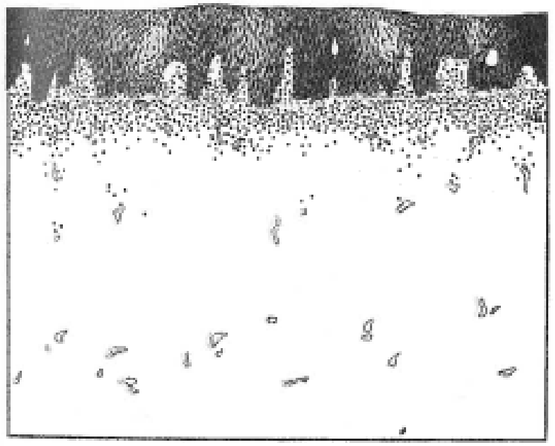

Figure 5.22. Spongiotic psoriasiform lichenoid dermatitis, superficial.

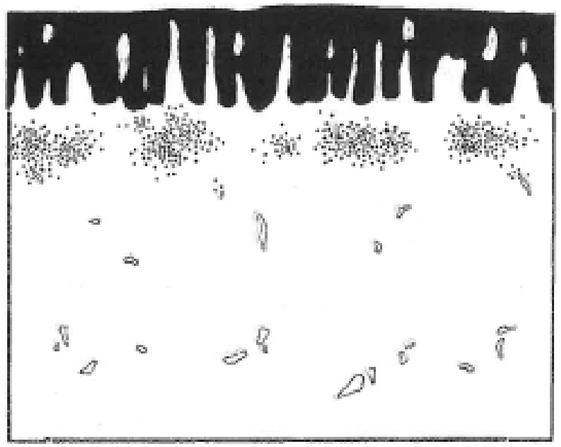

Figure 5.23. Psoriasiform dermatitis, superficial.

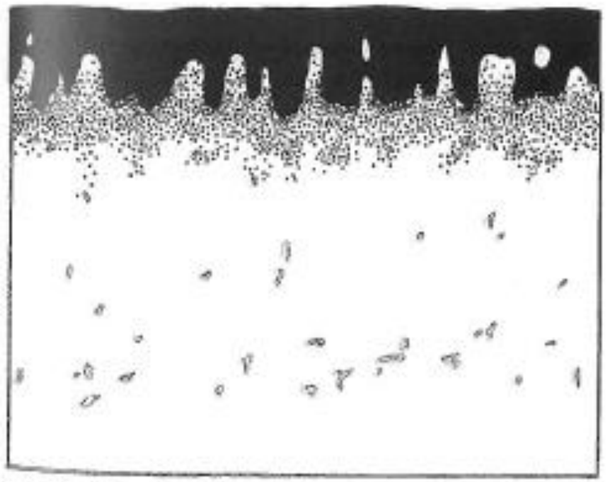

Figure 5.24. Psoriasiform lichenoid dermatitis, superficial.

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SUPERFICIAL PERIVASCULAR DERMATITIS

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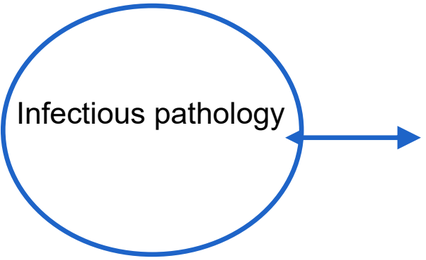
SUPERFICIAL PERIVASCULAR DERMATITIS (1)

– **Lymphocytes predominant**

-drug reaction
-viral exanthem
-chronic urticaria
-superficial annulare centrifugum (gyrate erythema)
-vitiligo (no melanocytes in basal layer epidermis)
-infectious (tinea versicolor, dermatophytosis, erythrasma)



- **Lymphocytes with melanophages**

-postinflammatory pigmentary alteration
-erythema dyschromicum perstans
-late fase fixed drug eruption

– **Lymphocytes with extravasated erythrocytes and/or siderophages**

-Schamberg's disease and other forms of pigmented purpuric dermatosis
-stasis dermatitis (see spongiotic dermatitis)

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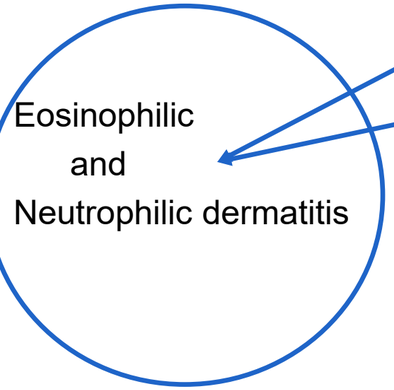
SUPERFICIAL PERIVASCULAR DERMATITIS (2)



- **Eosinophils**

-urticaria
-urticarial hypersensitivity reaction (arthropod bite or drug)
-drug reactions
-pruritic urticarial papules and plaques of pregnancy (PUPP)

- **Mast cells perivascular and interstitially**

-cutaneous mastocytosis
(especially telangiectasia eruptiva macularis perstans or TMEP)

- **Plasma cells**

-syphilis
-rosacea

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SUPERFICIAL PERIVASCULAR DERMATITIS

- **Drug (hypersensitivity) reaction**
- Superficial gyrate erythema (*see superficial and deep gyrate erythema*)
- Superficial arthropod assault (insect bite) (*see eosinophilic and neutrophilic dermatitis*)
- **Pigmented purpuric dermatose**
- **Viral exanthema**
- Urticaria (*see eosinophilic and neutrophilic dermatitis*)
- **Urticaria pigmentosa**
- **Telangiectasia macularis eruptiva perstans (TMEP)**
- **Postinflammatory pigmentary alteration**
- Vitiligo
- **Erythema chromicum perstans**
- Stasis changes (see spongiotic dermatitis)
- **Pruritic urticarial papules and plaques (PUPP)**

DRUG (HYPERSENSITIVITY) REACTIONS

- **Drug reactions can present with almost any clinical and histological pattern.** There are multiple histological and clinical variations.

- **Drug eruptions characterized by dermal hypersensitivity reaction**: the majority of patients with a reaction to a medication will develop a hypersensitivity reaction against the antigens that are delivered to the skin through the dermal vessels.

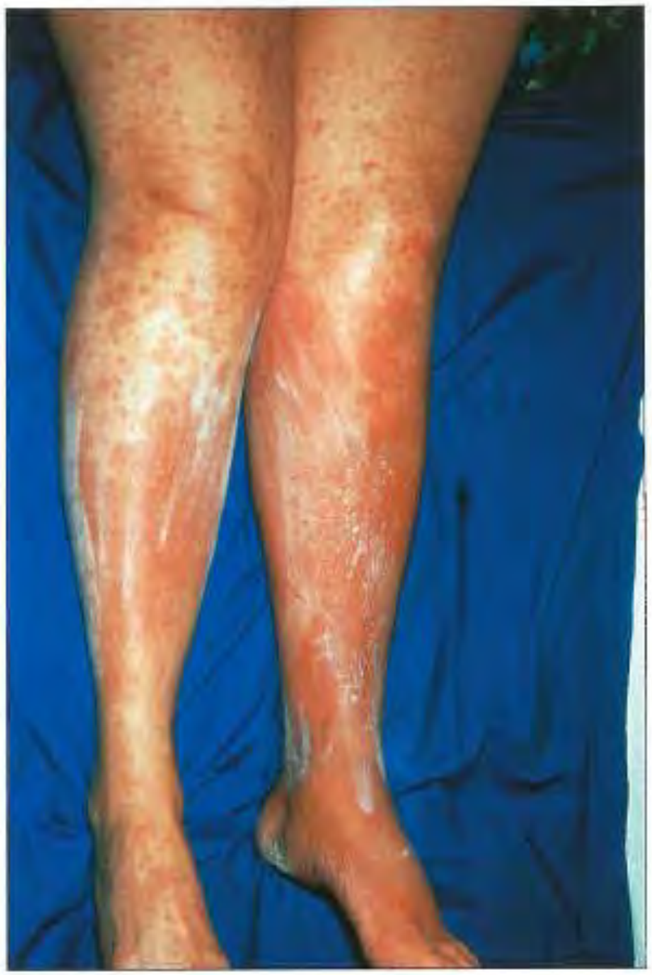

Fig. 13.1
Exanthematous drug reaction: typical erythematous maculopapular eruption on the lower extremities due to ampicillin. By courtesy of the Institute of Dermatology, London, UK.

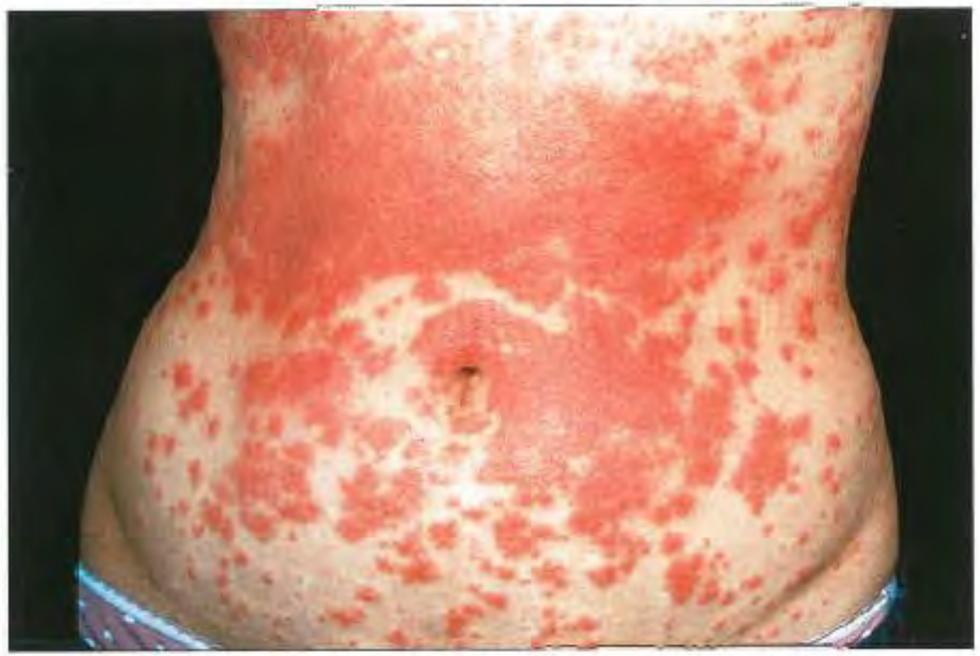

Fig. 13.2
Exanthematous drug reaction: more extensive lesions on the abdomen associated with amoxicillin therapy. By courtesy of the Institute of Dermatology, London, UK.

Pathology of the Skin, 3th edition, Phillip H. McKee, Eduardo Calonje, Scott R. Granter

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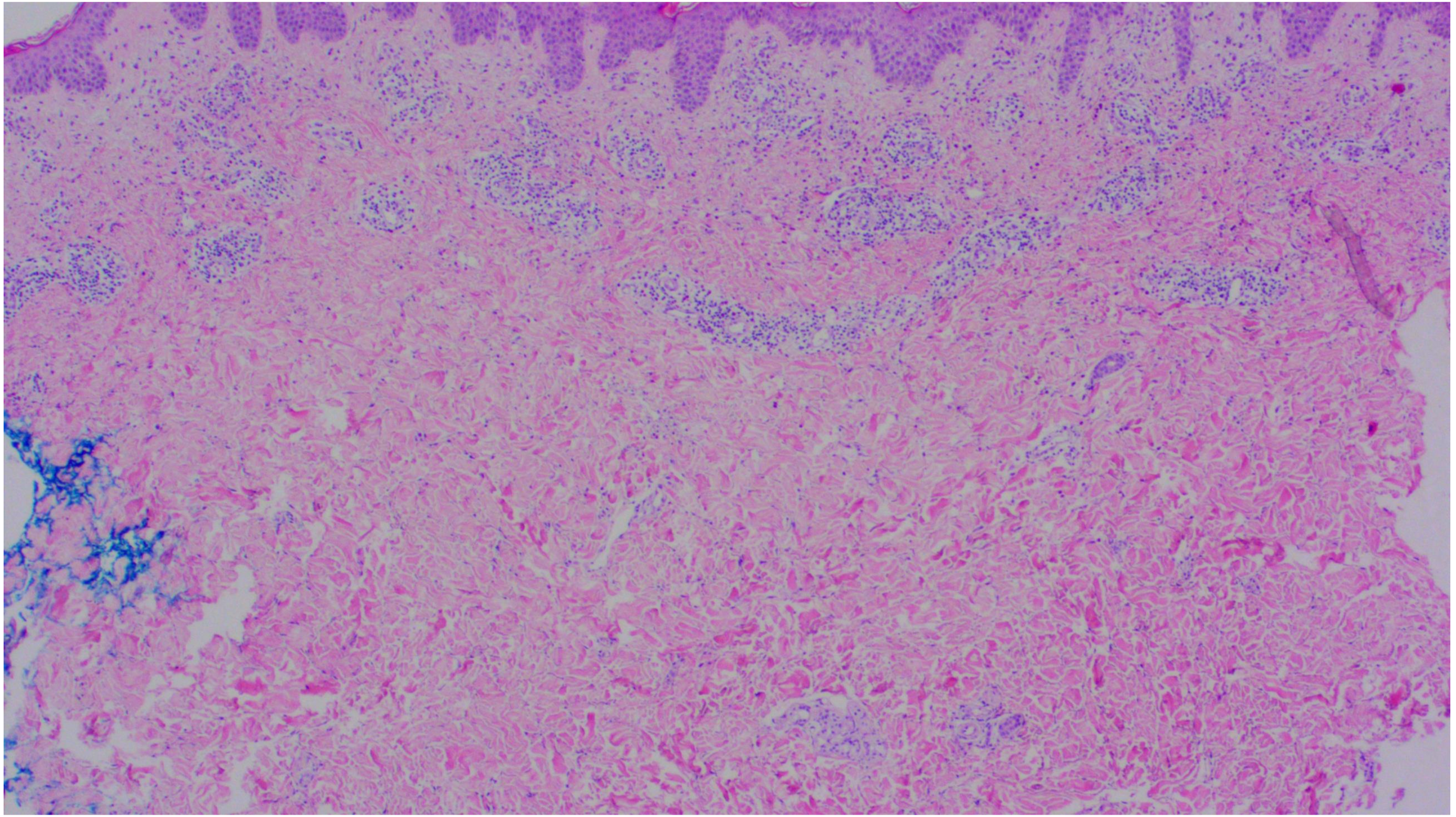
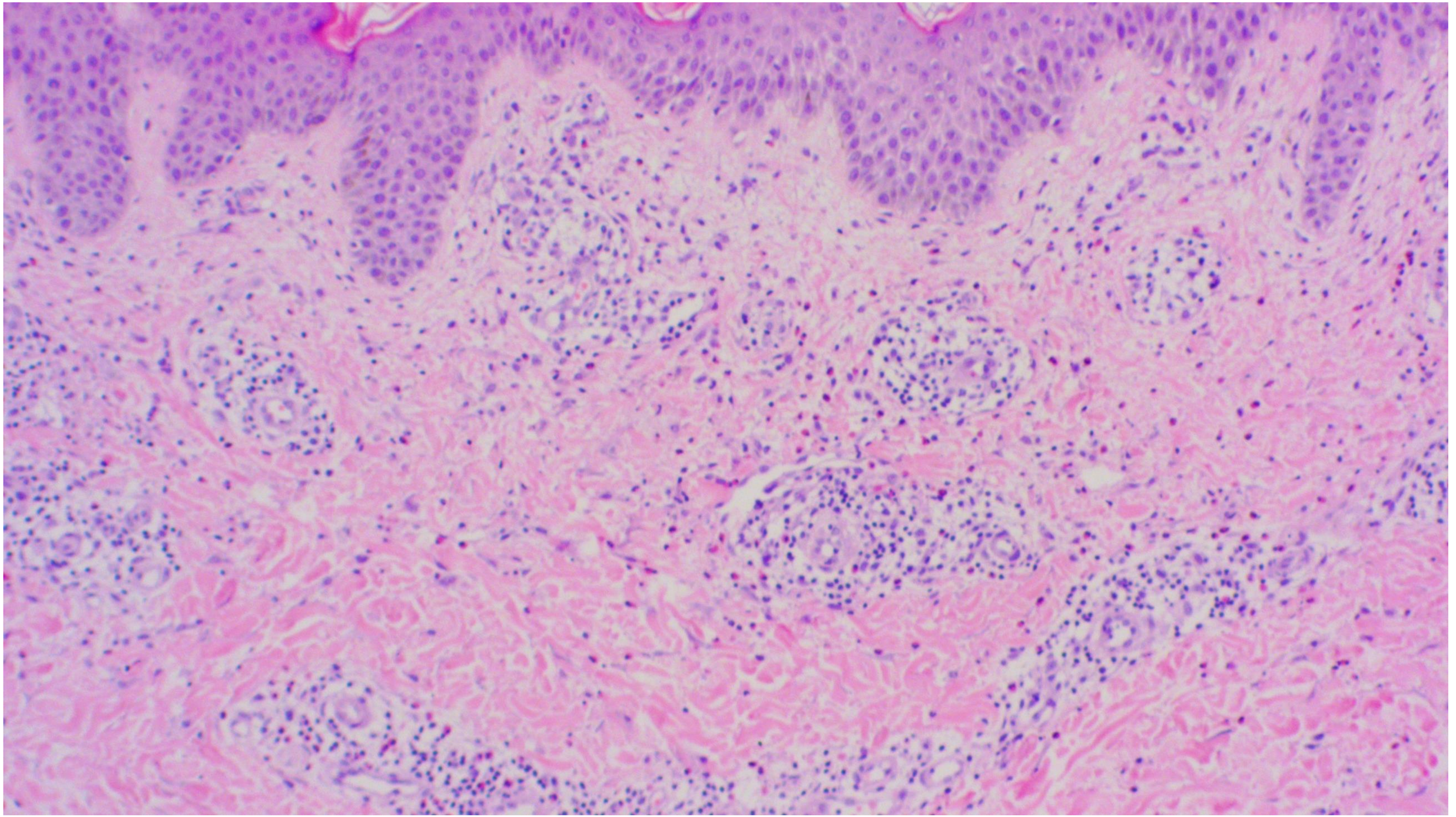
DRUG (HYPERSENSITIVITY) REACTIONS: HISTOLOGY

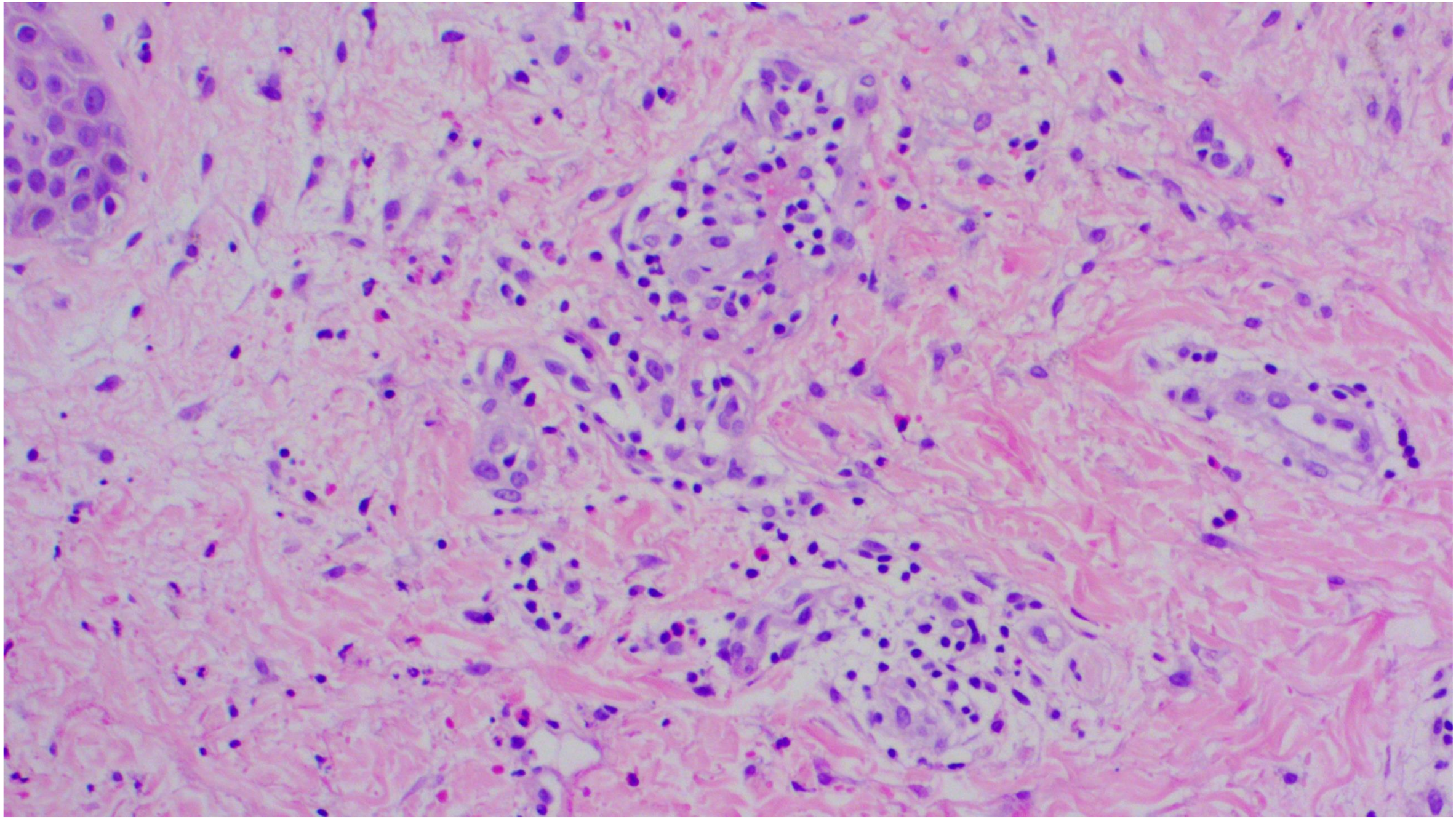
- **Perivascular infiltrate of lymphocytes with scattered eosinophils**

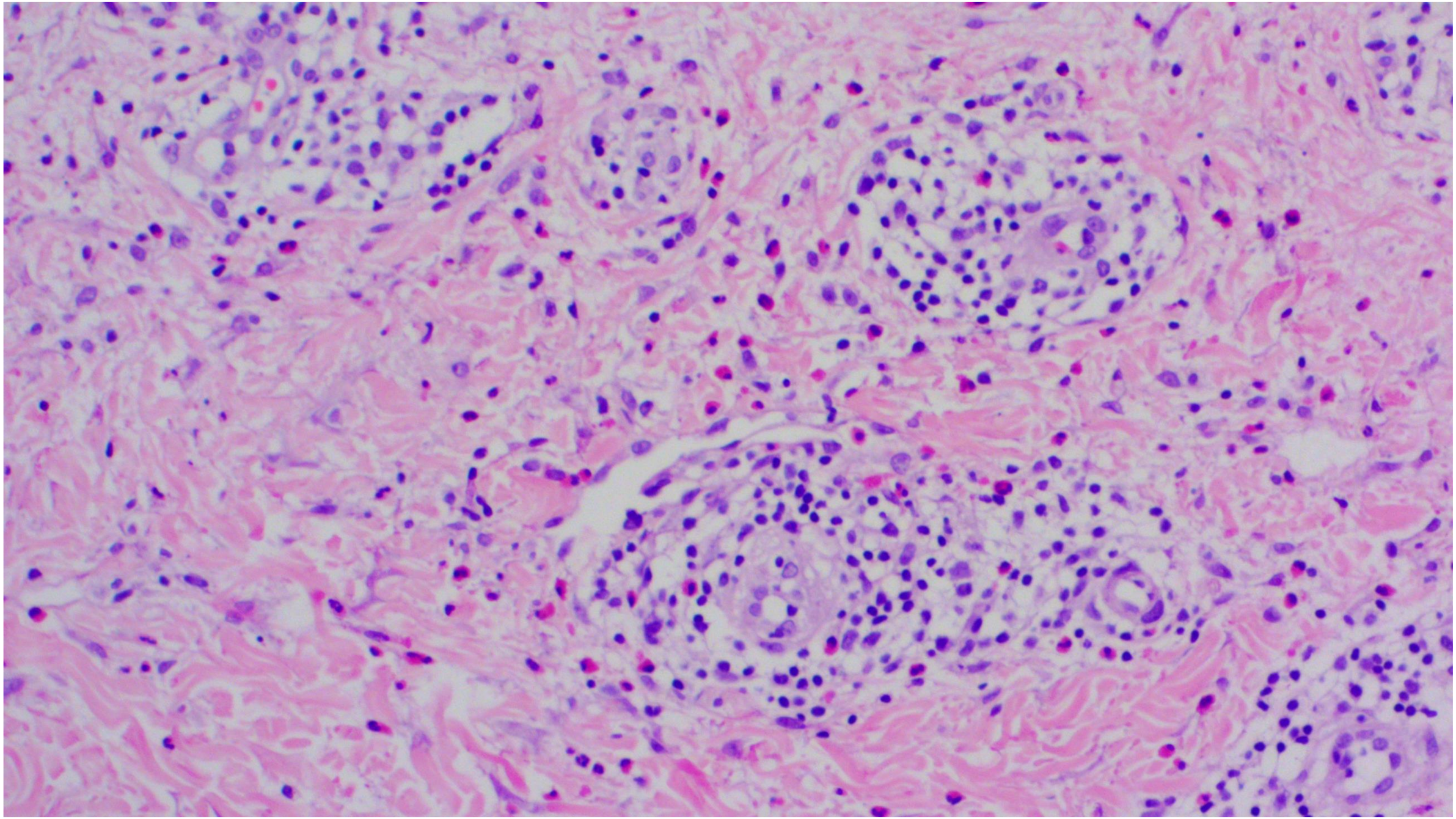
- The intervening dermis shows **different degrees of edema.**

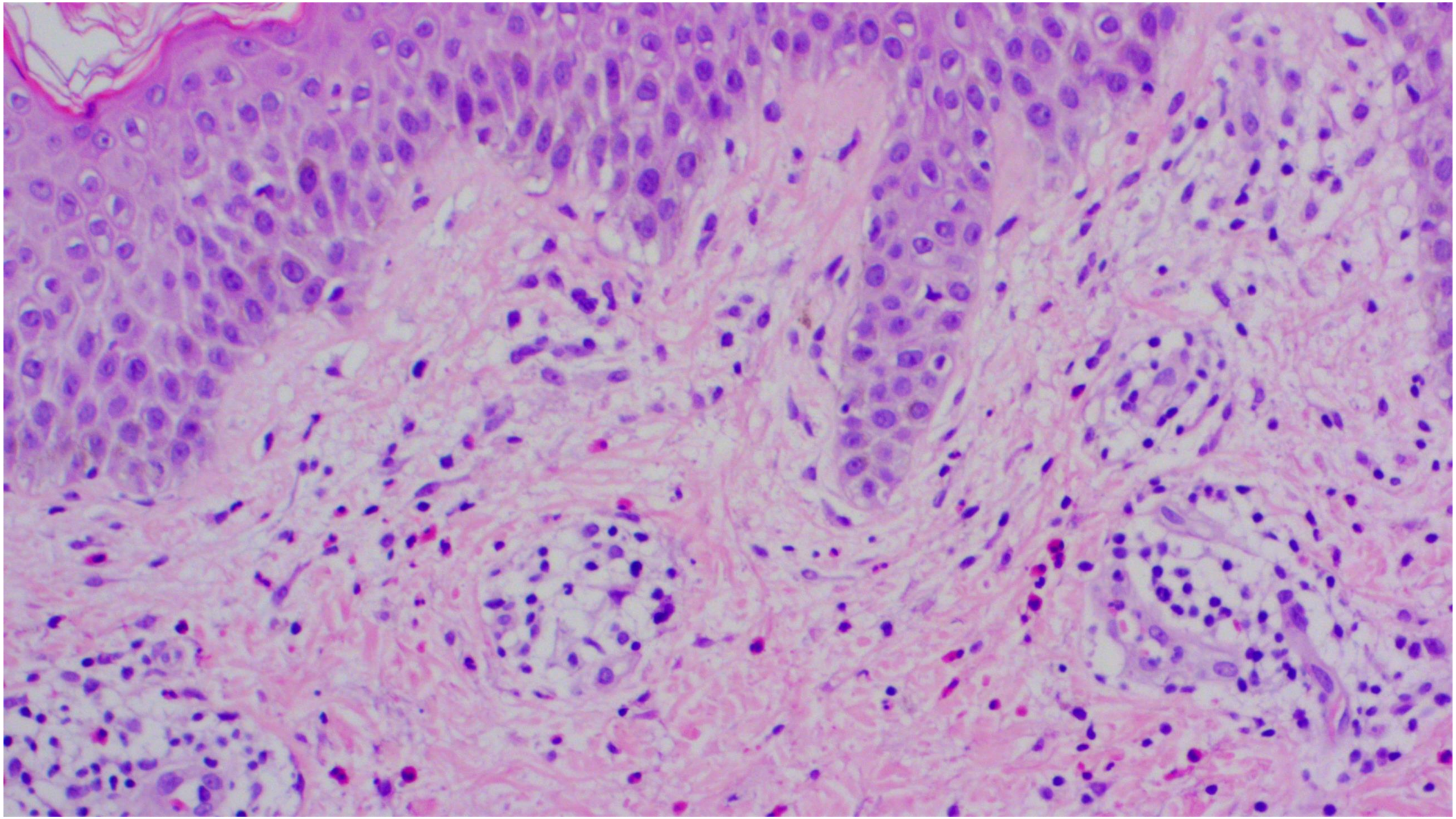
- **In general, there is no or occasional little spongiosis**, although some cases may develop significant spongiosis and increased numbers of dendritic cells (Langerhans cells) (differential diagnosis allergic contact dermatitis/eczema, cfr spongiotic dermatitis).

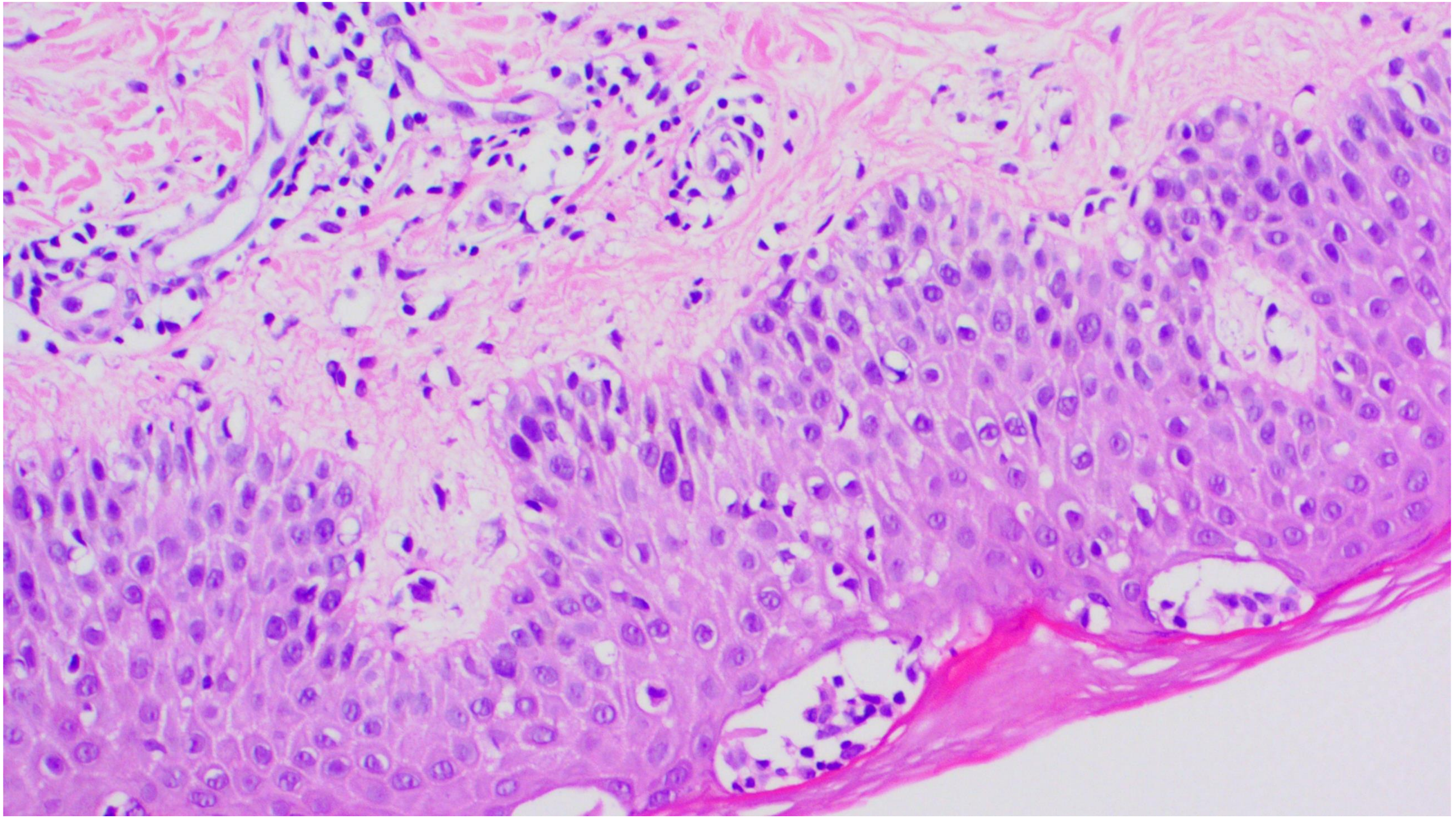












DRUG (HYPERSENSITIVITY) REACTIONS: DIFFERENTIAL DIAGNOSIS

- Urticaria
- Urticarial vasculitis
- Superficial arthropod assault (insect bite reaction)
- Prebullous phase bullous pemphigoid

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OTHER DRUG ERUPTIONS (MAINLY CHARACTERIZED BY INTERFACE DERMATITIS)

- Exanthematous/morbilliform drug reaction (most common type of drug reaction)
- Fixed drug eruption
- Lichenoid drug eruption
- Erythema multiforme

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OTHER DRUG REACTIONS (CHARACTERIZED BY A PREDOMINANCE OF NEUTROPHILS)

- Acute generalized exanthematous pustulosis (AGEP)
- Drug-induced Sweet syndrome-like eruption
- Halogenoderma (bromoderma)

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OTHER DRUG ERUPTIONS CHARACTERIZED BY BULLAE/VESICLES

- Drug-induced pseudoporphyria
- Drug-induced pemphigus
- Drug-induced linear IgA

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OTHER DRUG ERUPTIONS

- Drug-induced hyperpigmentation
- Drug-induced pseudolymphoma
- Neutrophilic eccrine hidradenitis
- Psoriasiform drug reactions
- Drug-induced vasculitis

VIRAL EXANTHEMA

- **A variety of viral infections may present with cutaneous eruptions** (Cytomegalovirus, Enterovirus, Epstein-Barr virus, Hepatitis B virus, Parvovirus, Rubella, Rubeola/measles, Ruseola/human herpesvirus-6,…..)

- Although some viruses are associated with an eruption with distinctive clinical features, others are associated with a **non-specific maculopapular dermatosis**

VIRAL EXANTHEMA: HISTOLOGY

- Often a **superficial perivascular lymphocytic infiltrate**

- Some cases may show epidermal pathology such as interface changes with dyskeratotic cells

- **The histological features are entirely non-specific** and distinction from hypersensitivity reactions (e.g. a drug eruption) is impossible without clinical (often including serological investigation) correlation!

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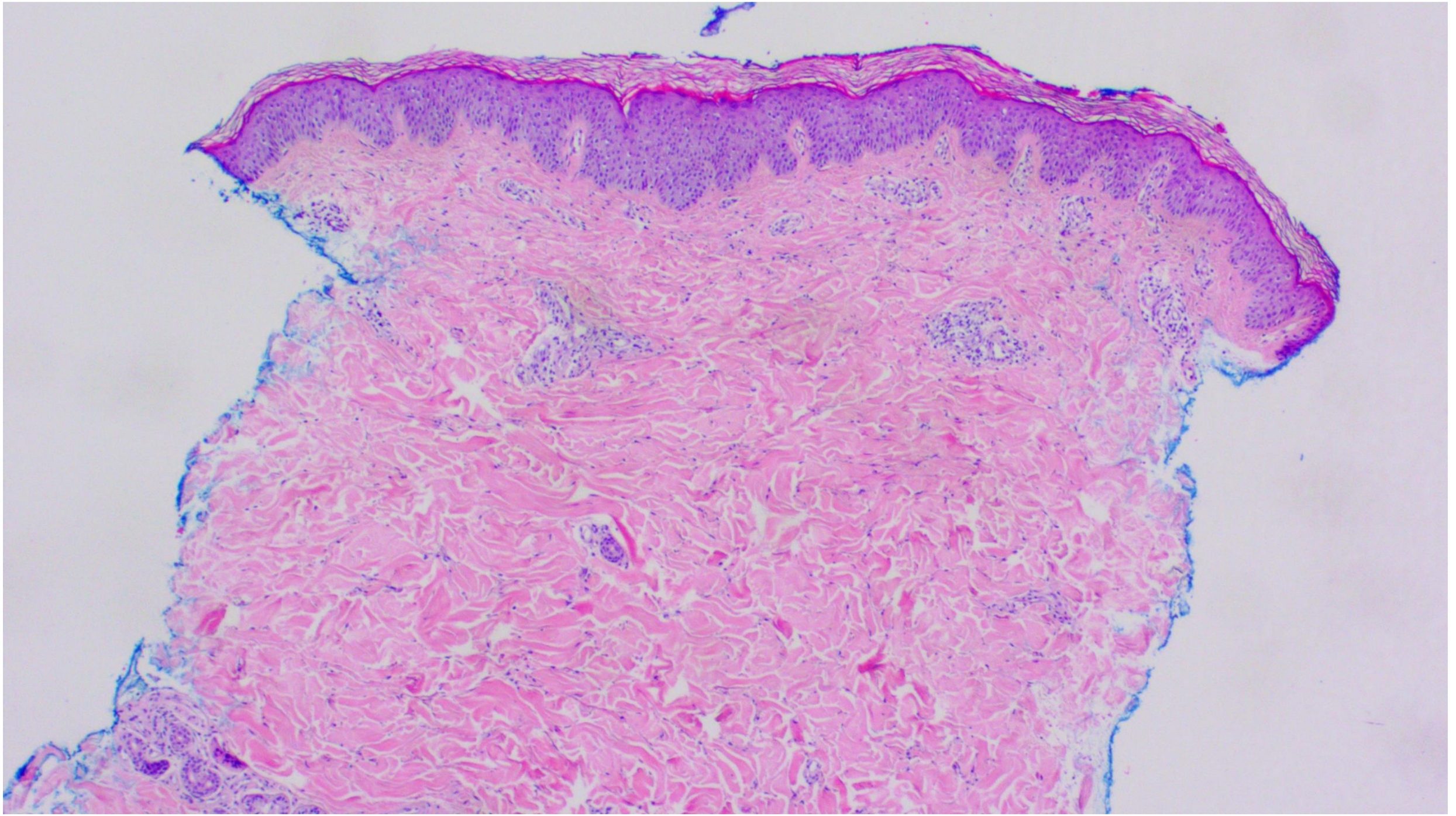

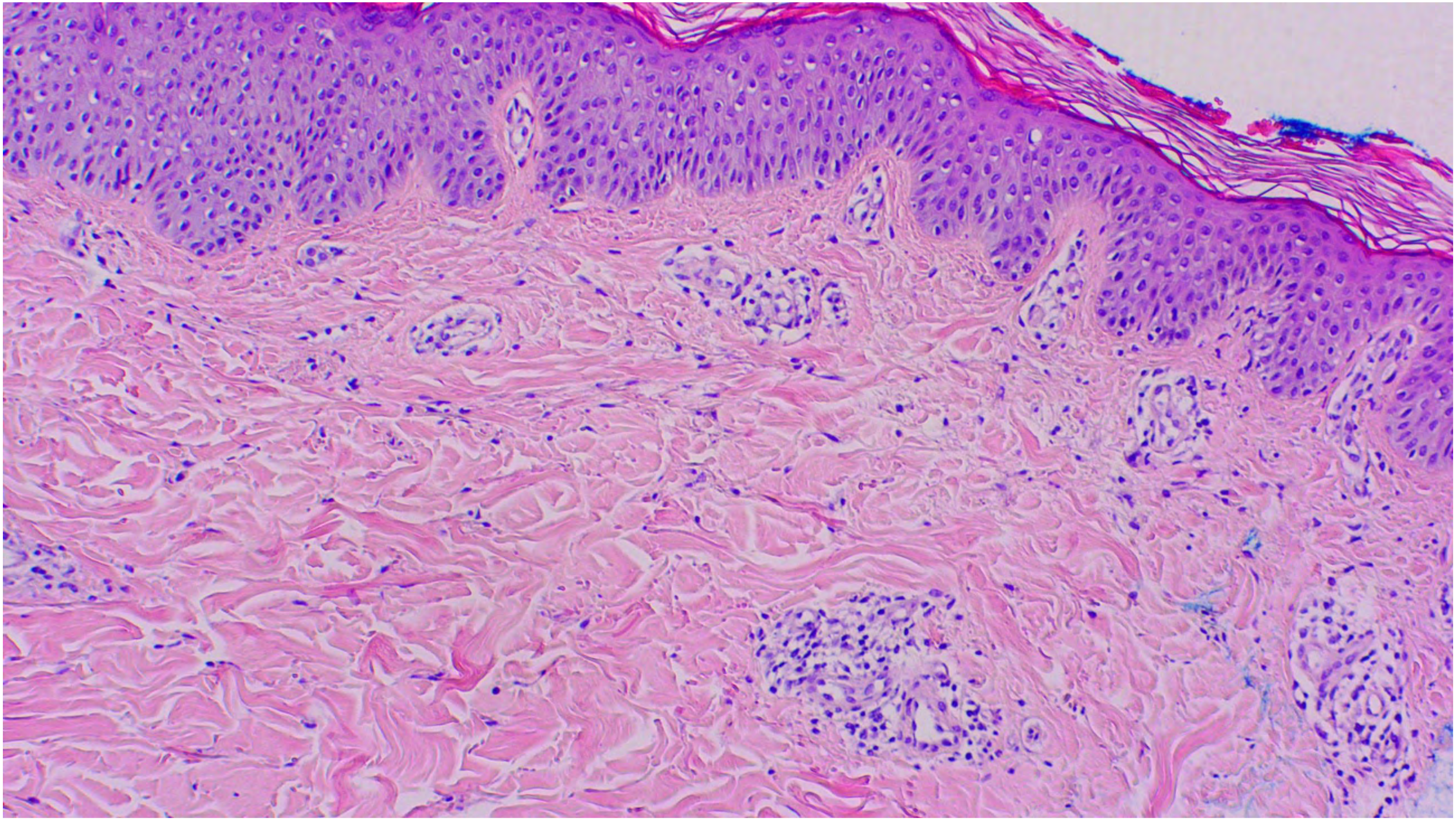

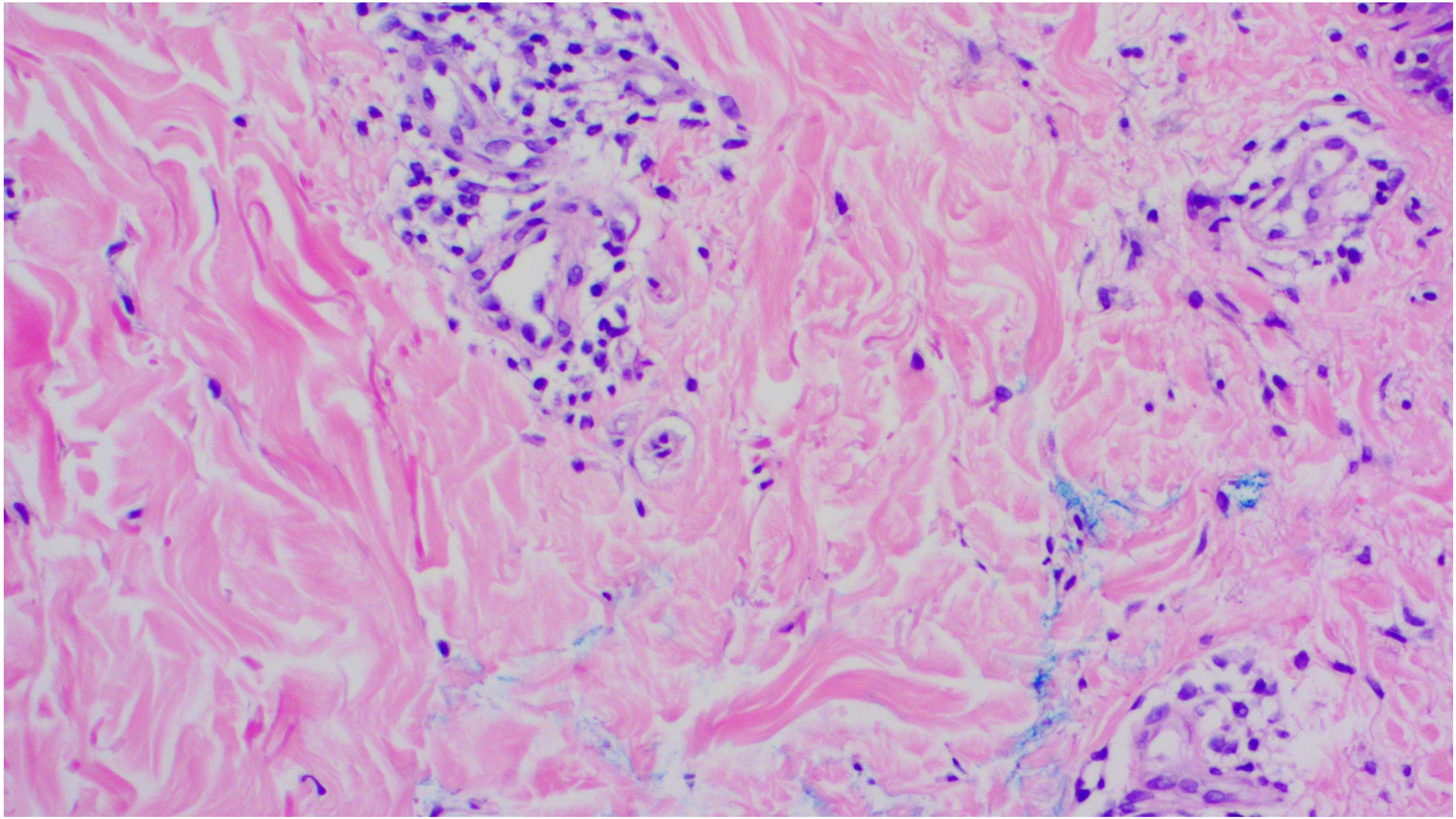

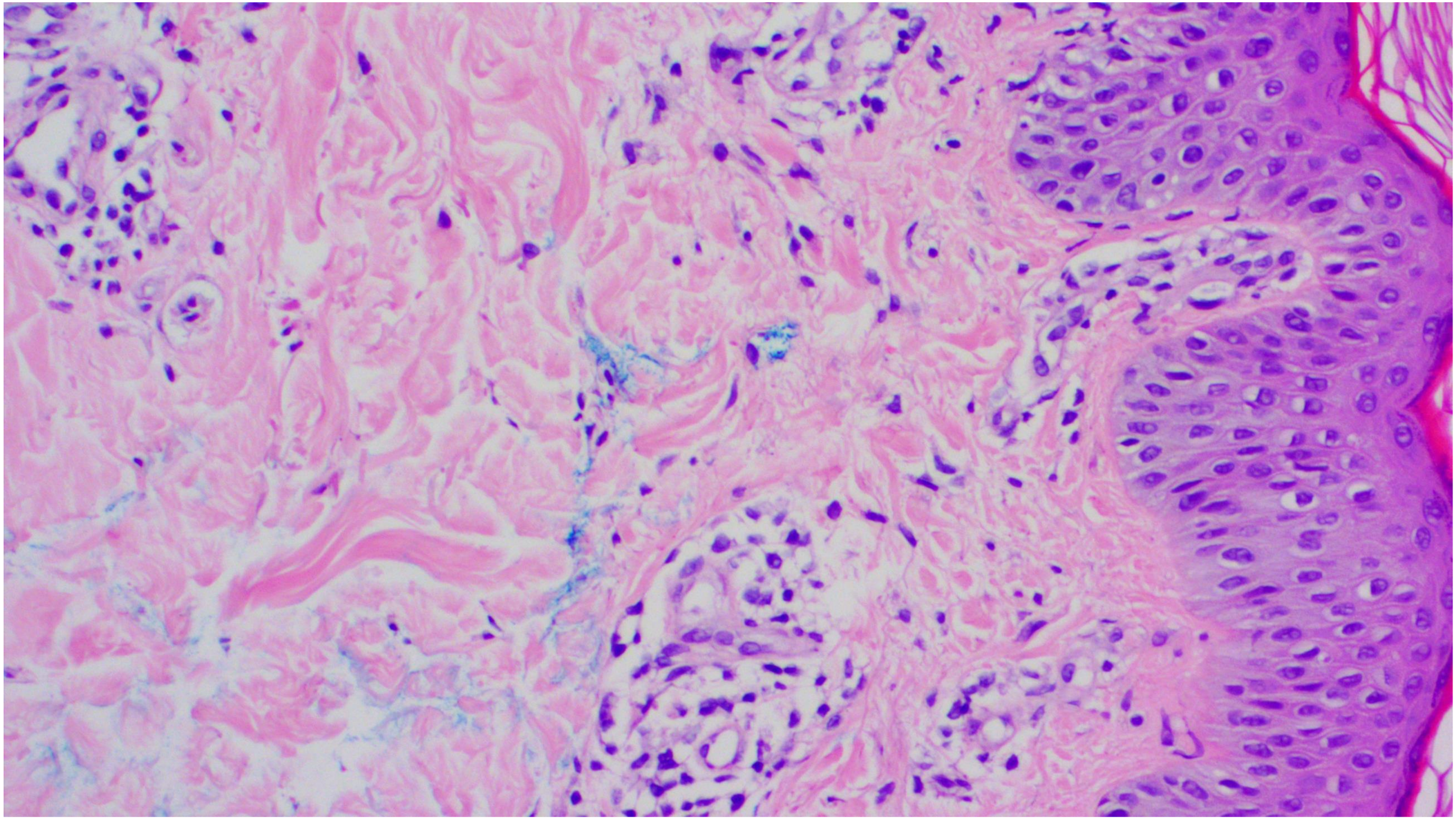

PIGMENTED PURPURIC DERMATOSIS (PPD)

- ‘purpura simplex’, ‘chronic capillaritis’
- PPD are **a group of chronic diseases of mostly unknown etiology** that have a **very distinctive CLINICAL appearance**
- PPD encompasses a number of clinical syndromes characterized by **orange/brown pigmentation (due to hemosiderin deposition) interspersed with fine pinpoint purpura (due to extravasated red blood cells)**
- The term PPD includes Schamberg disease, purpura annularis telangiectodes (Majocchi disease), lichen aureus, eczematoid-like purpura of Doucas and Kapetanakis, pigmented purpuric dermatosis of Gougerot and Blum, and itching purpura
- There have been some cases of PPD progressing to mycosis fungoides

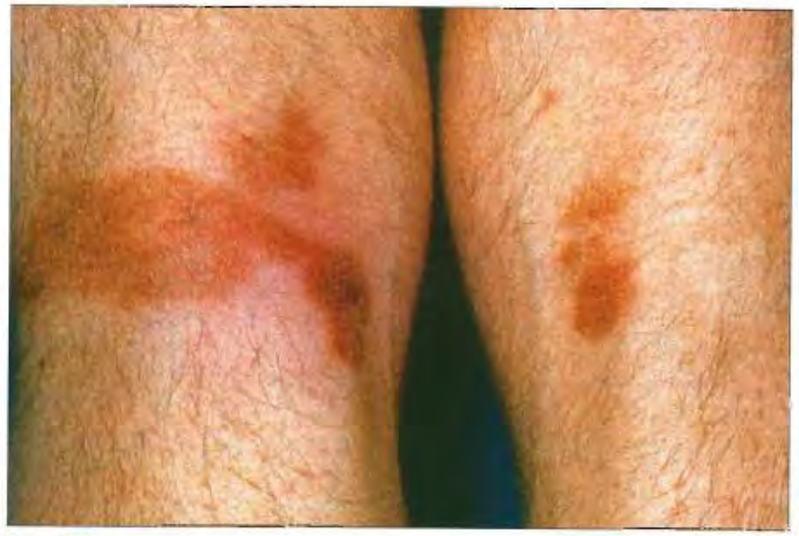

Fig. 7.37
Majocchi's disease: characteristic brown plaques on the backs of the knees in a male. By courtesy of R.A. Marsden, MD, St George's Hospital, London, UK.

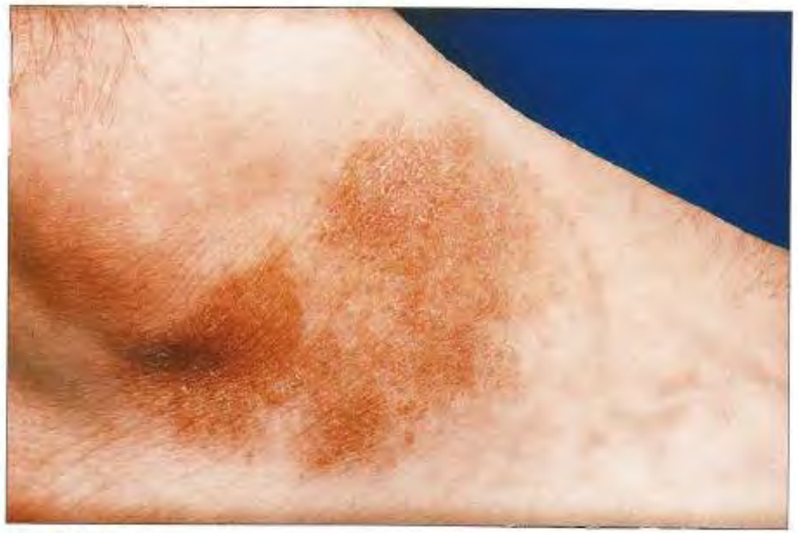

Fig. 7.38
Schamberg's disease: a localized area of capillaritis showing characteristic cayenne pepper speckling over the lateral malleolus of a male. By courtesy of R.A. Marsden, MD, St George's Hospital, London, UK.

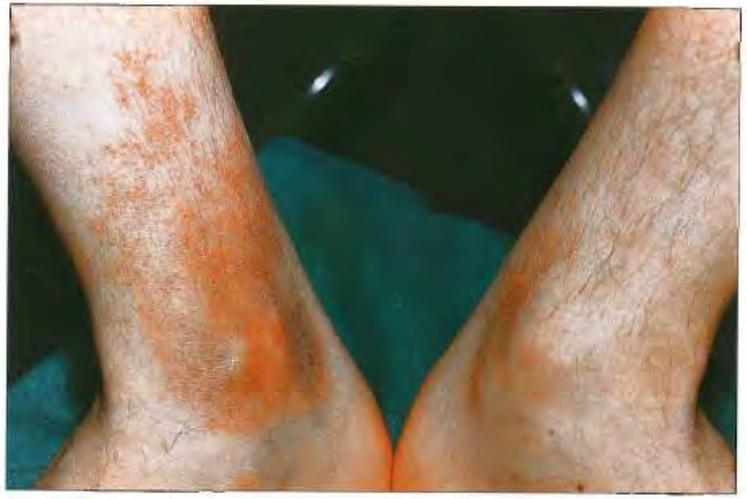

Fig. 7.39
Schamberg's disease: in this patient, the bilateral distribution over the malleoli mimics the effects of venous stasis. By courtesy of R.A. Marsden, MD, St George's Hospital, London, UK.

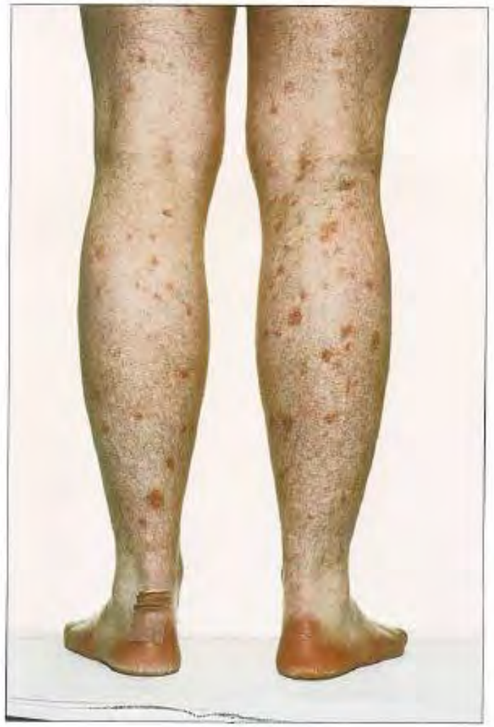

Fig. 7.40
Itching purpura: these small macules are widely distributed over both legs. By courtesy of J. Newton, MD, St Thomas' Hospital, London, UK.

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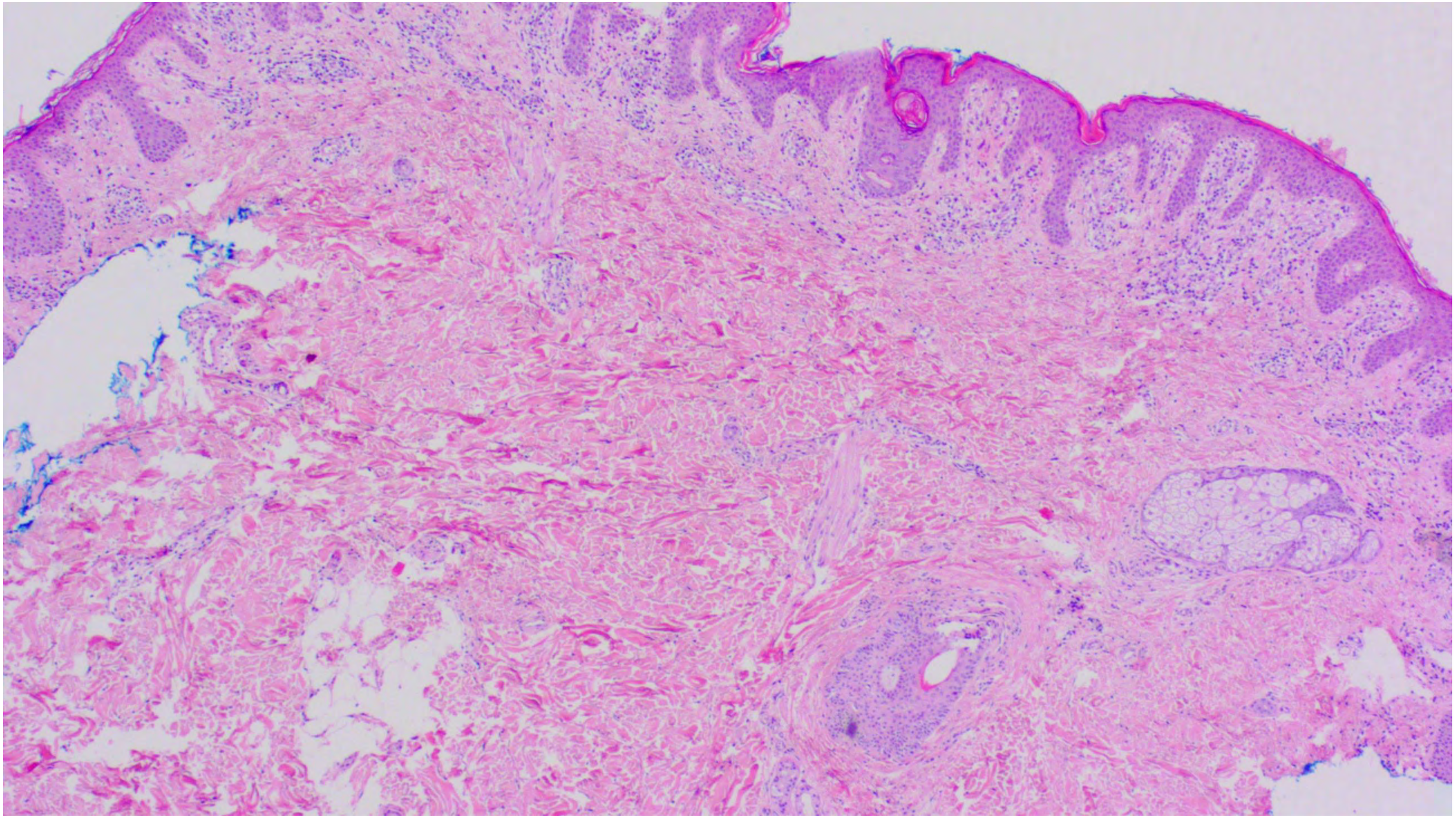
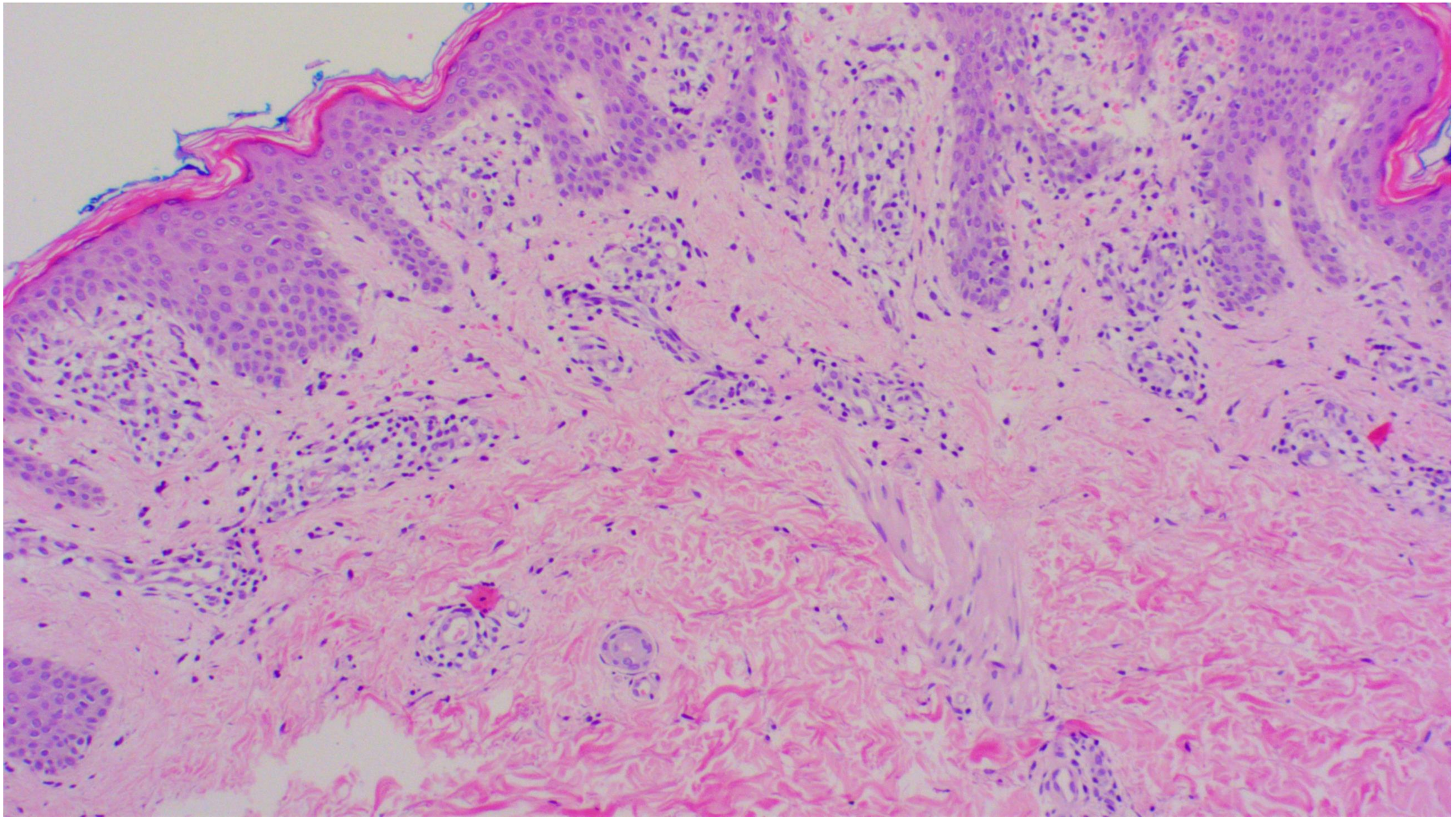
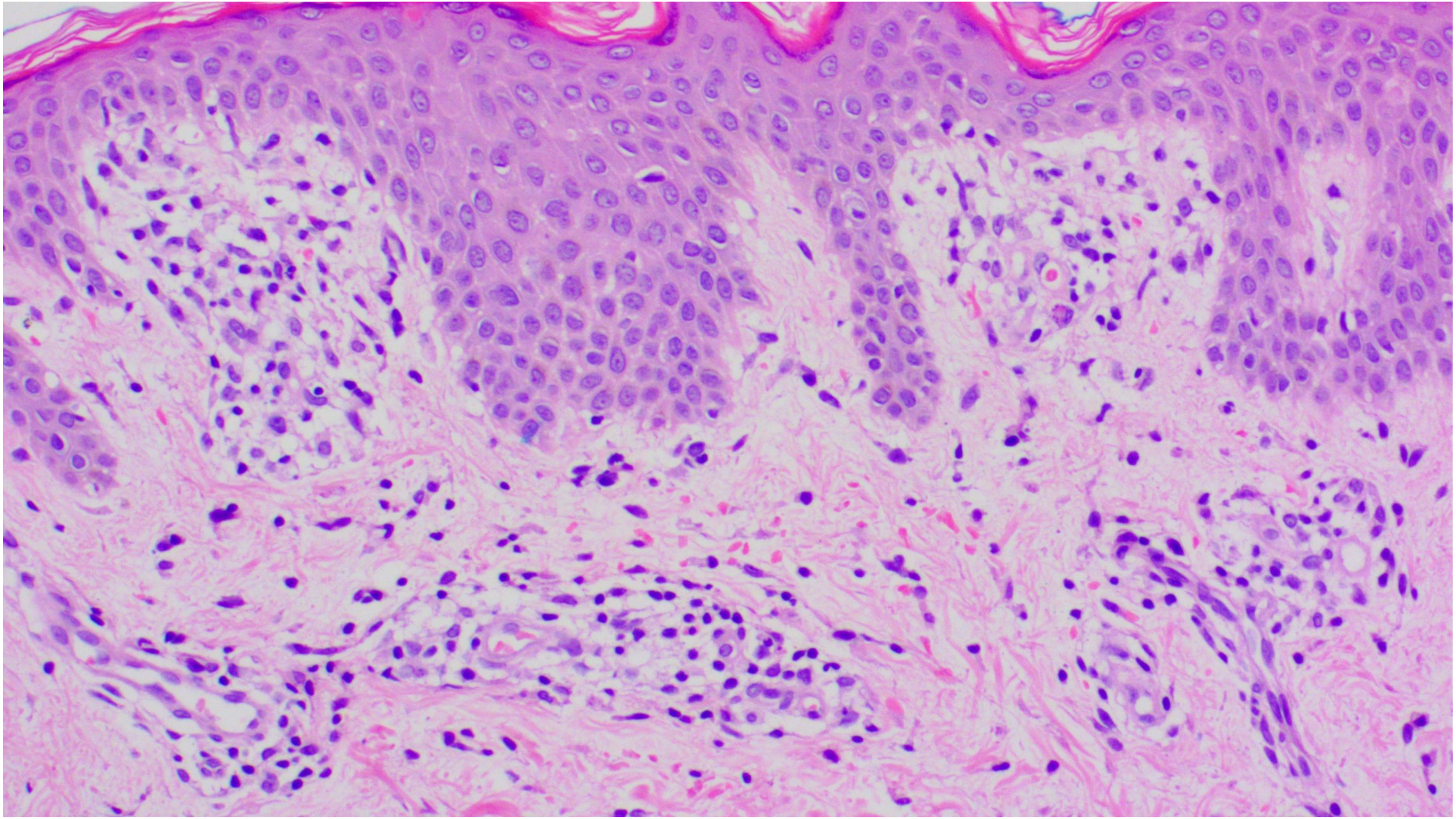
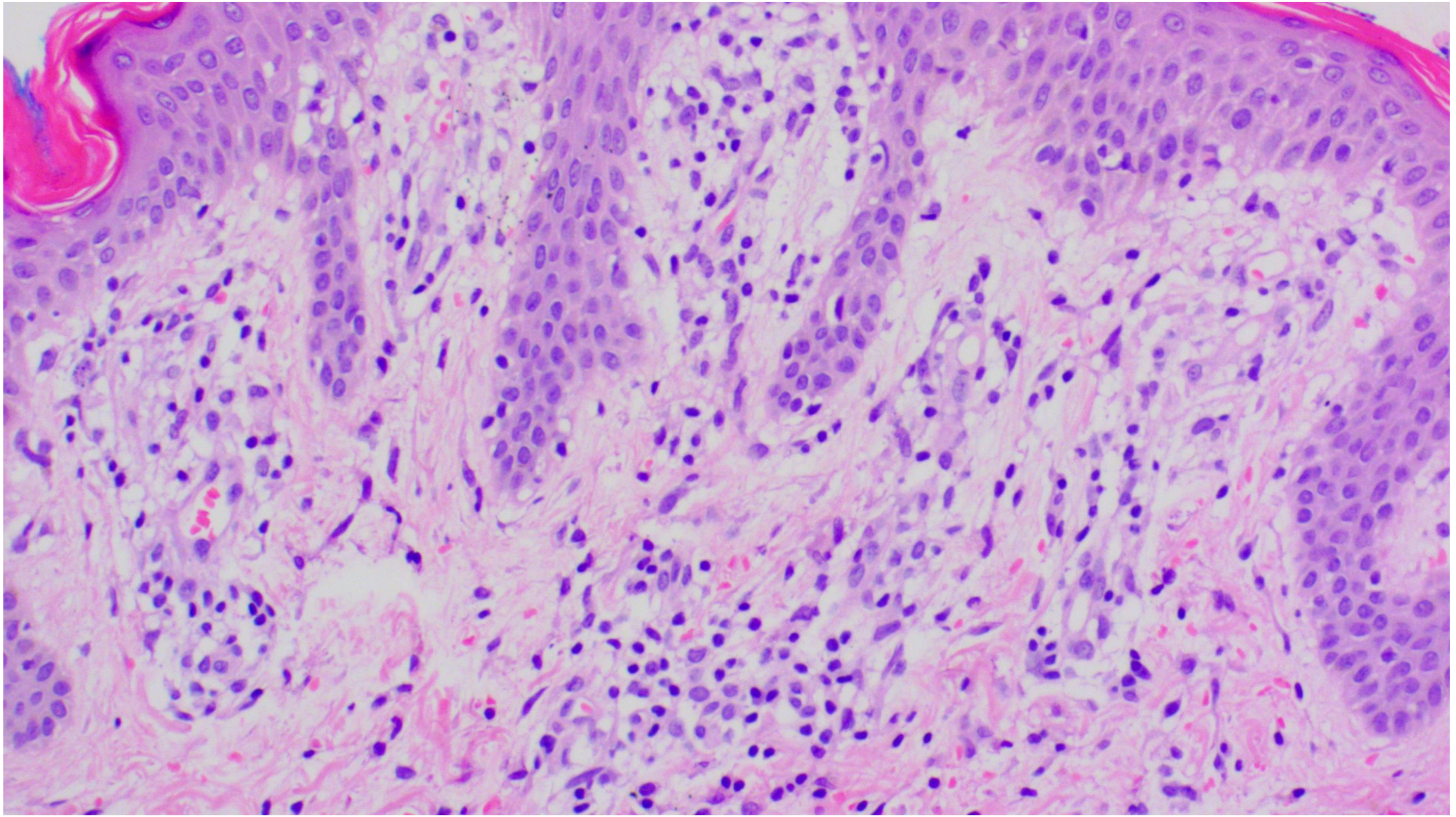
PIGMENTED PURPURIC DERMATOSIS (PPD): HISTOLOGY

- All clinical variants show similar histopathological features, Gougerot-Blum variant often associated with dense lichenoid lymphocytic infiltrate
- **Variable perivascular (lymphocytic) infiltrate in superficial dermis**
- **Variable extravasation of red blood cells in superficial dermis** (more in early lesions)
- **Hemosiderin laden macrophages in superficial dermis** (in the later stages)
- **Epidermis is usually normal** or mild spongiosis, exocytosis, and vacuolar damage









PIGMENTED PURPURIC DERMATOSIS (PPD): DIFFERENTIAL DIAGNOSIS

- Other vascular processes (old leucocytoclastic vasculitis, stasis dermatitis)

->PPD is usually located to a discrete anatomic area in contrast to leucocytoclastic vasculitis that usually involves large body areas

->Stasis dermatitis is associated with clusters of thick-walled vessels

- Pityriasis rosea (spongiotic type dermatitis)
- Superficial variant erythema annulare centrifugum
- PPD cases with cytologic atypia of lymphocytes should be studied to rule out mycosis fungoides

URTICARIA PIGMENTOSA

- The **most common variant** of mastocytosis
- Clinically, it presents with **multiple brown red macules**
- Mostly seen in **children**
- Sometimes can show autosomal dominant mode of transmission with possible relationship to mutations in the KIT gene

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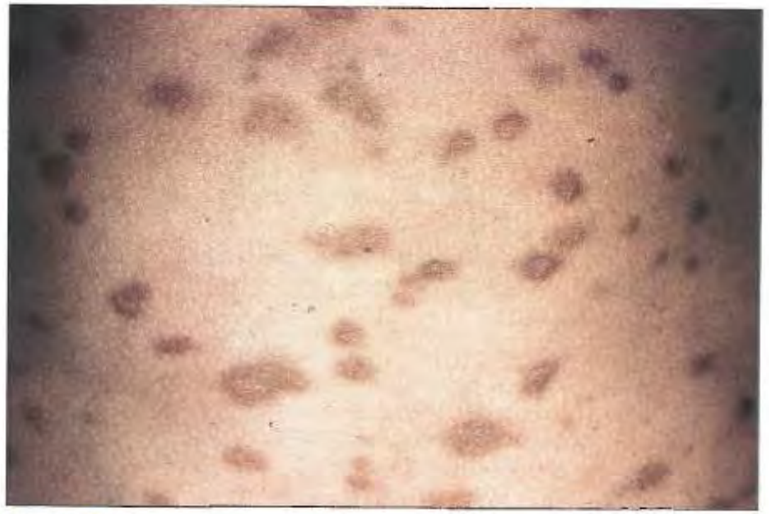

Fig. 25.382
Urticaria pigmentosa: close-up view. By courtesy of R.A. Marsden, MD, St George's Hospital, London, UK.

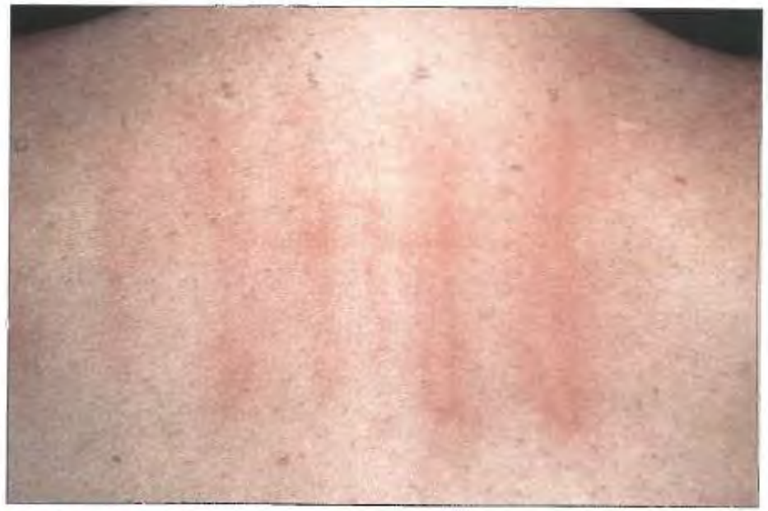

Fig. 25.383
Urticaria pigmentosa: gentle rubbing of the lesion typically results in erythema of the surrounding skin. By courtesy of R.A. Marsden, MD, St George's Hospital, London, UK.

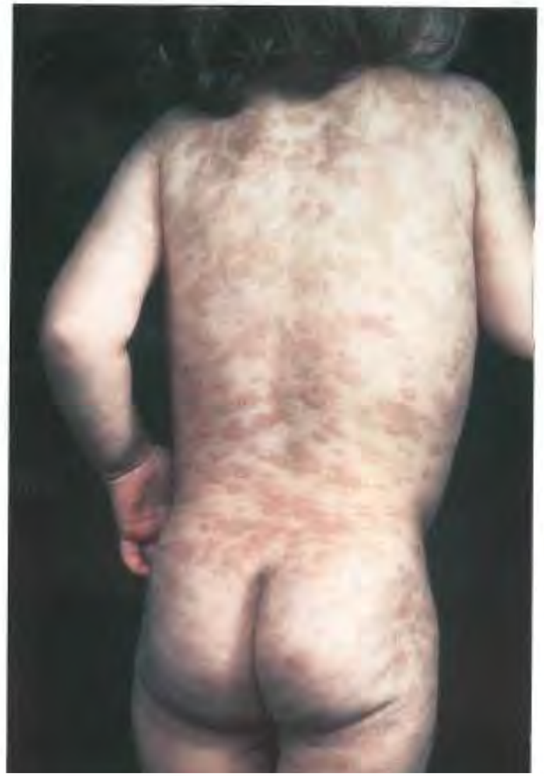

Fig. 25.381
Urticaria pigmentosa: the pigmented lesions are widely distributed over the back, buttocks and thighs of this child. By courtesy of R.A. Marsden, MD, St George's Hospital,

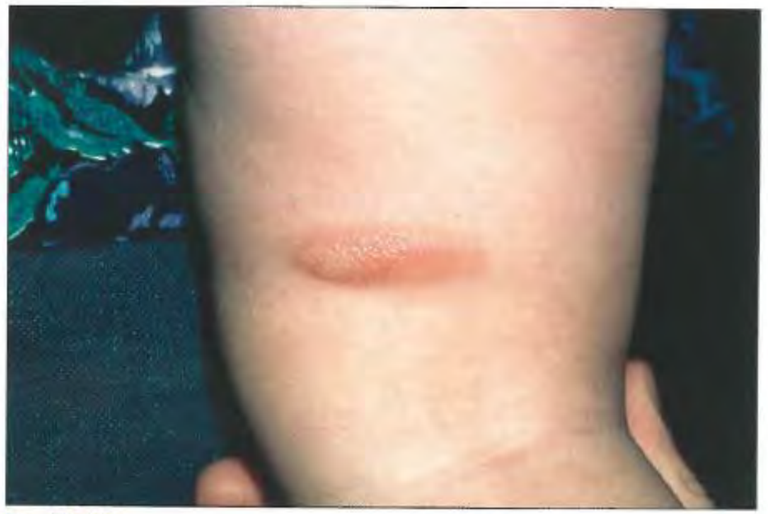

Fig. 25.380
Mastocytoma: this solitary, erythematous nodule appeared during the first few months of the infant's life. By courtesy of the Institute of Dermatology, London, UK.

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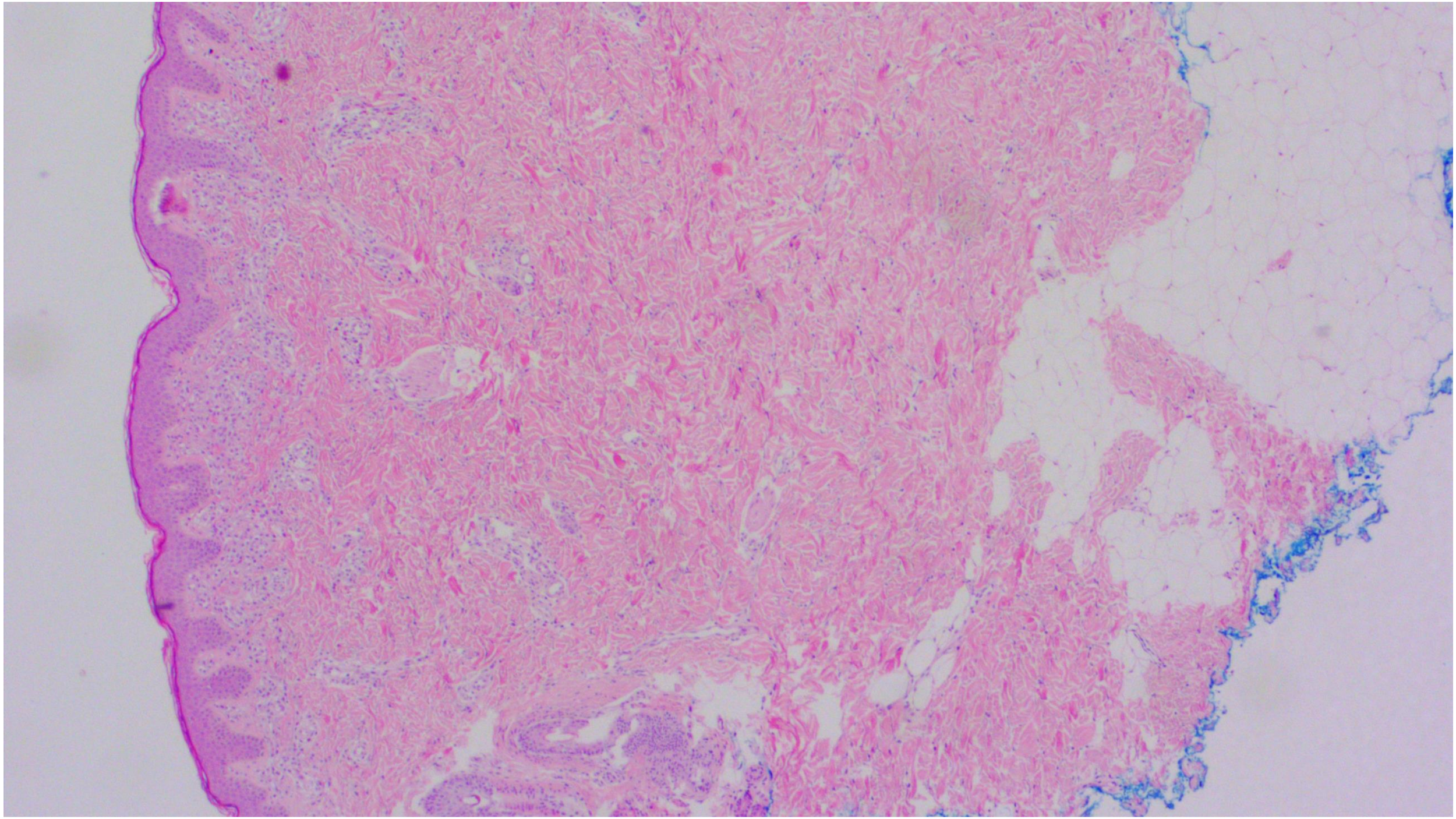
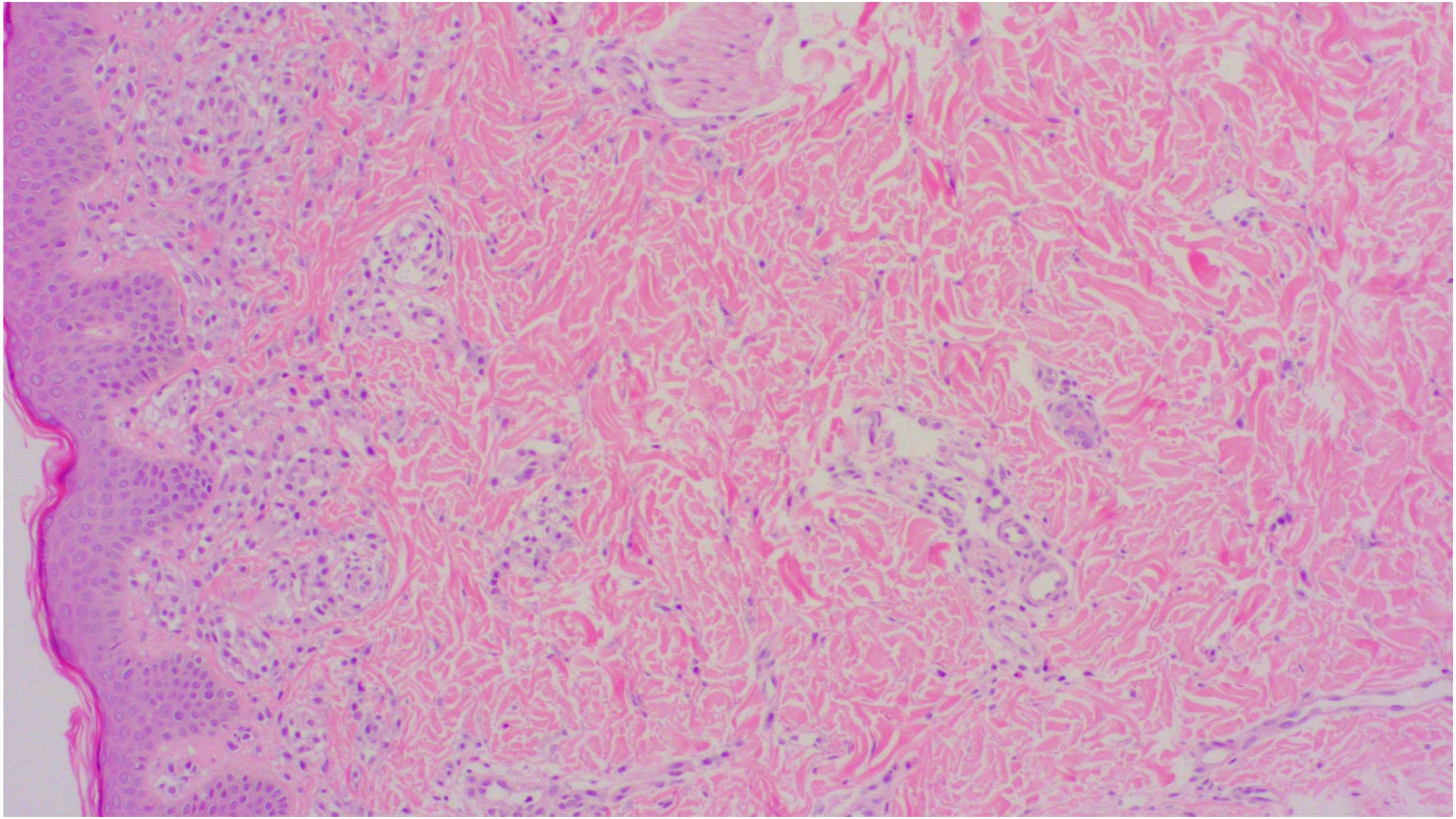
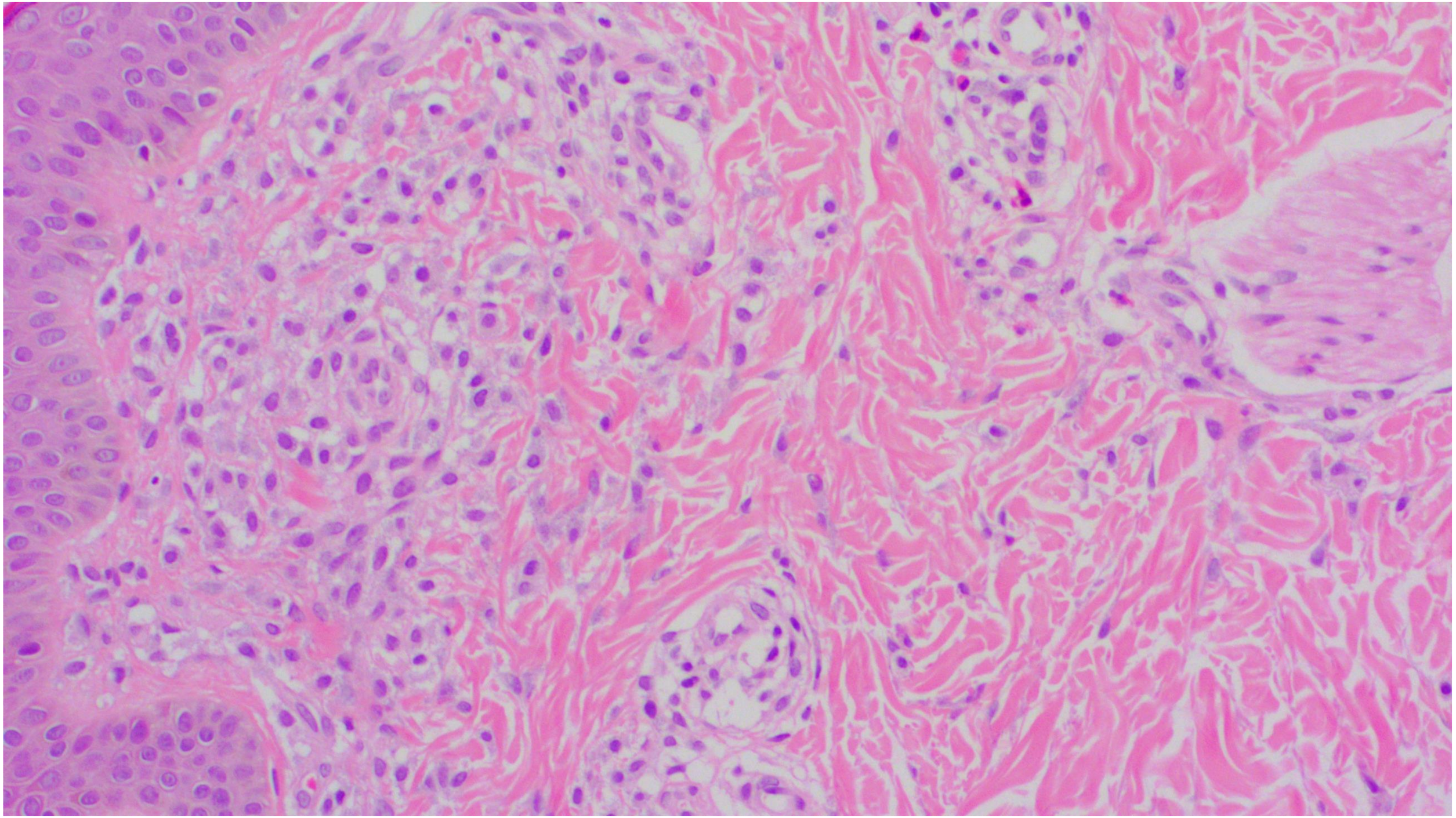
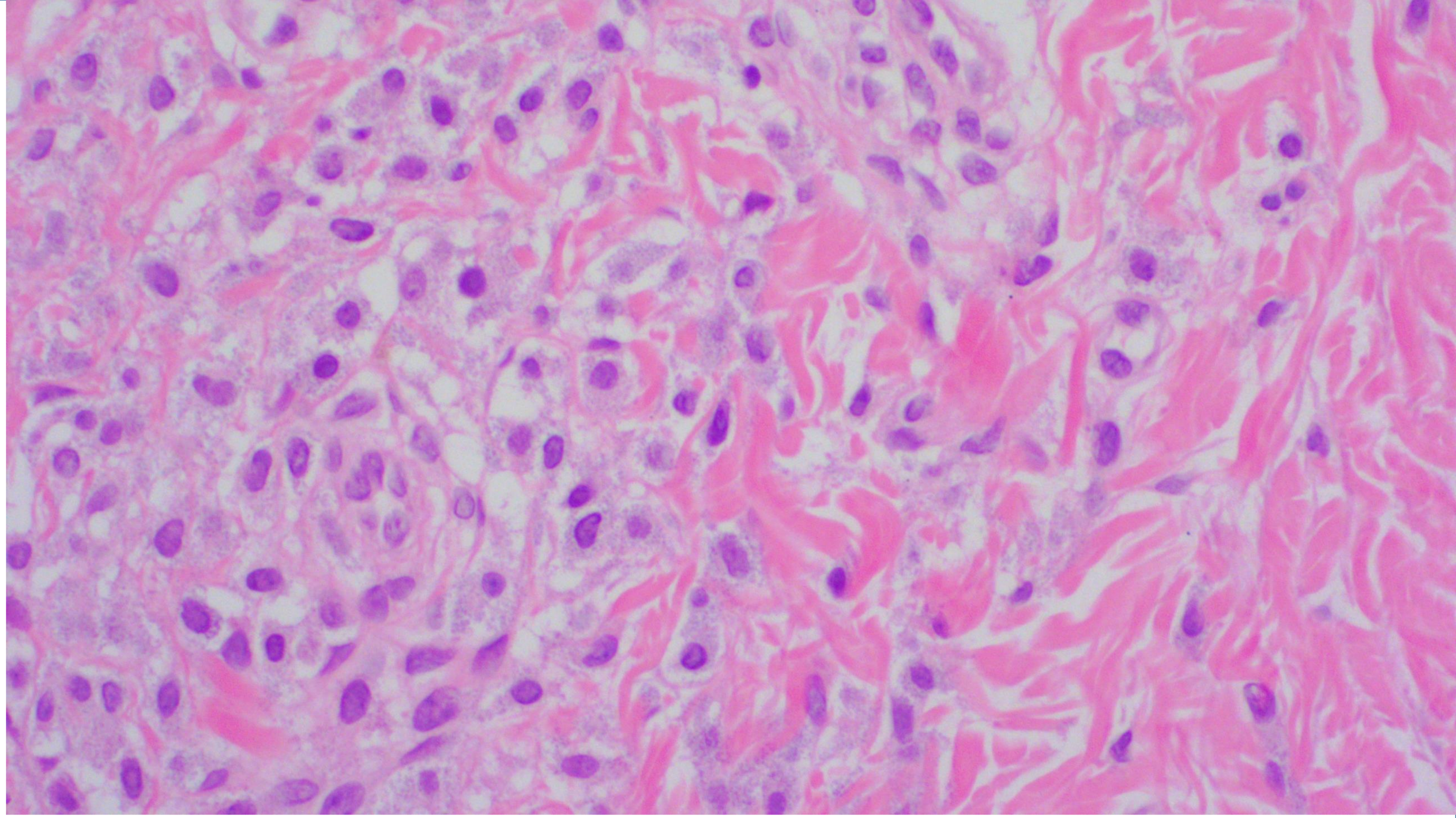
URTICARIA PIGMENTOSA: HISTOLOGY

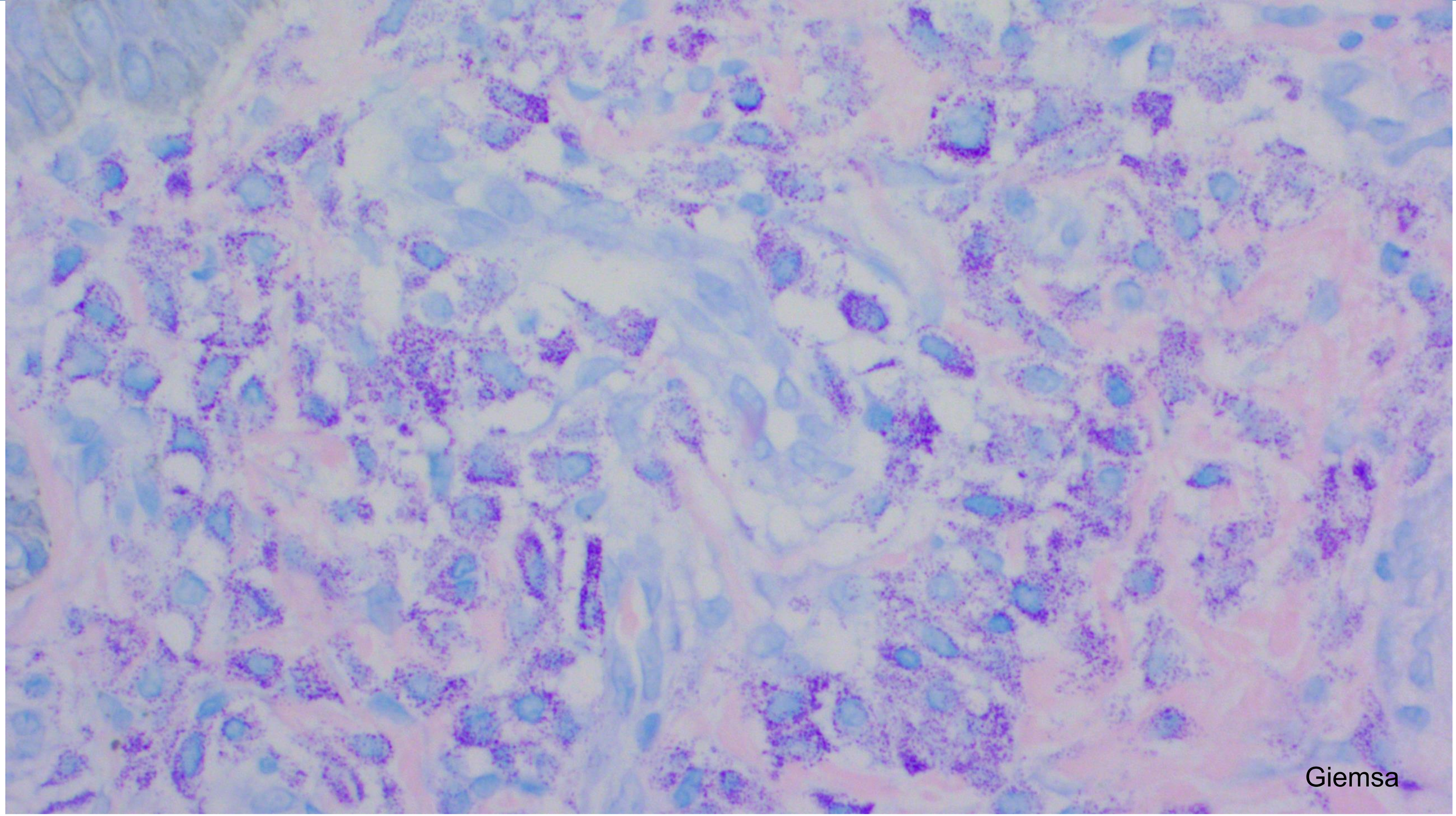
- **Perivascular and interstitial infiltrate in the dermis composed of mast cells**
- Mast cells are characterized by the presence of metachromatic granules in their cytoplasm
- **Scattered eosinophils**
- **Special stains** that may be used to highlight mast cells include histochemical Giemsa and Leder stainings, and immunohistochemical CD117 (cKIT) and mast cell tryptase stainings







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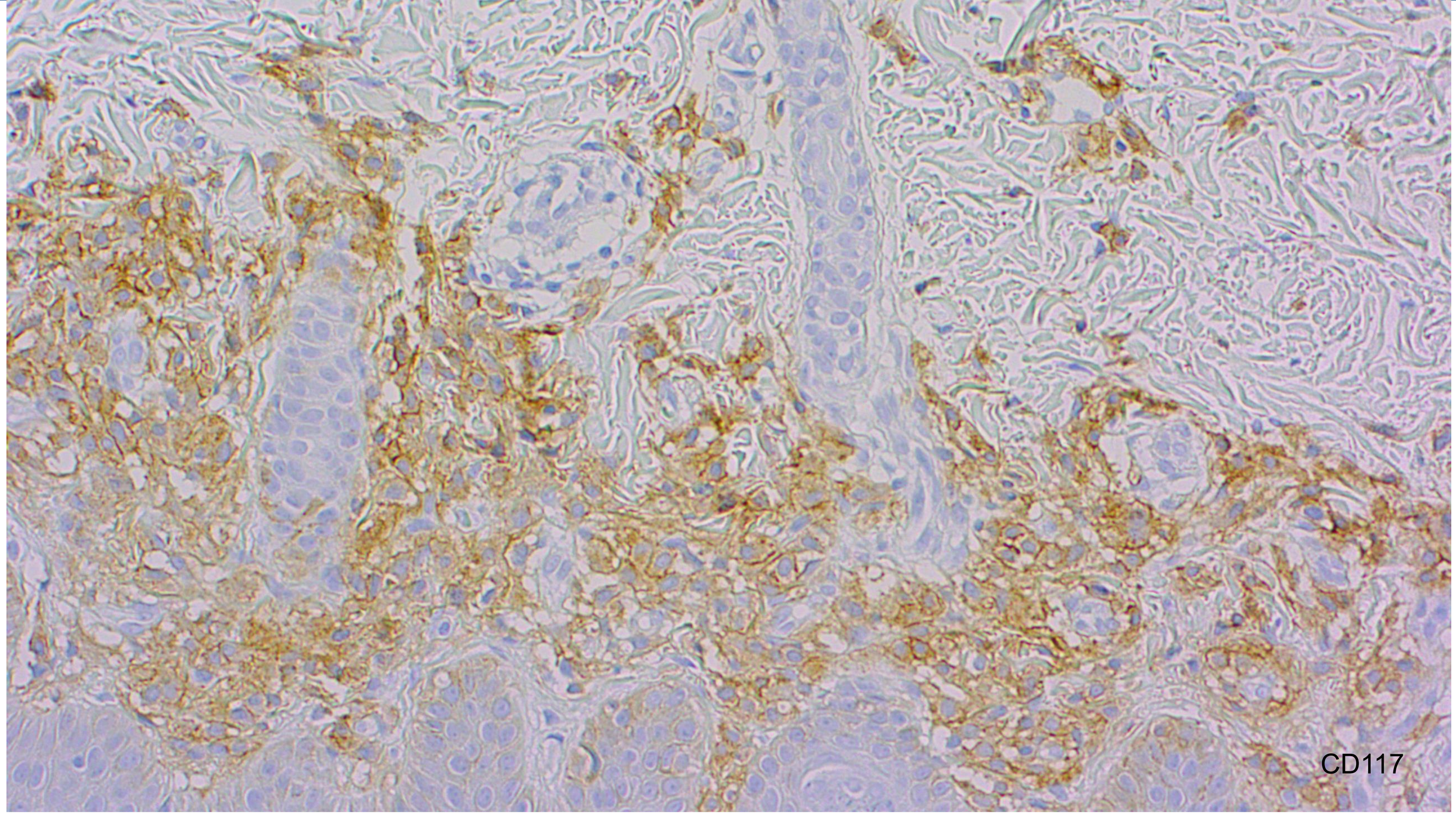
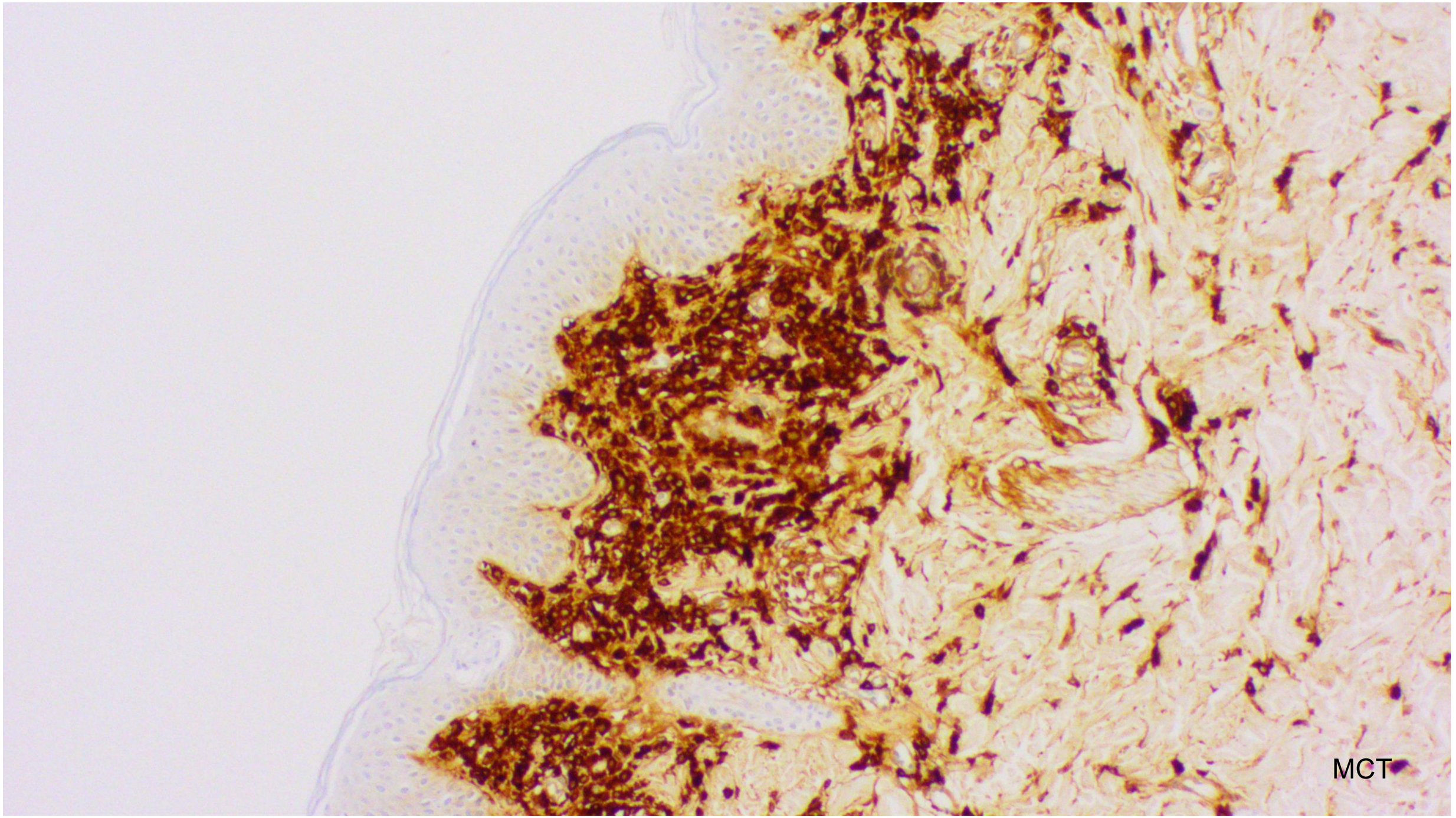

CD117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TELANGIECTASIA MACULARIS ERUPTIVA PERSTANS (TMEP)

- TMEP is usually seen in **adults**

- It is characterized by an **extensive eruption of brown red macules with telangiectasia**

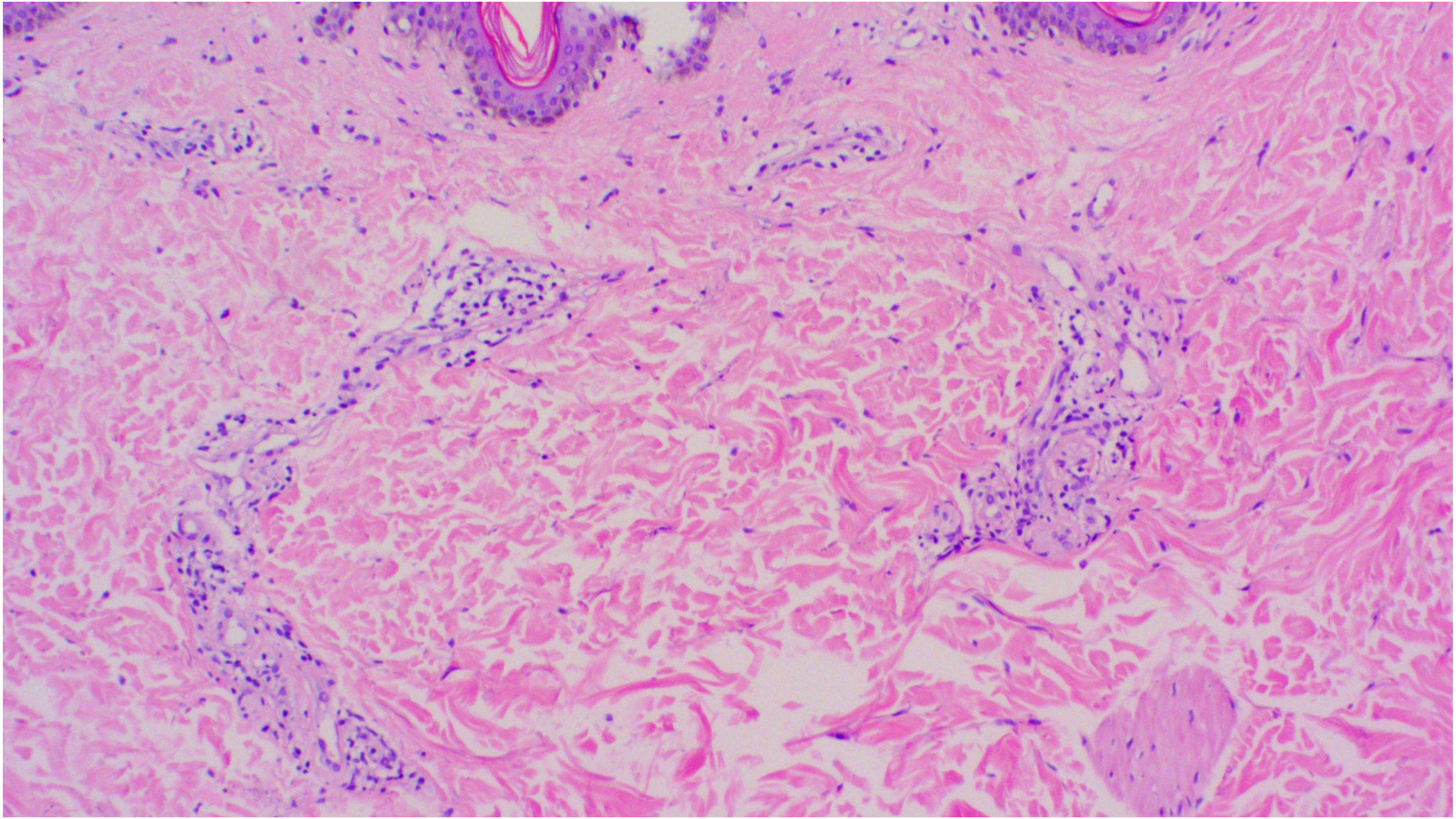
- It has a **high incidence of systemic involvement**

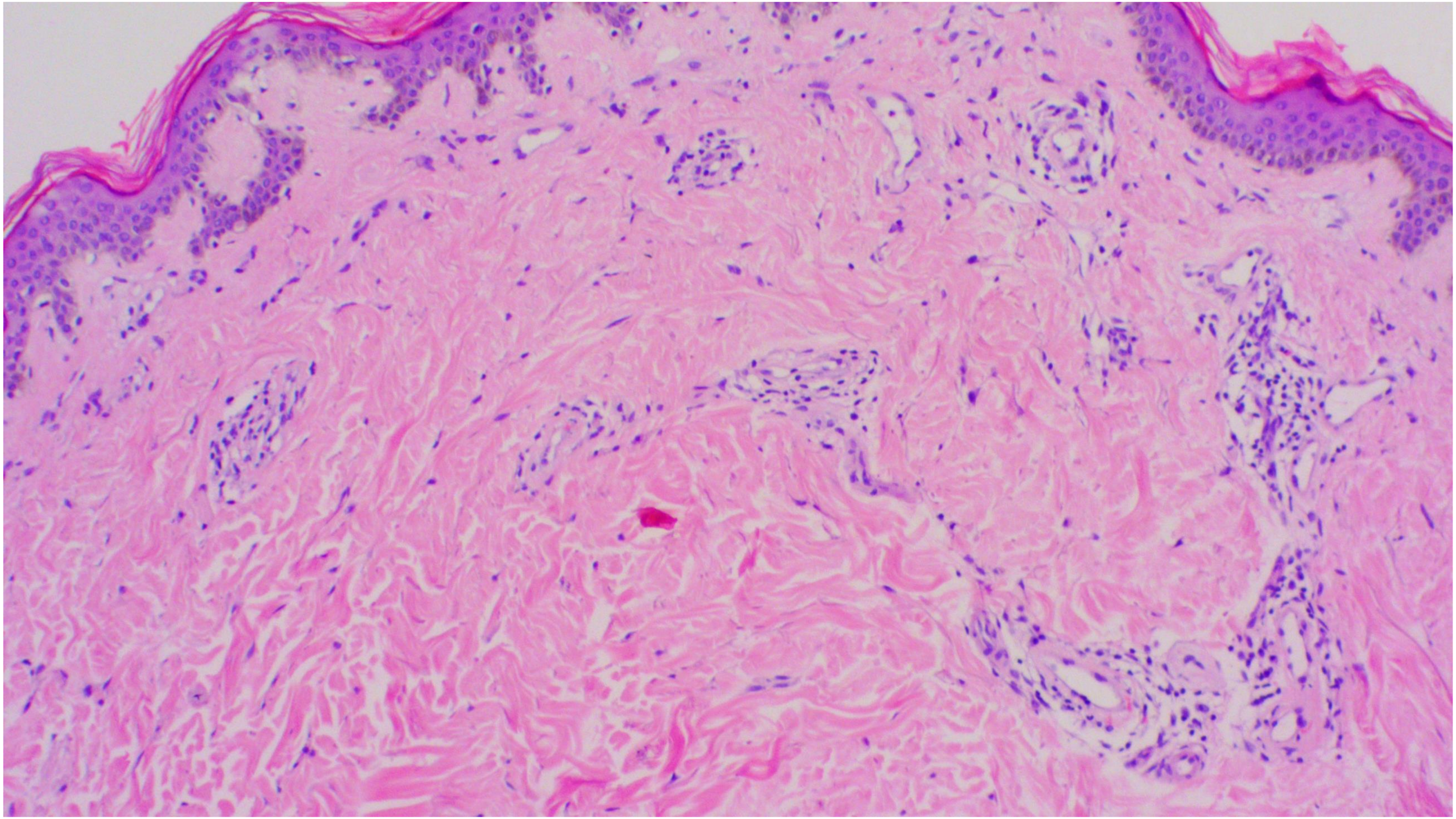
TELANGIECTASIA MACULARIS ERUPTIVA PERSTANS (TMEP): HISTOLOGY

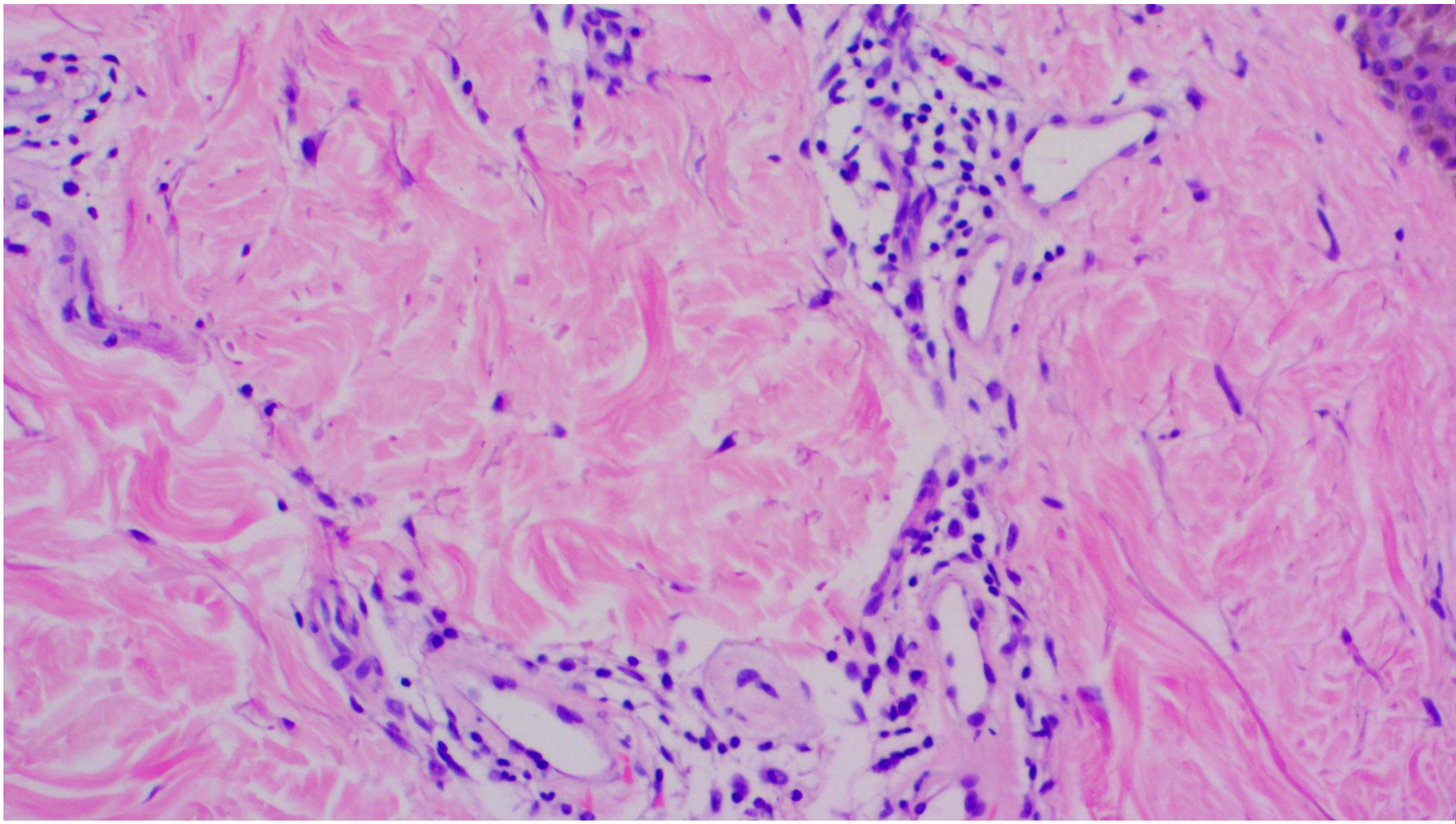
- **Small number of mast cells limited to the upper third of the dermis and mainly located around dilated capillaries**

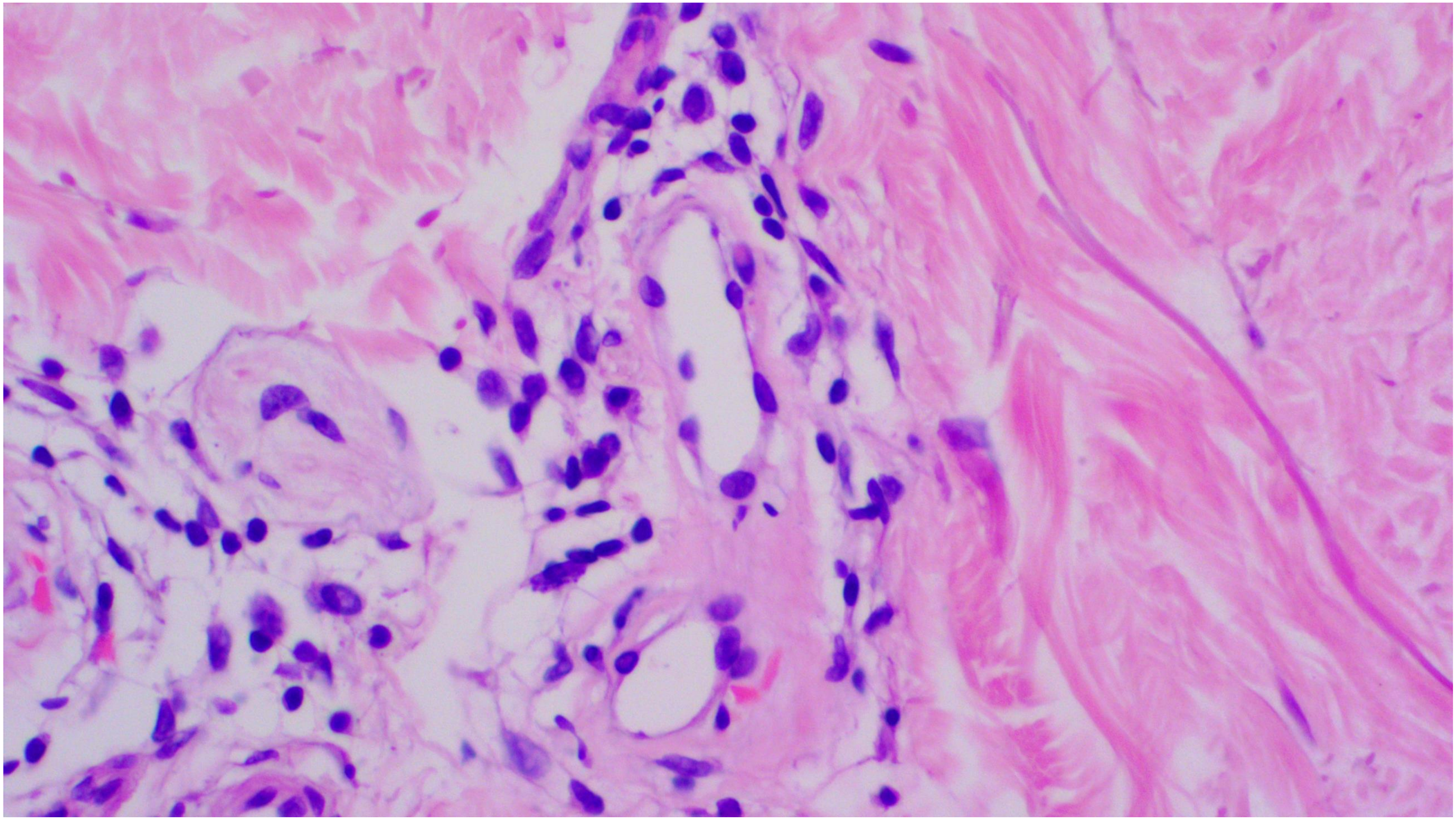
- Diagnosis can be missed due to the small number of mast cells present in the dermis

- **Special stains** are helpful to make the correct diagnosis









POSTINFLAMMATORY PIGMENTARY ALTERATION

- **Pigmentary alteration of the skin secondary to an inflammatory dermatosis**, especially from dermatosis that affect the dermal-epidermal junction, such as lichen planus, benign lichenoid keratosis, fixed drug eruption, etc (cfr interface dermatitis!)

- Clinically, it presents with **either hypopigmented or hyperpigmented plaques**

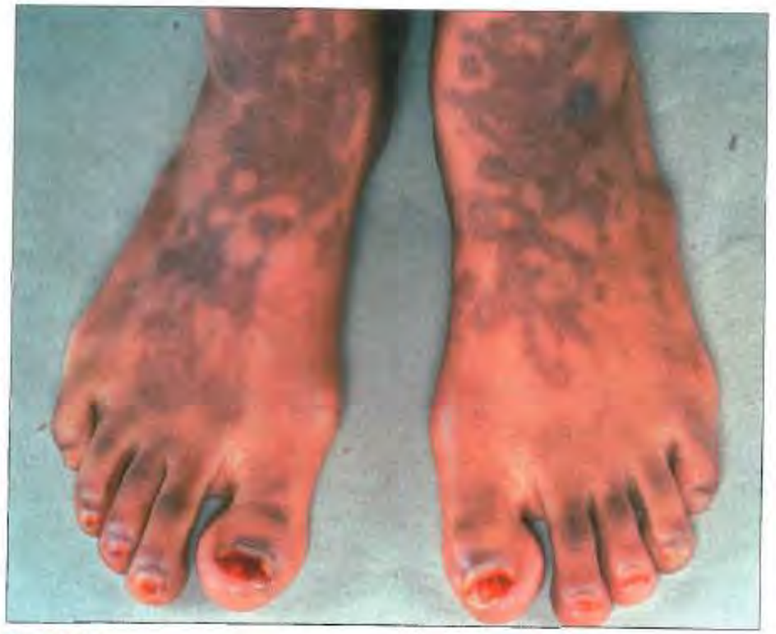


Fig. 18.48
Postinflammatory hyperpigmentation: prominent hyperpigmentation after the application of henna for cosmetic purposes. By courtesy of the Institute of Dermatology, London, UK.

Fig. 18.49
Postinflammatory hyperpigmentation: marked hyperpigmentation after resolution of lichen planus. By courtesy of the Institute of Dermatology, London, UK.

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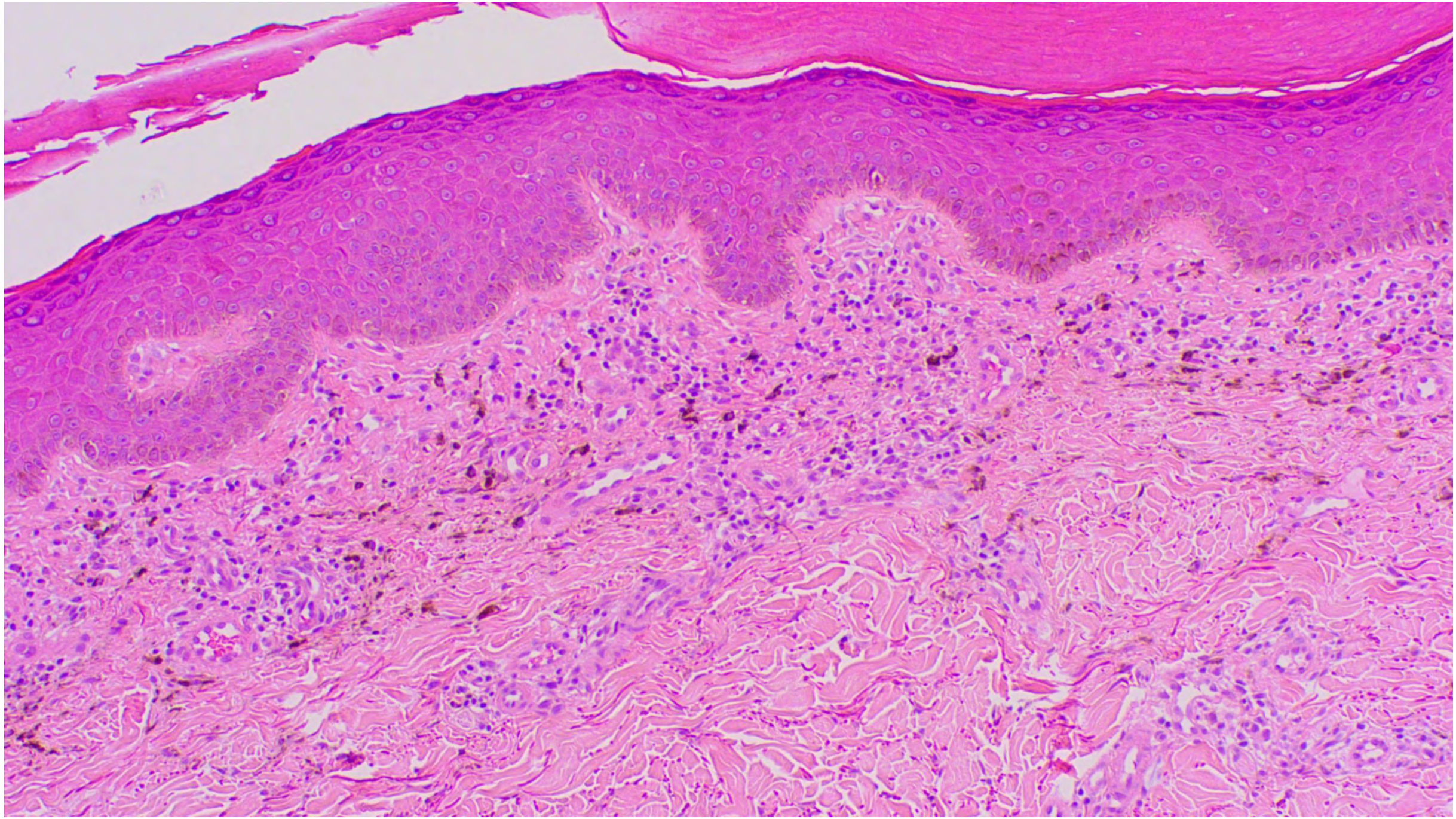
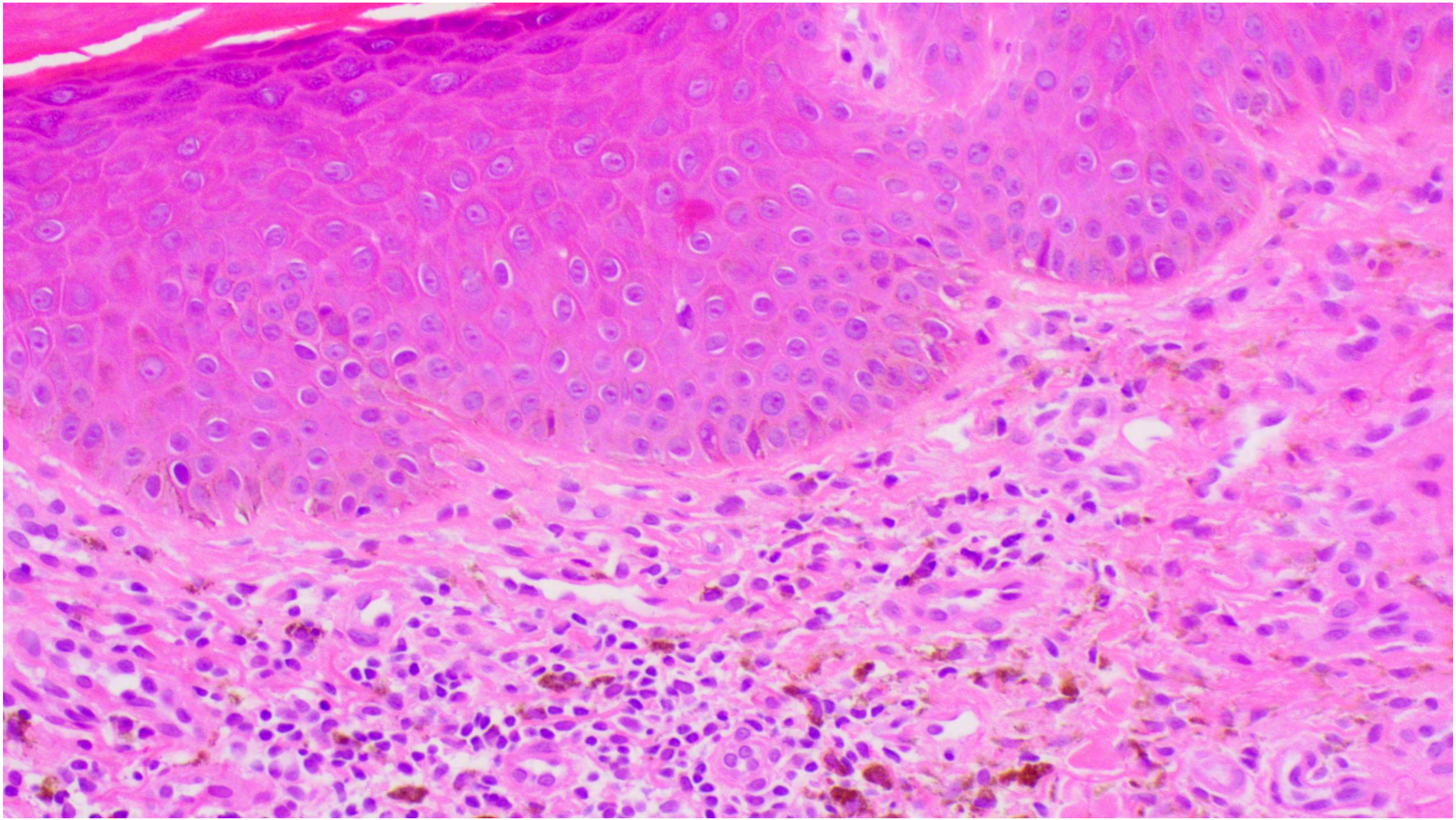
POSTINFLAMMATORY PIGMENTARY ALTERATION: HISTOLOGY

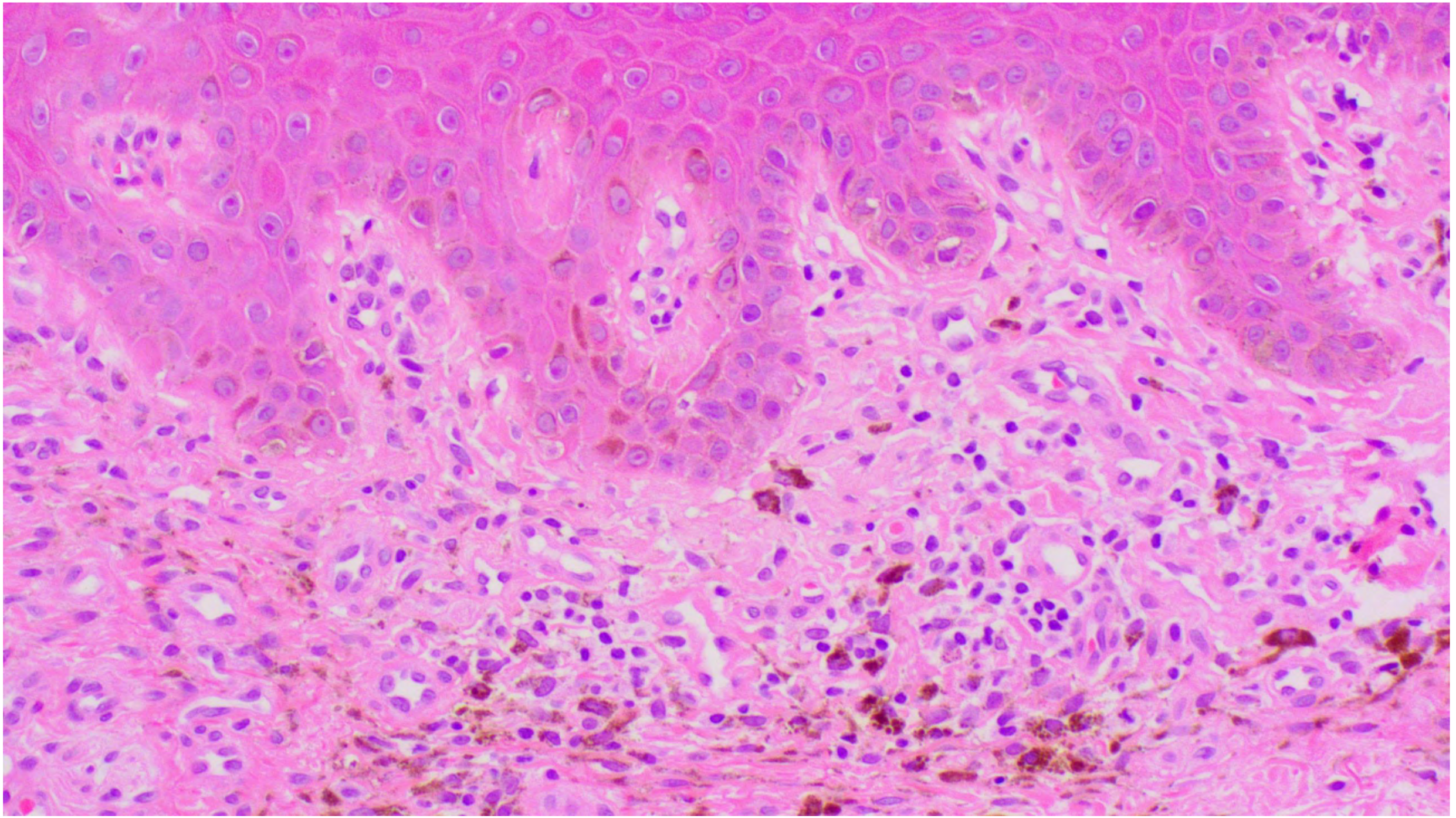
- Presence of **melanophages in superficial dermis**

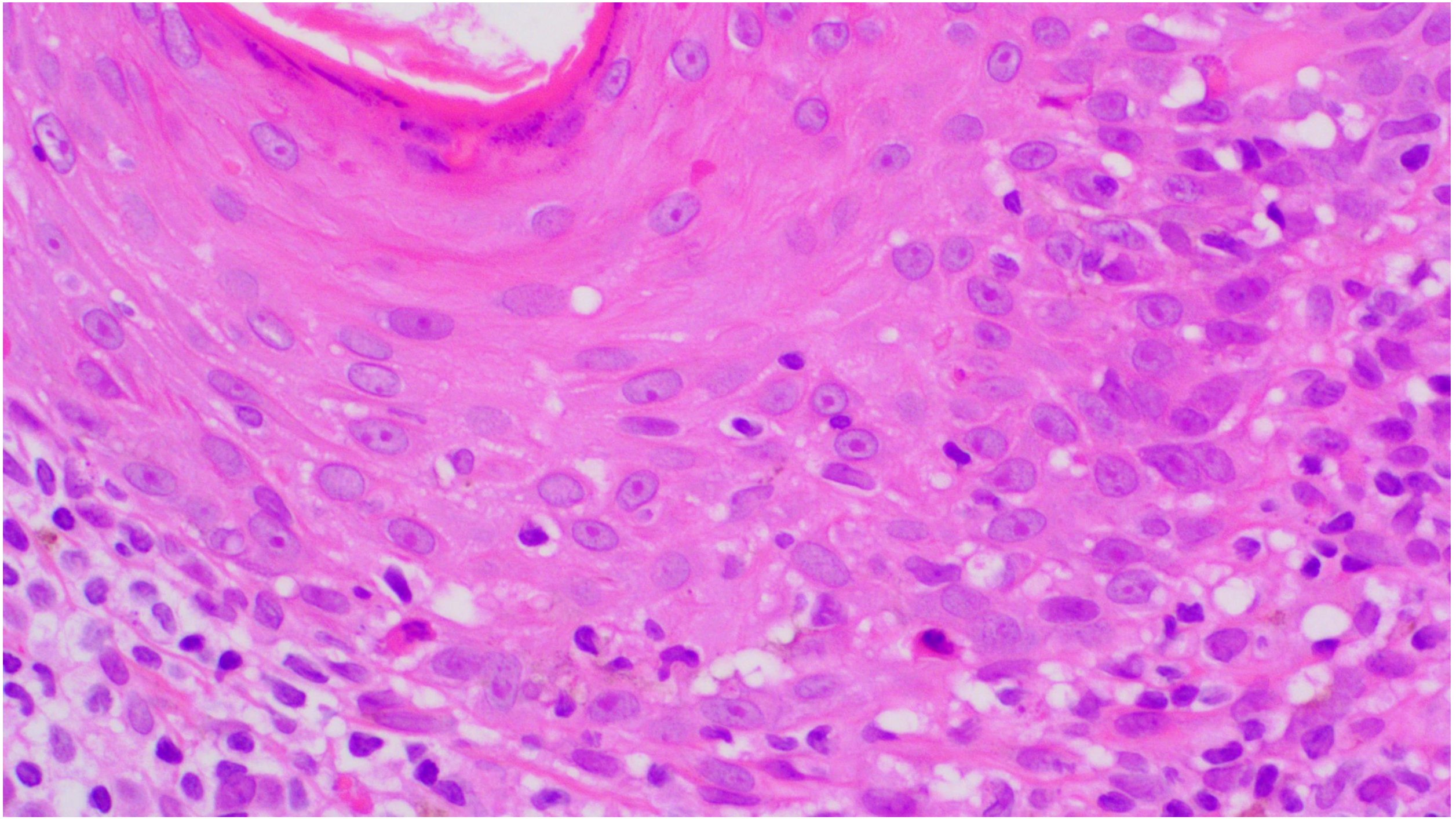
- **Variable superficial infiltrate of lymphocytes around blood vessels**

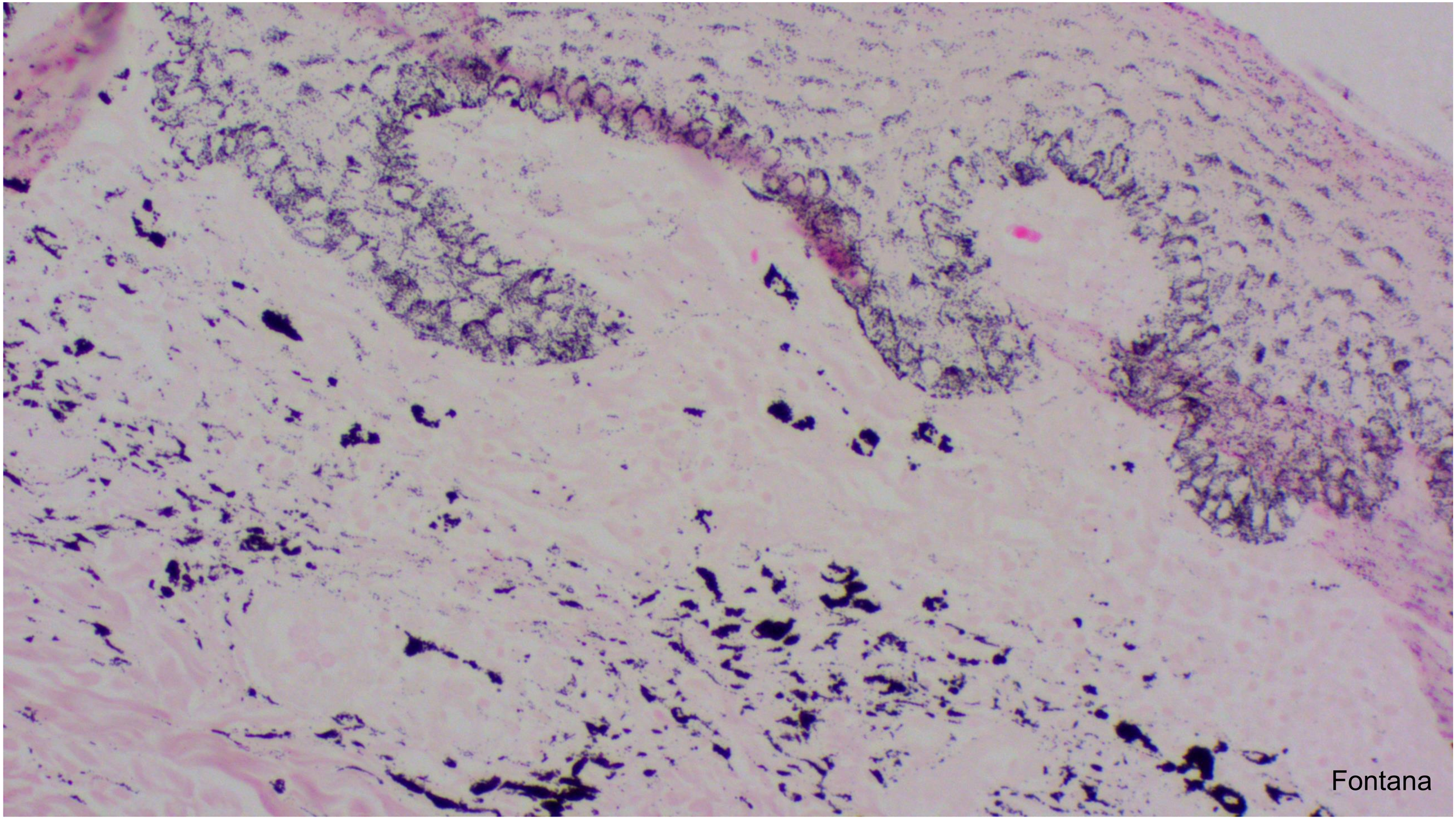
- Sometimes with a focal residual interface damage and/or necrotic keratinocytes in papillary dermis







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ERYTHEMA DYSCHROMICUM PERSTANS

- Also known as ashy dermatosis
- EDP presents clinically with **bluish gray macules more commonly seen on the face and trunk**
- Most patients affected are **Latino (especially Mexican) or Asian**
- It is of **unknown etiology**, shows **a female predilection** and can develop at any age although the majority of patients are in their first three decades

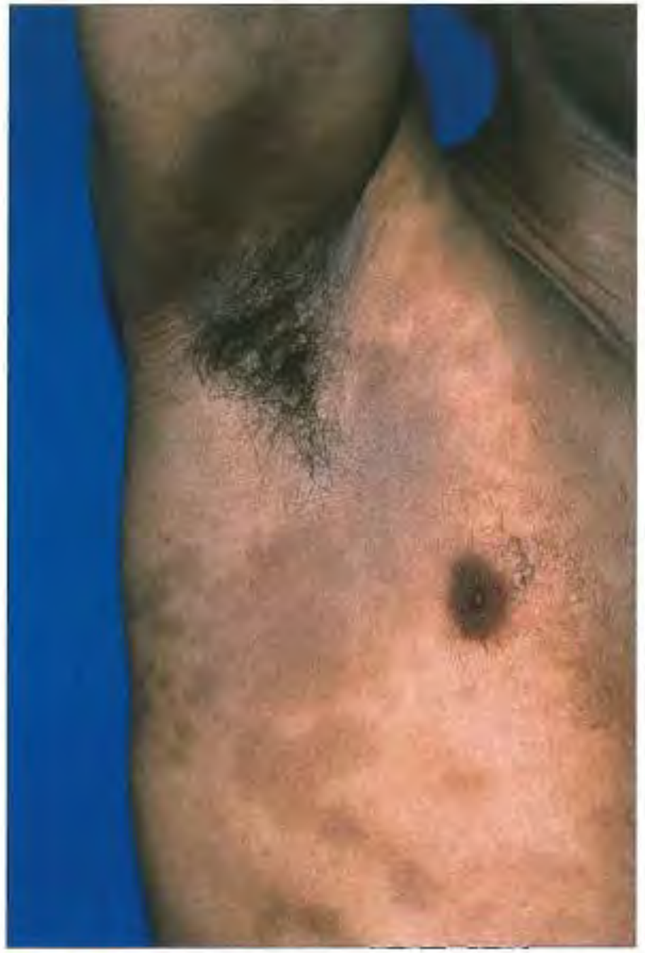

Fig. 6.58
Erythema dyschromicum perstans: this patient shows irregularly distributed gray macules. By courtesy of R.A. Marsden, MD, St George's Hospital, London, UK.

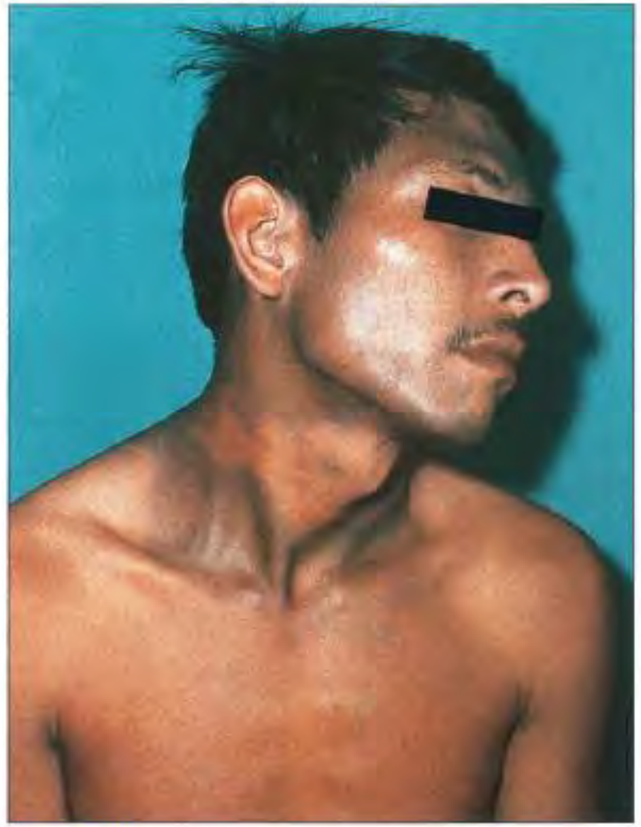

Fig. 6.59
Erythema dyschromicum perstans: in this patient there is extensive involvement of the face, neck and trunk. By courtesy of J. Tschen MD, Baylor College of Medicine, Houston, USA.

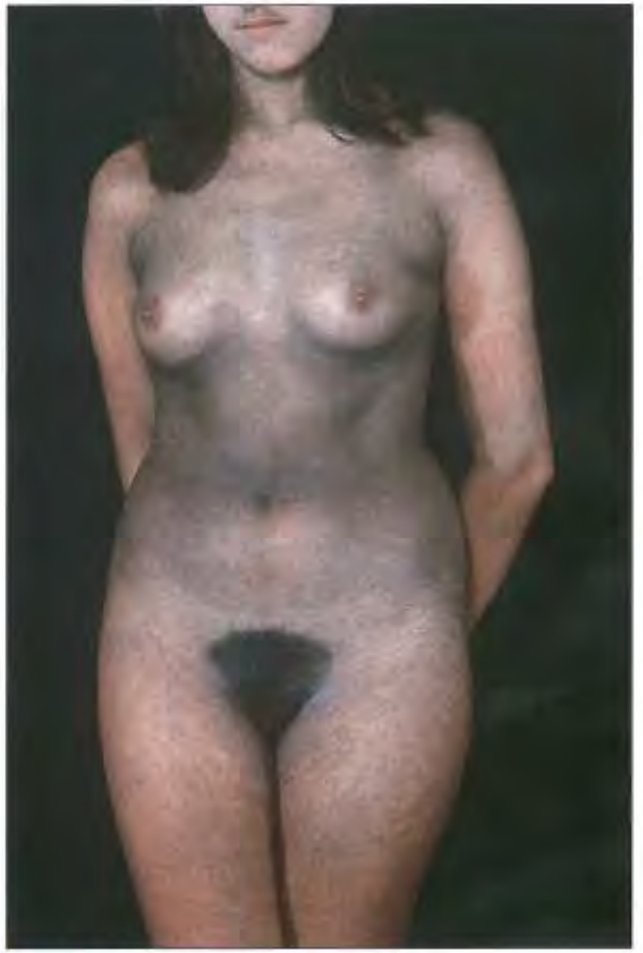

Fig. 6.60
Erythema dyschromicum perstans: in this patient with more advanced disease, there is a generalized bluish discoloration. By courtesy of the Institute of Dermatology, London, UK.

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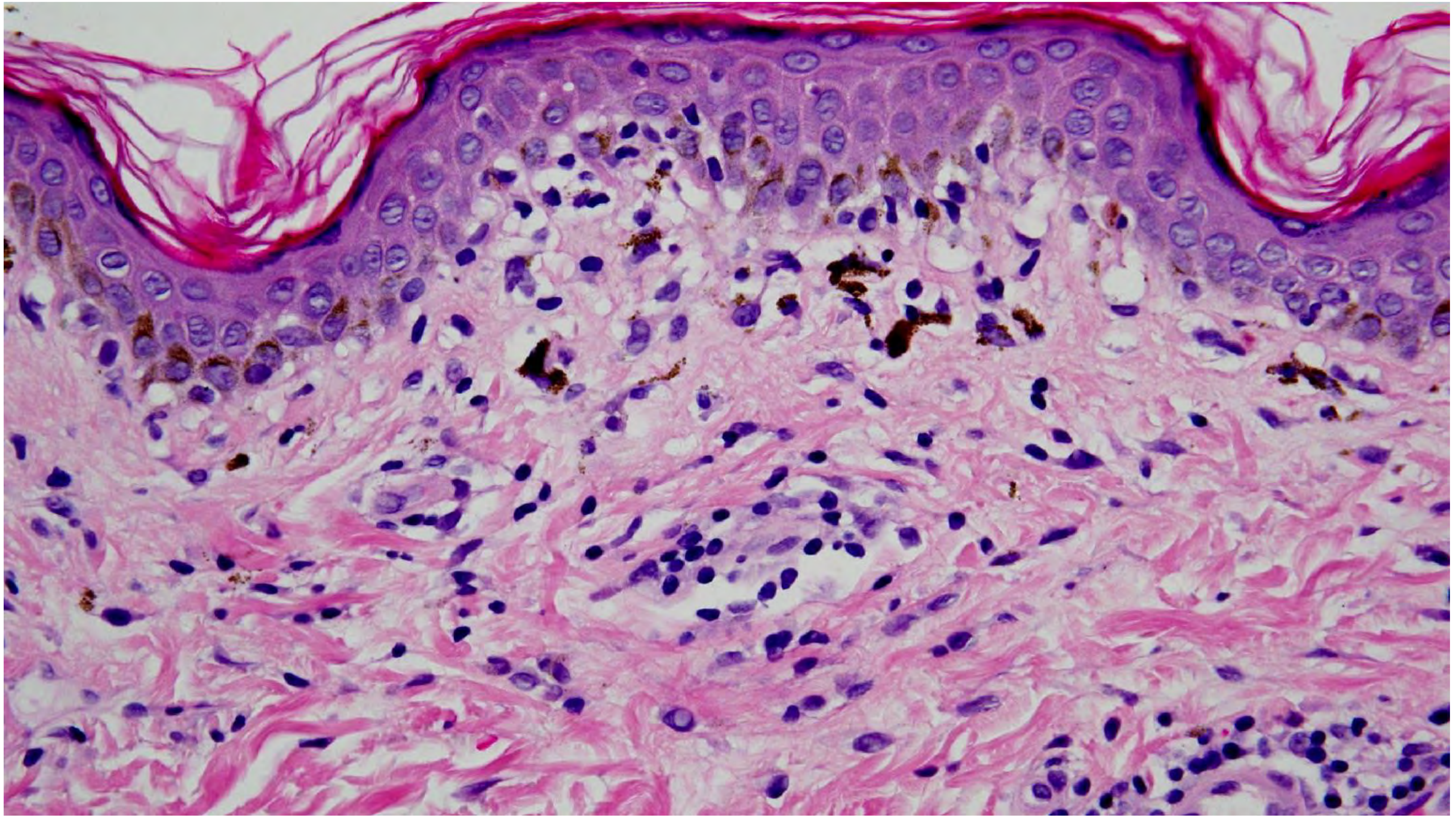
ERYTHEMA DYSCHROMICUM PERSTANS: HISTOLOGY

- The papillary dermis shows melanophages (**marked pigmentary incontinence!)** admixed with a **subtle superficial perivascular or lichenoid lymphohistiocytic infiltrate**

- Focal vacuolization (hydropic degeneration) of the basal layer (**discrete interface activity**)

- Occasionally focal lymphocytic exocytosis



ERYTHEMA DYSCHROMICUM PERSTANS: DIFFERENTIAL DIAGNOSIS

- Late lesions of fixed drug eruption

- Postinflammatory pigmentary alteration

→can show identical histology.

Clinical correlation is necessary!

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PRURITIC URTICARIAL PAPULES AND PLAQUES OF PREGNANCY (PUPPP)

- Also known as polymorphic eruption of pregnancy, toxemic rash of pregnancy, toxic erythema of pregnancy, late onset prurigo of pregnancy
- **Most common rash seen in pregnancy**
- Predilection for primigravidas in the third trimester of pregnancy
- Clinically, the rash starts in the abdomen and is characterized by **pruritic erythematous urticarial papules, which can become vesicles.**
- The rash **usually involutes after pregnancy**

PRURITIC URTICARIAL PAPULES AND PLAQUES OF PREGNANCY: HISTOLOGY

- **Superficial and mid dermal perivascular lymphohistiocytic infiltrate admixed with rare eosinophils and neutrophils**
- Mild spongiosis
- Mild papillary dermal edema (marked edema is rarely seen)
- Less common manifestations: eosinophilic spongiosis and (rarely) eosinophilic-rich subepidermal blistering

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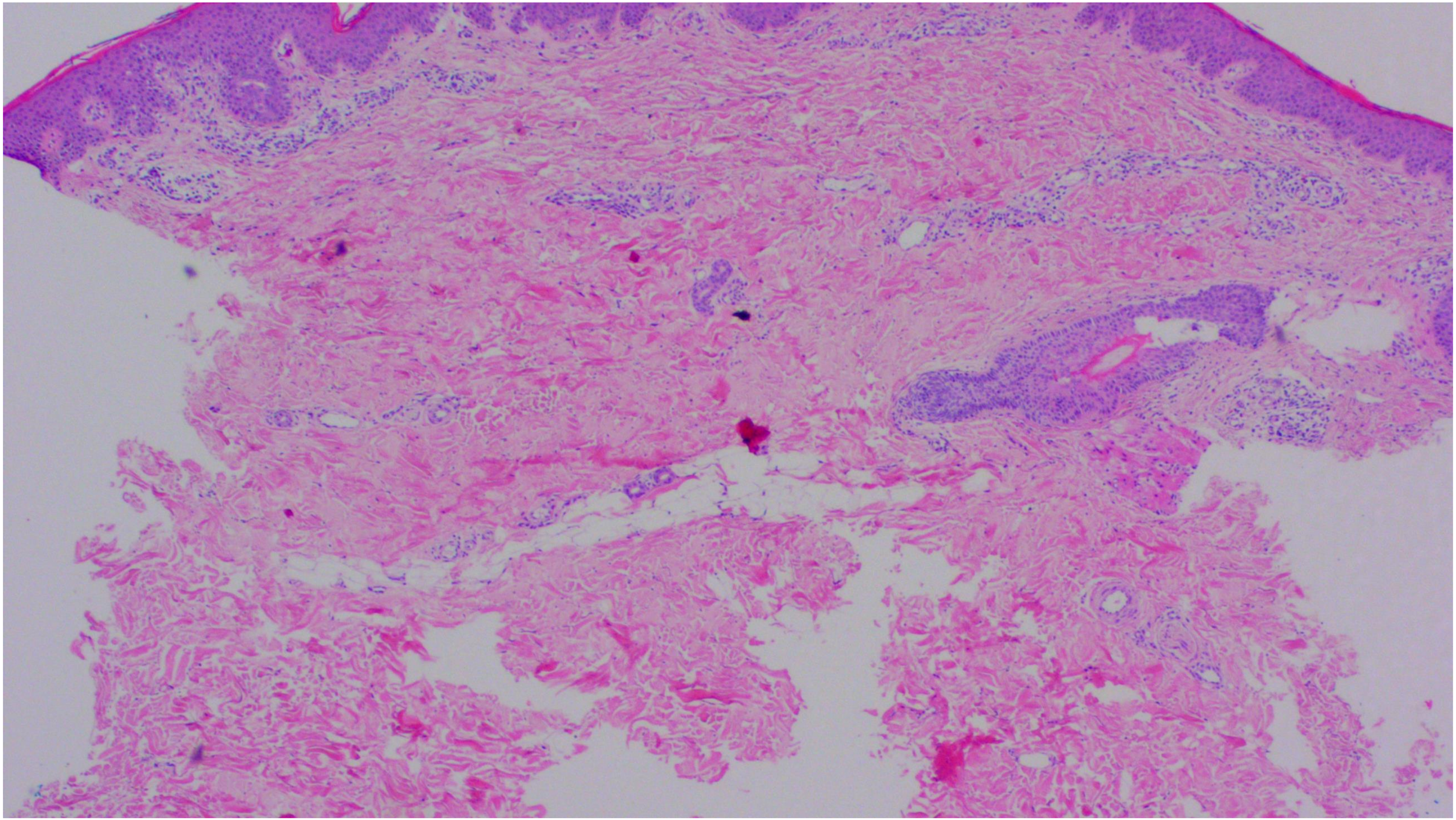

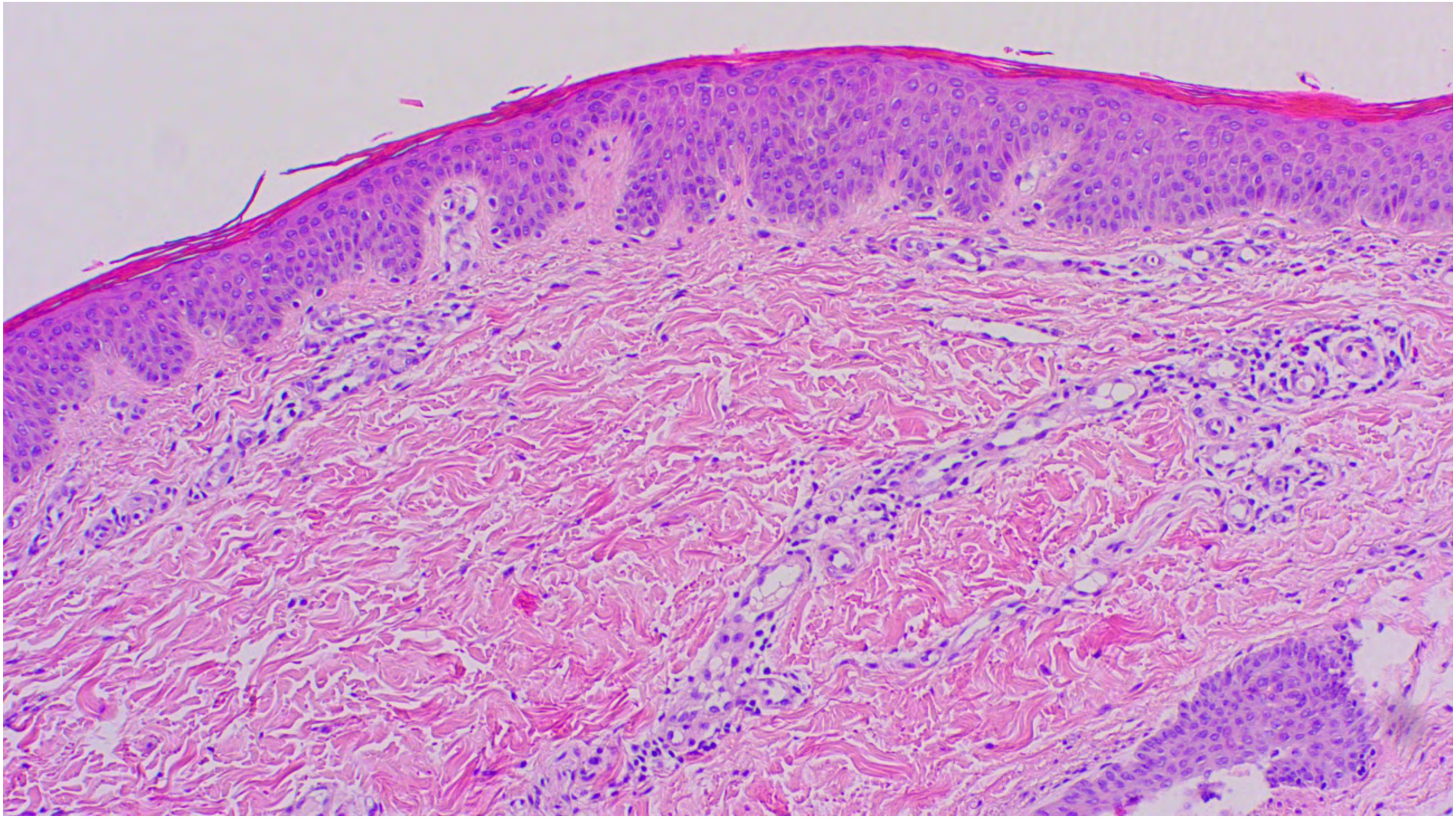

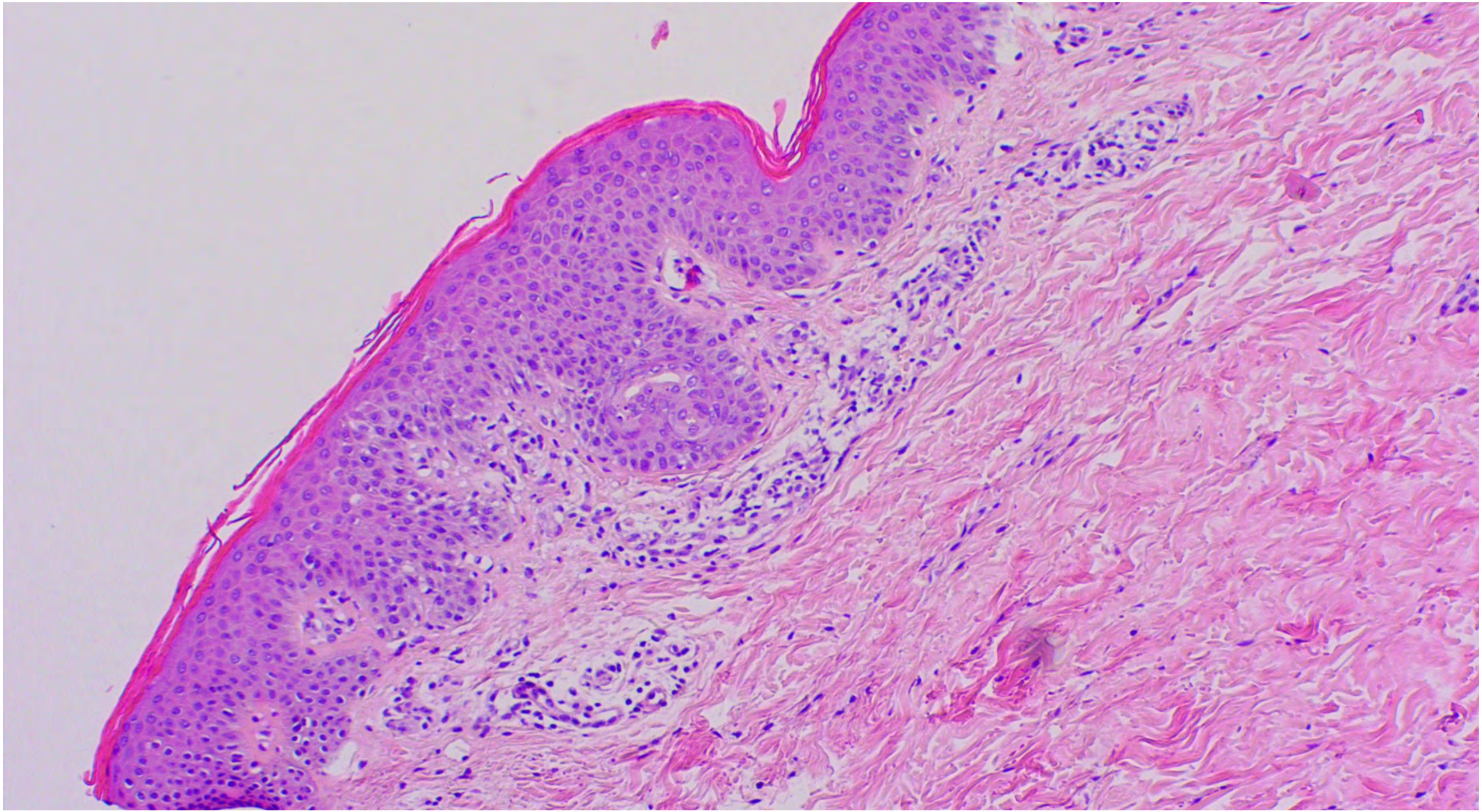

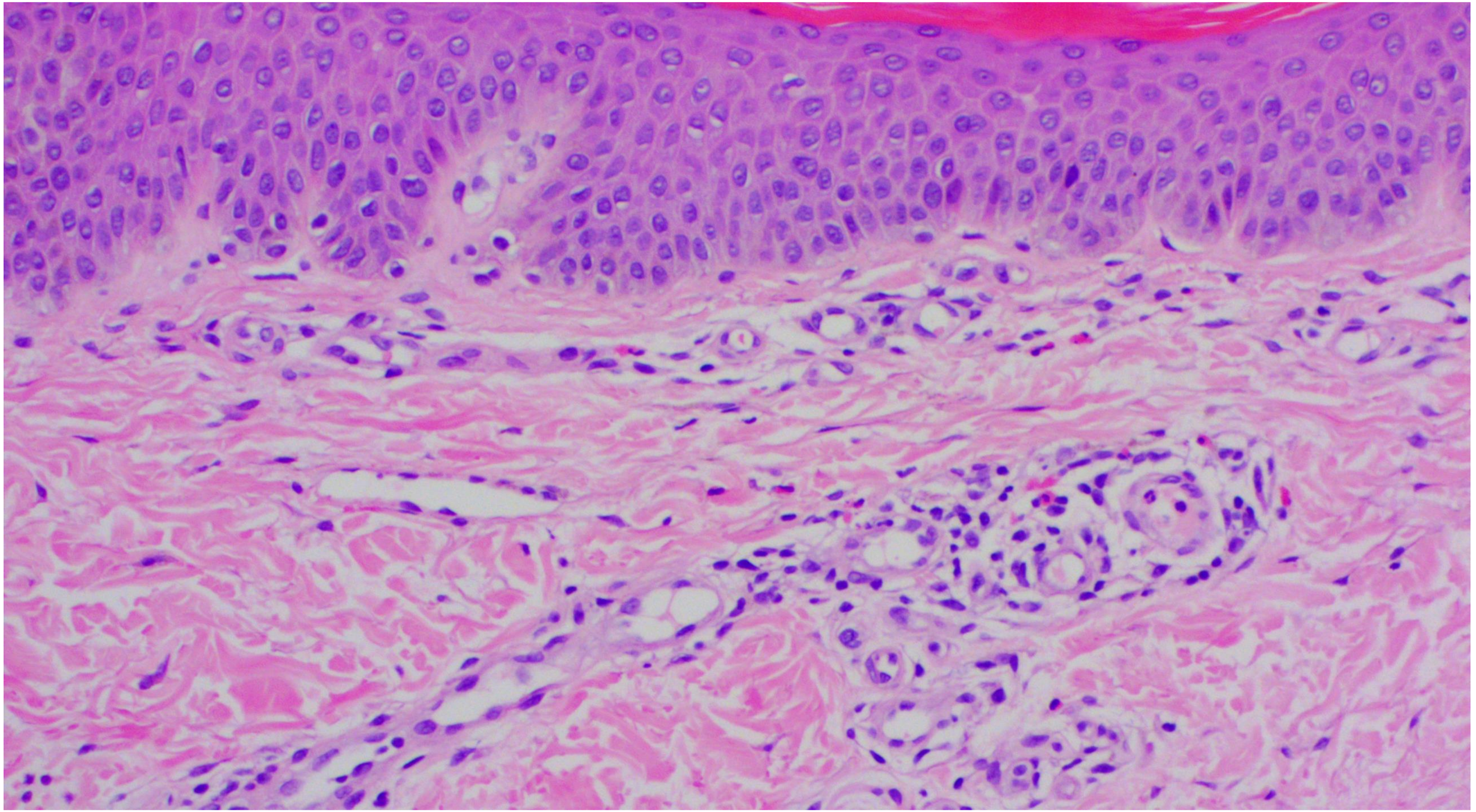

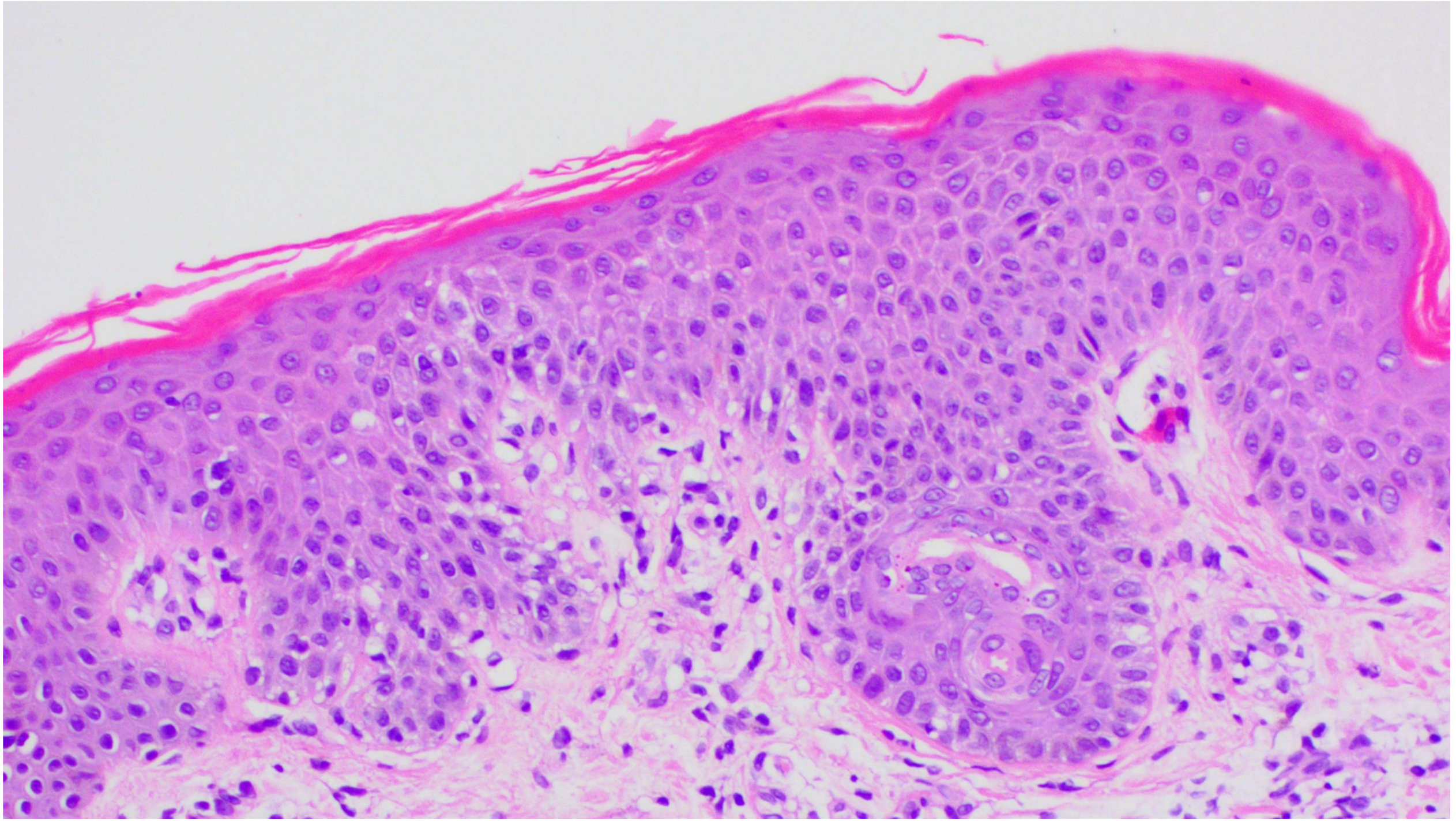

PRURITIC URTICARIAL PAPULES AND PLAQUES OF PREGNANCY: DIFFERENTIAL DIAGNOSIS

- Hypersensitivity reactions (clinical examination and history!)
- Urticaria (presence of neutrophils)
- Pemphigoid gestationis

*distinction between the pre-bullous phase of pemphigoid gestationis and PUPPP is the most common reason for which the clinician performs a biopsy

*distinction is important since pemphigoid gestationis but not PUPP, may be associated with significant fetal morbidity

*the presence of a subepidermal vesicle (with variable mixed inflammatory infiltrate composed of lymphocyes, neutrophils, and eosinophils) or marked papillary edema favors pemphigoid gestationis (however, some early lesions will lack these features)

*immunofluorescence studies are often necessary for definitive diagnosis (basement membrane staining for C3 and IgG)

ERYTHEMA GYRATUM REPENS

- Extremely rare and **clinically distinctive figurate eruption usually associated with an underlying malignancy** (carcinoma of the lung, carcinoma of the uterus, cervix, esophagus, stomach, kidney, breast)

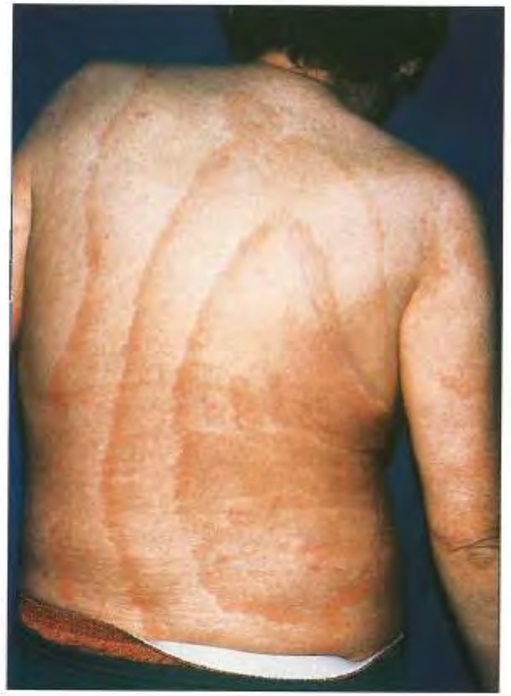

Fig. 7.11
Erythema gyratum repens: the presence of annular erythematous parallel bands with scaling is characteristic. By courtesy of R. Cerio, MD, The London Hospital, London, UK.

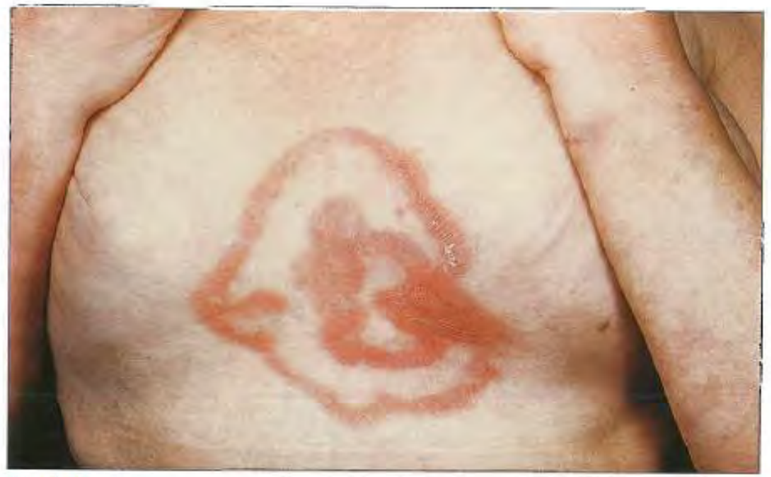

Fig. 7.12
Erythema gyratum repens: the eruption may sometimes have a bizarre appearance. By courtesy of R. Cerio, MD, The London Hospital, London, UK.

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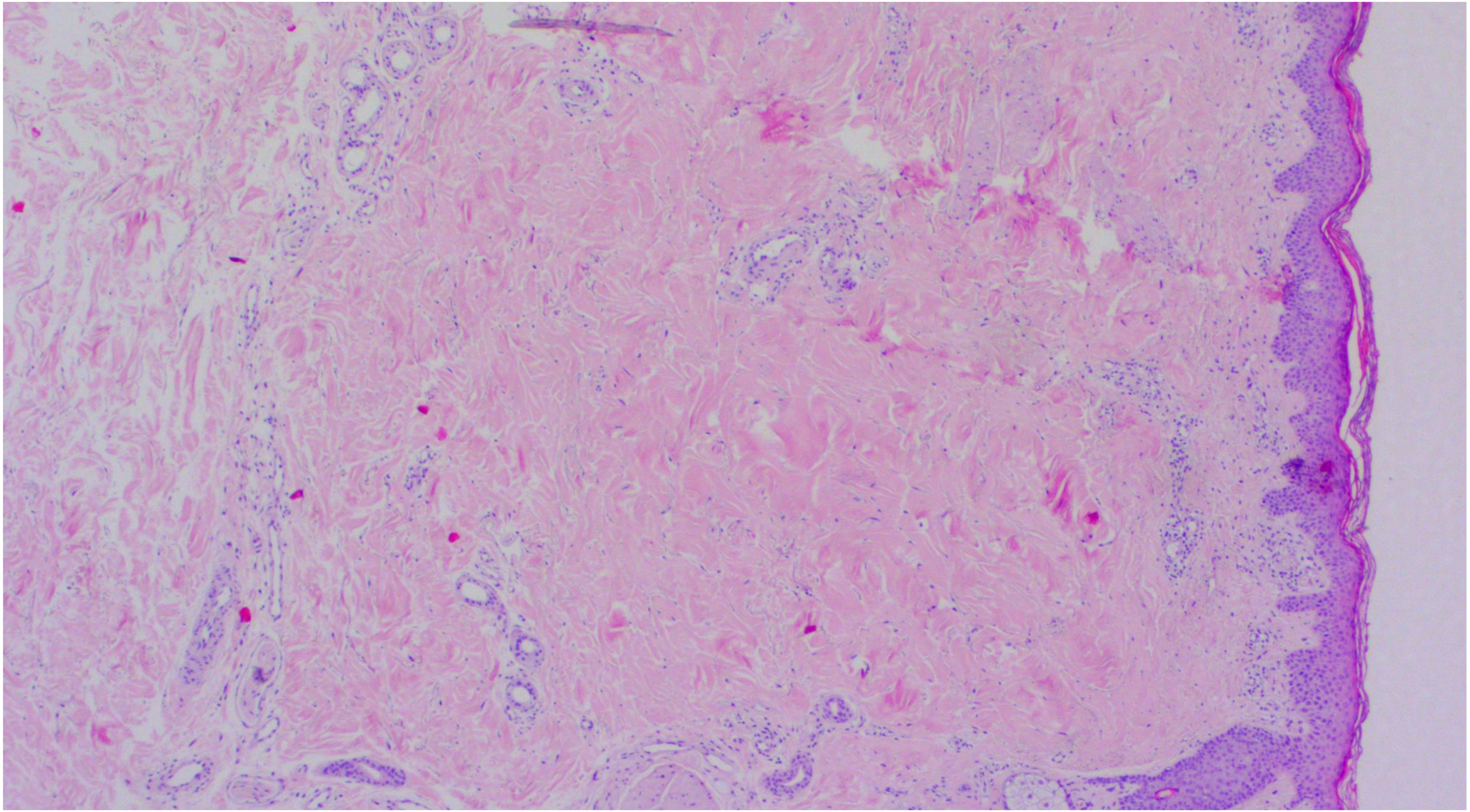
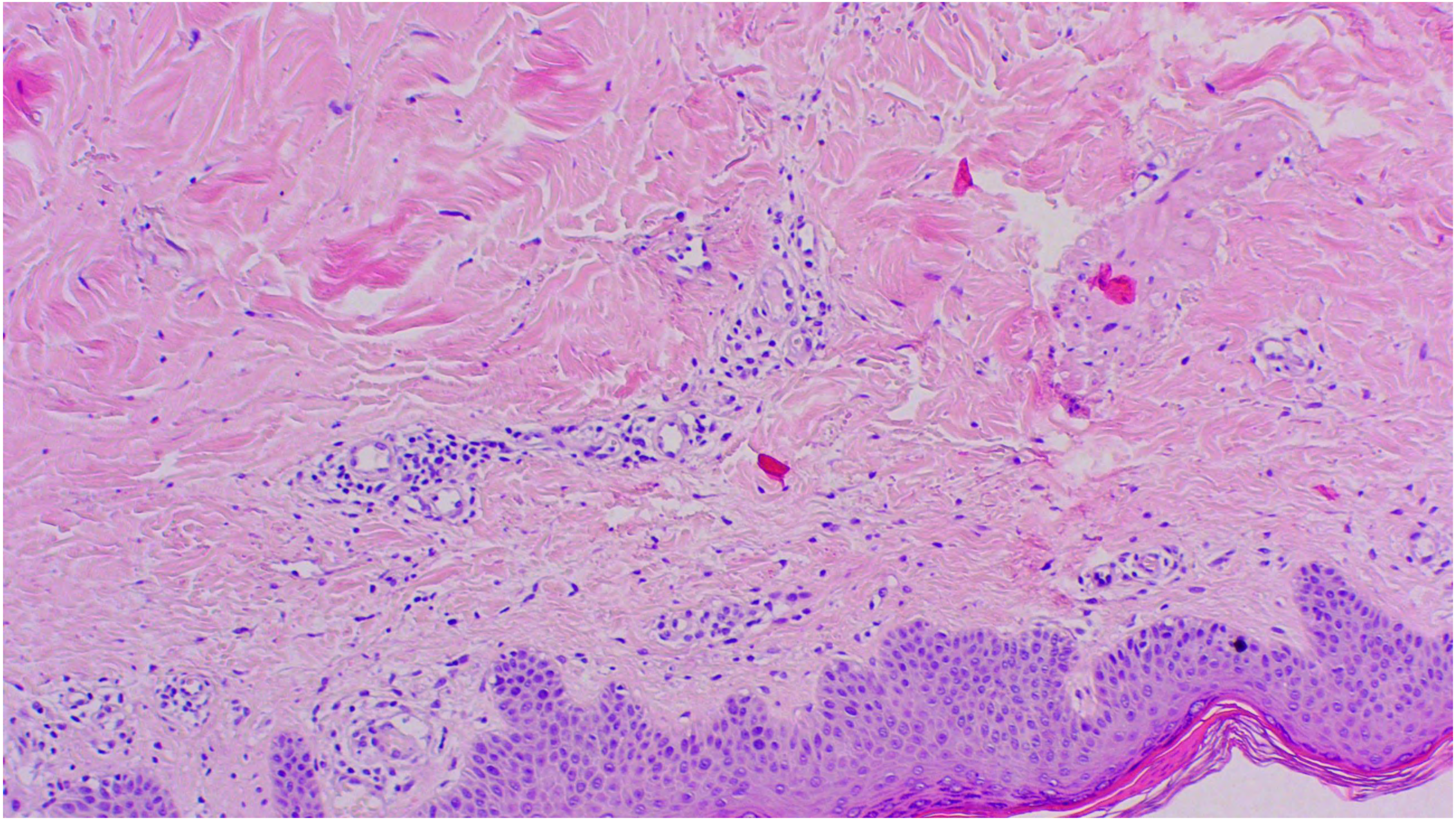
ERYTHEMA GYRATUM REPENS: HISTOLOGY

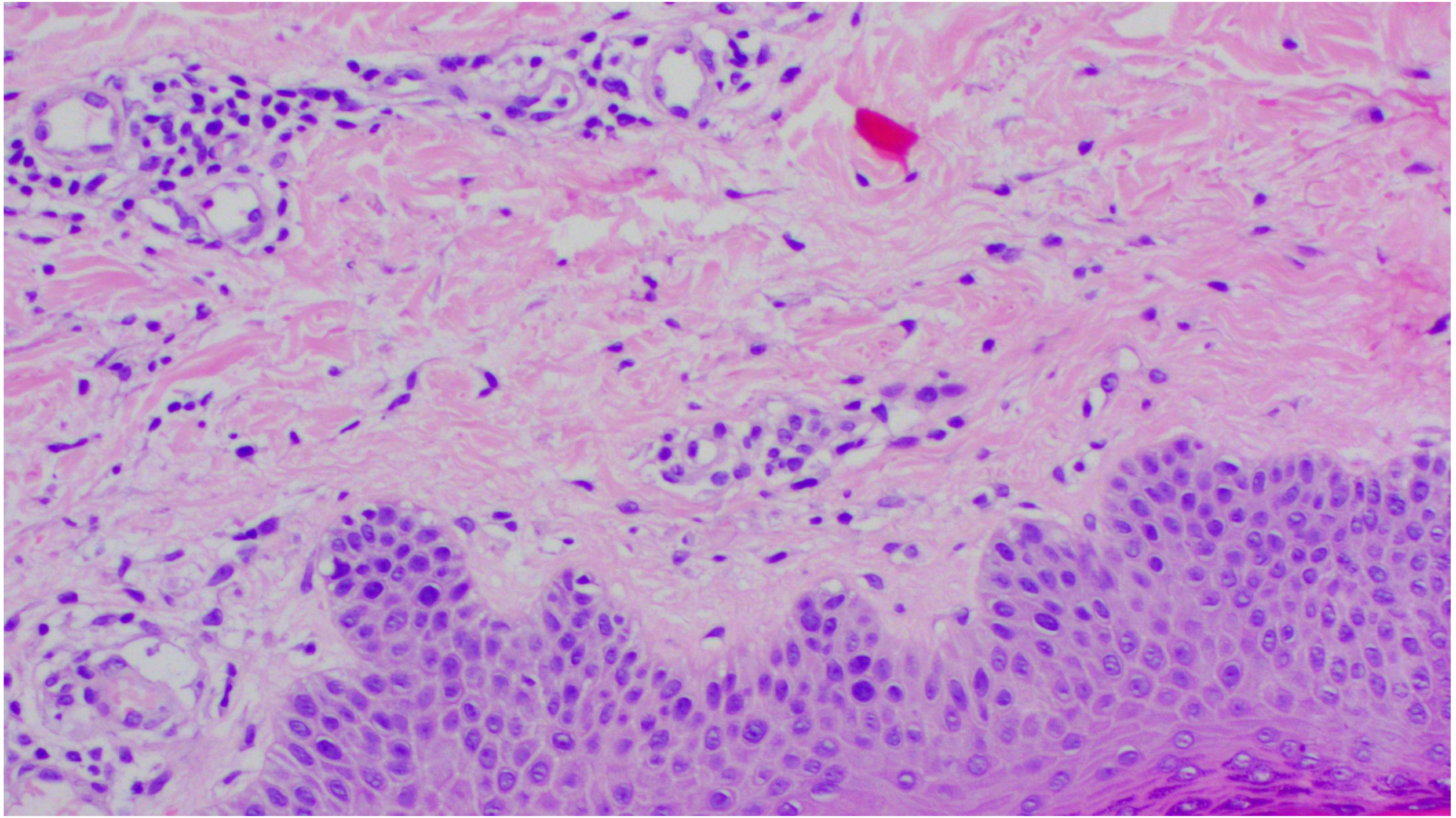
- Histological appearances are not diagnostic/specific and vary from patient to patient (**clinical correlation!)**

- Superficial perivascular lymphohistiocytic infiltrate in the papillary dermis

- Hyperkeratosis, parakeratosis, acanthosis and spongiosis (mixed pattern)







SUPERFICIAL AND DEEP PERIVASCULAR DERMATITIS

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SUPERFICIAL AND DEEP PERIVASCULAR DERMATITIS (1)

- Lymphocytes predominate

-deep annular erythema (gyrate erythema)

-polymorphous light eruption

-perniosis (chilblains)

-lymphomatoid papulosis

-erythema chronicum migrans

-Jessner lymphocytic infiltrate

- Neutrophils and eosinophils

-urticaria

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SUPERFICIAL AND DEEP PERIVASCULAR DERMATITIS (2)

- Neutrophils predominate

-arthropod reaction (wedge-shaped infiltrate, flea bite)
-infectious (cellulitis) (sparse infiltrate, neutrophils splayed between collagen bundles reticular dermis)
-neutrophilic eccrine hidradenitis (neutrophils in and around eccrine glands)
-suppurative folliculitis

- Eosinophils

-dermal hypersensitivity reaction (including arthropod bite reaction or drug), Well's syndrome, erythema chronicum migrans

- Plasma cells

-morphea
-syphilis
-Lyme disease (erythema chronicum migrans)

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SUPERFICIAL AND DEEP PERIVASCULAR DERMATITIS

- Drug (hypersensitivity) reactions *(see superficial perivascular dermatitis)*
- **Deep gyrate erythema**
- Deep arthropod assault (insect bite) *(see eosinophilic and neutrophilic dermatitis)*
- **Polymorphous light eruption**
- **Erythema chronicum migrans**
- **Perniosis (chilblains)**
- **Jessner infiltrate (lymphocytic infiltrate of the skin)**
- **Reticular erythematous mucinosis**
- Erysipelas/cellulitis

GYRATE ERYTHEMA

- Heterogeneous group of dermatoses that include:

  *Erythema annulare centrifugum (EAC)

  *Erythema chronicum migrans (ECM)

  *Erythema gyratum repens (EGR)
  (associated with underlying internal malignancies)
  (see superficial perivascular dermatitis!)

ERYTHEMA ANNULARE CENTRIFUGUM (EAC)

- EAC represents a **hypersensitivity reaction** manifesting as **arcuate and polycyclic areas of erythema.**
- The condition has been categorized into **superficial and deep variants**
- EAC is characterized by **annular areas of palpable erythema with central clearing and absence of surface changes**
- The lesions may attain considerable size (up to 10 cm across) over a period of several weeks, may be mildly pruritic, and have a **predilection for the trunk and proximal extremities**
- **Most cases resolve spontaneously** within 6 weeks; however, the condition may persist or recur for years

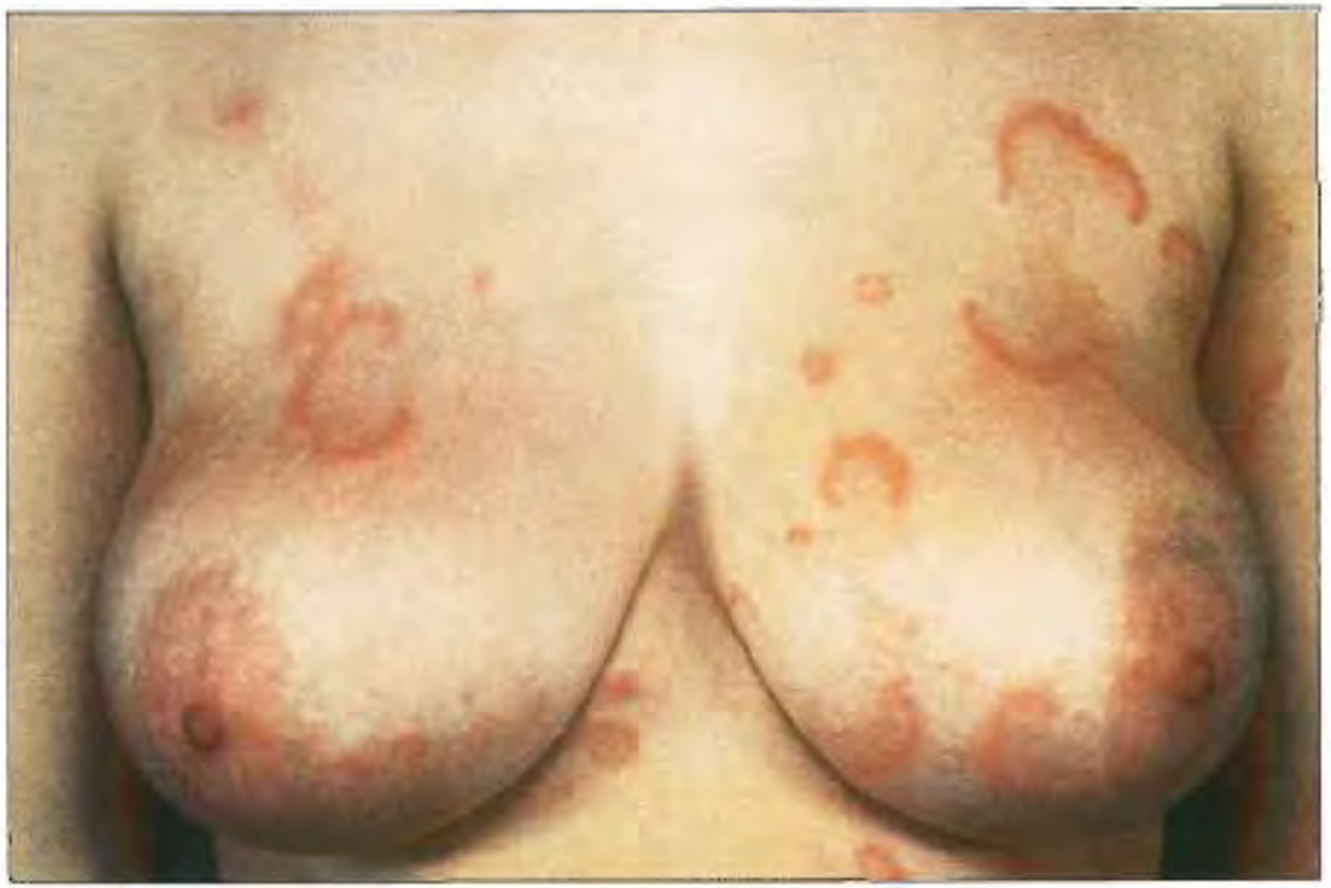

Fig. 7.8
Erythema annulare centrifugum: typical bilateral annular lesions involving the chest, breasts, abdomen and arms. By courtesy of R.A. Marsden, MD, St George's Hospital, London, UK.

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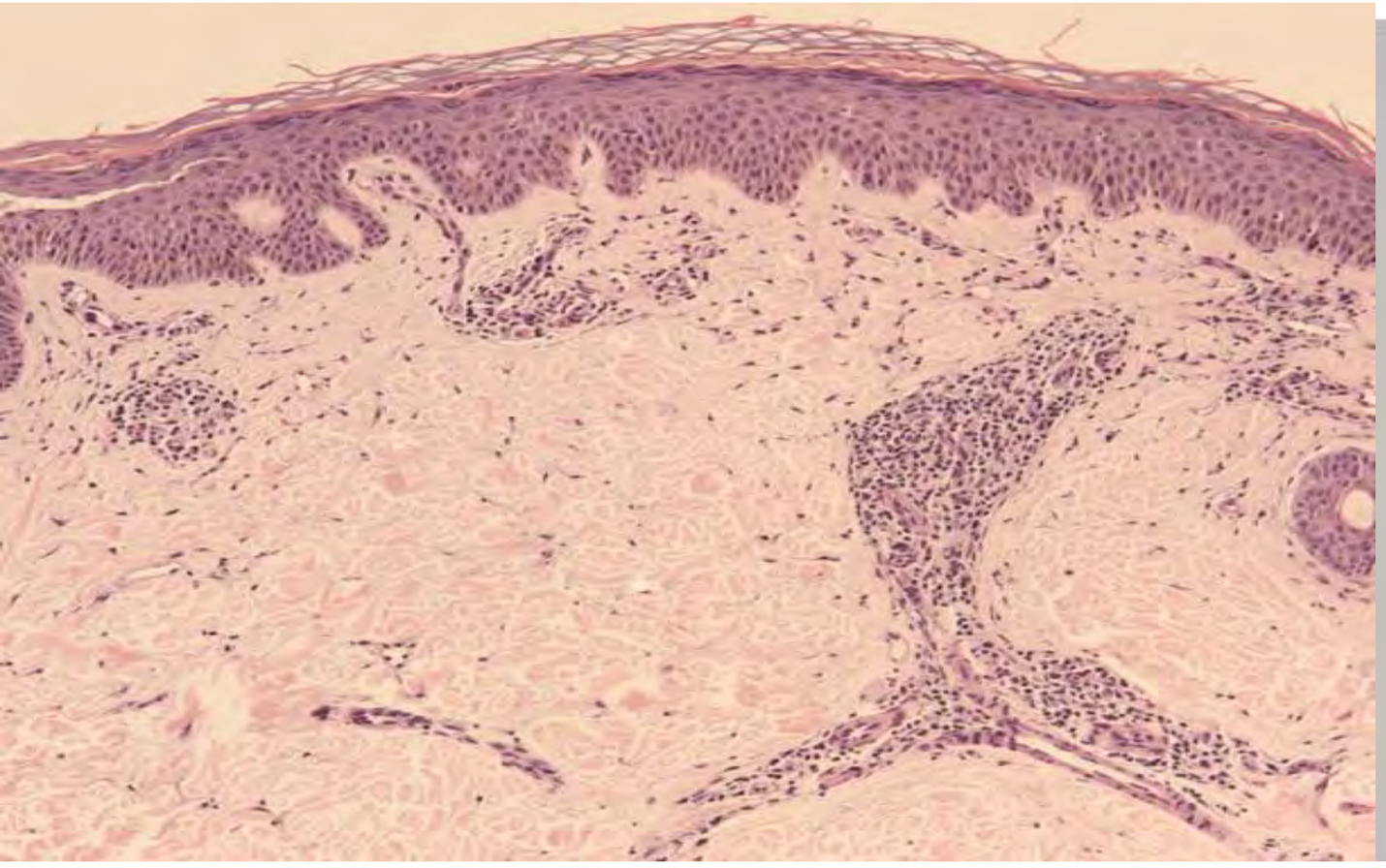
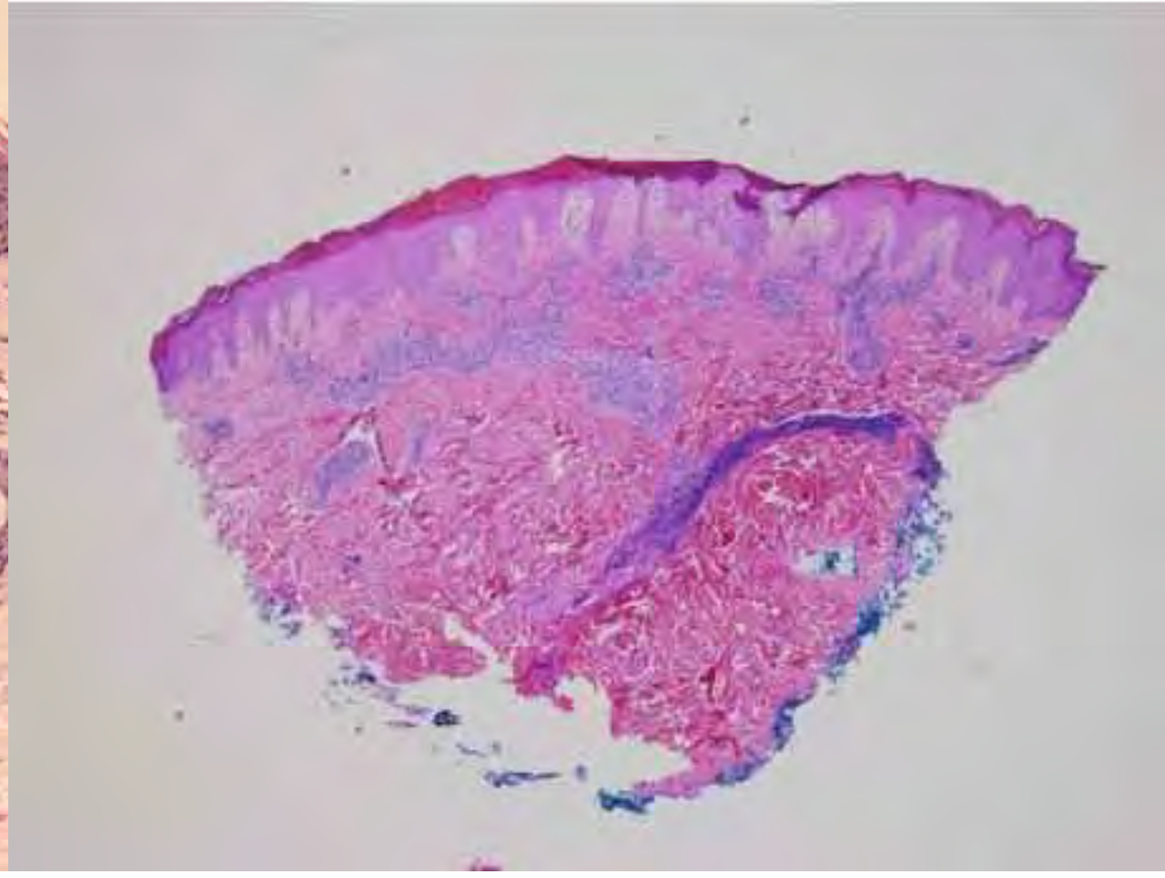
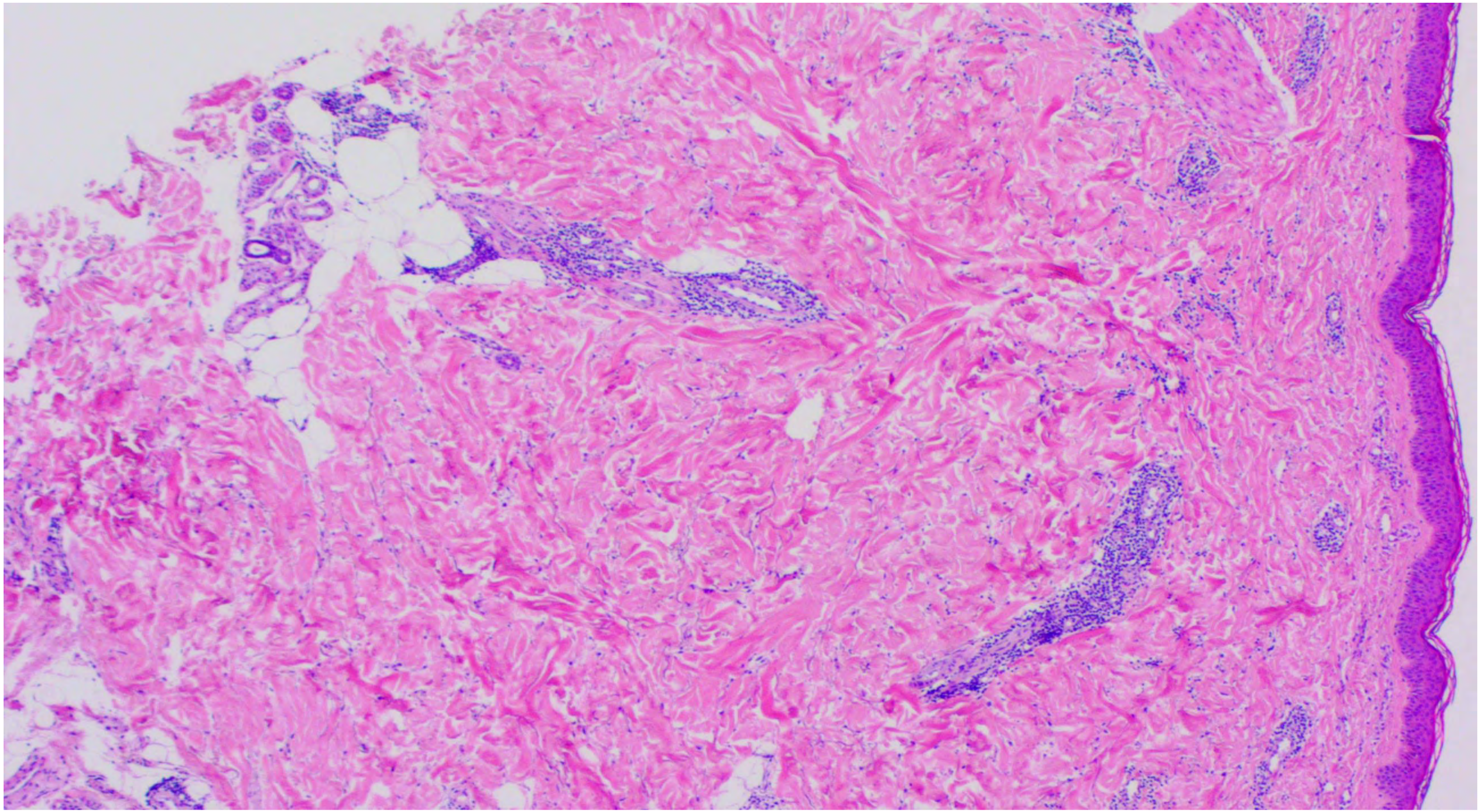
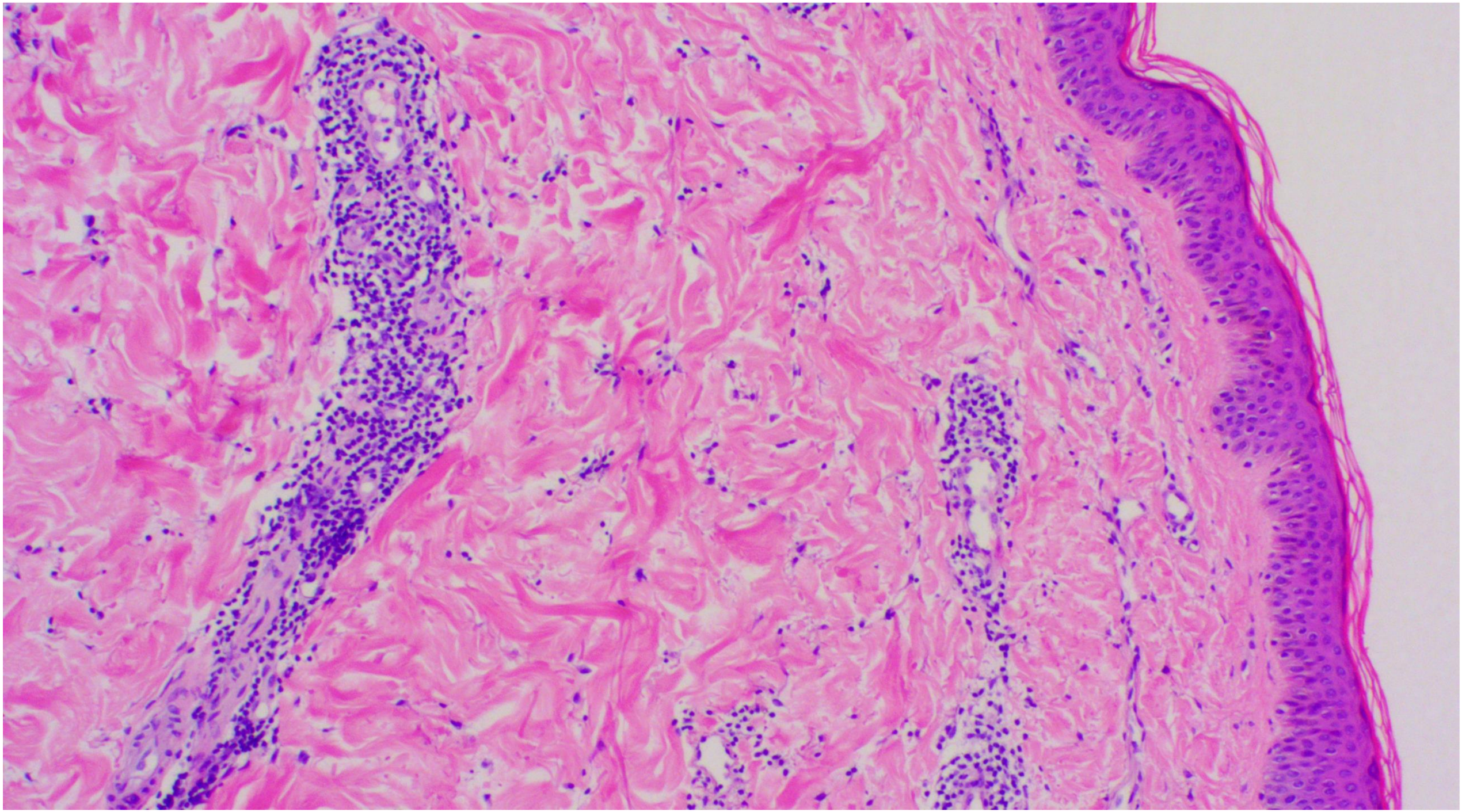
ERYTHEMA ANNULARE CENTRIFUGUM (EAC): HISTOLOGY

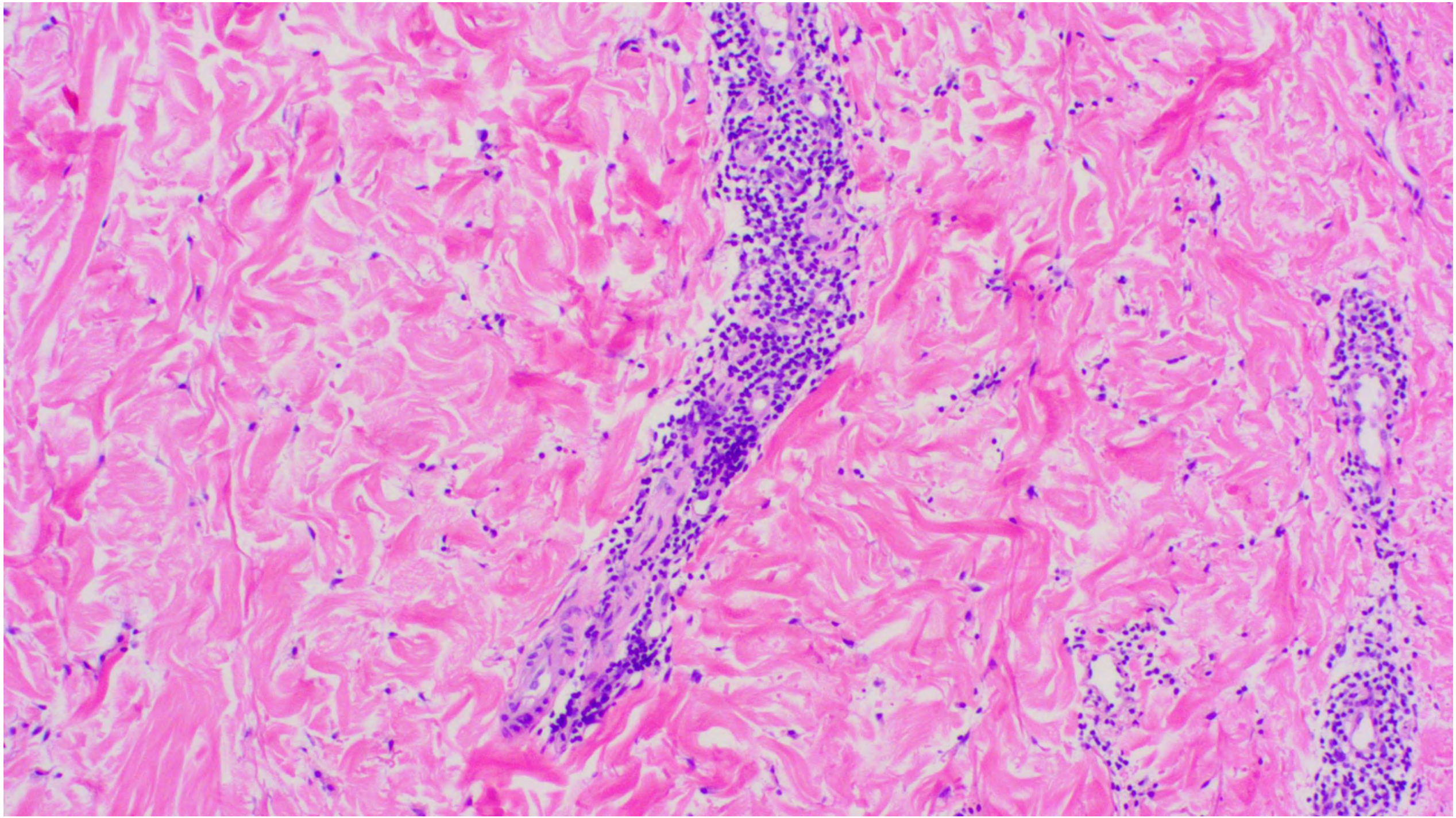
- Superficial and deep variant
- **Demarcated coat sleeve-like (pipe-stem-like) lymphocytic infiltrate localized around the dilated superficial and deep blood vessels (deep variant)**
- The vast majority of cells are **lymphocytes**, however, a minor component of histiocytes and eosinophils may be seen
- Focal spongiosis with parakeratosis
- Superficial variant: only superficial perivascular lymphocytic infiltrate, may show basilar vacuolar damage of keratinocytes and extravasated red blood cells in superficial dermis (pityriasis rosea-like pattern)

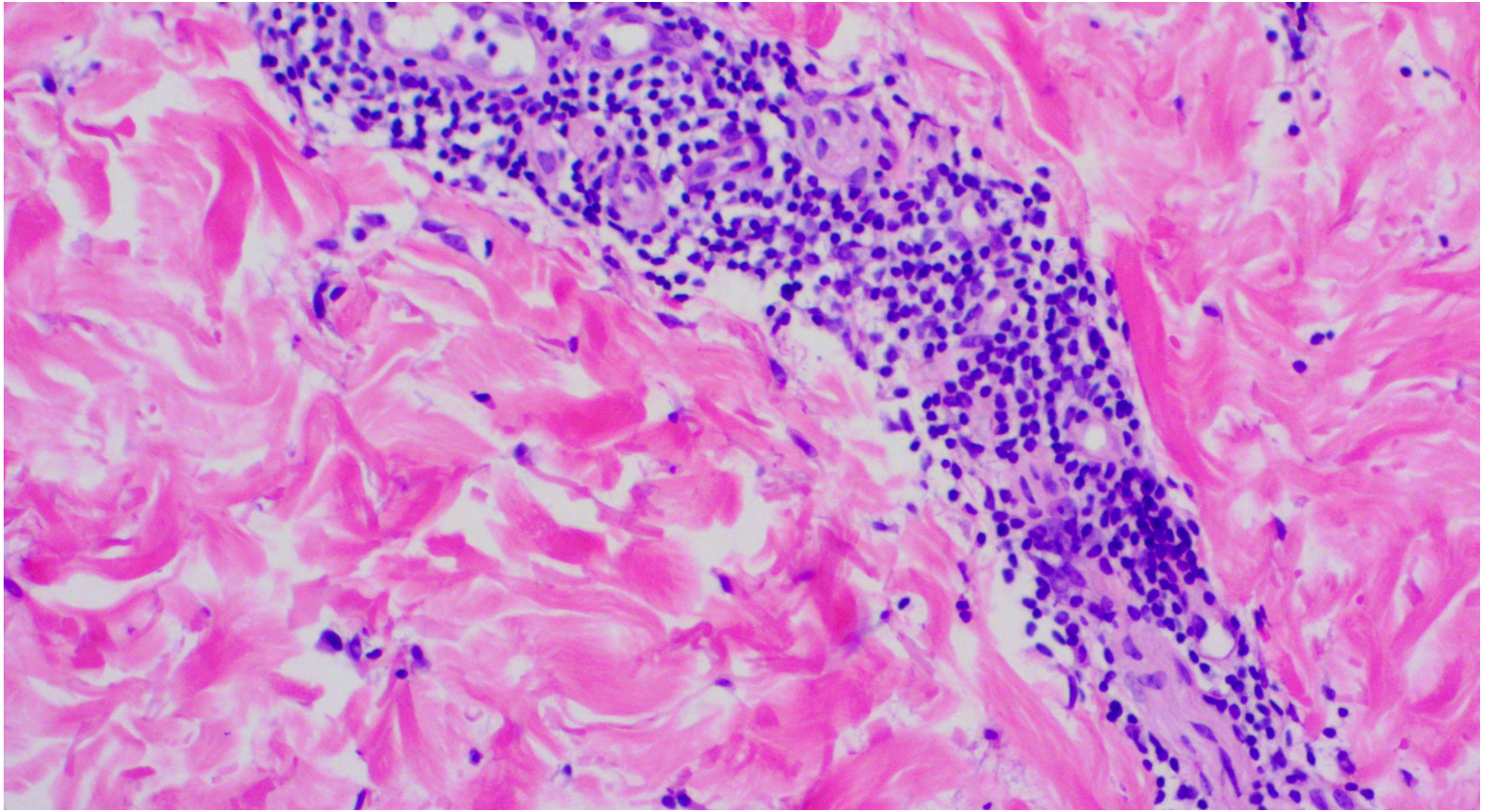












ERYTHEMA ANNULARE CENTRIFUGUM: DIFFERENTIAL DIAGNOSIS

- **Superficial pattern**

-pityriasis rosea (if spongiosis is evident)
-viral exanthema
-arthropod bite reaction or drug reaction (if eosinophils are observed)
-fungal infection (do a PAS stain)

- **Deep pattern**

-polymorphous light reaction
-chronic urticaria
-Jessner lymphocytic infiltrate
-erythema chronicum migrans (presence of plasma cells)
-drug reaction
-fungal infection (do a PAS stain)
-secondary syphilis (numerous plasma cells and histiocytes are usually present)

→all these entities do not have the coat-sleeve pattern!
→correlation with the clinical presentation! (annular, scaly erythematous plaques involving the trunk and proximal extremities)

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ERYTHEMA CHRONICUM MIGRANS

- **Skin lesion of the primary stage I of Lyme disease**
- Skin lesion consists initially of **a small erythematous papule at the site of an insect bite and expands centrifugally as a flat ring.**
- It develops on average 1-3 weeks after the bite.
- Occasionally target lesions are described.
- The **lower extremity and trunk** are most often affected.
- Although lesions are **usually asymptomatic**, patients may complain of pruritus, burning or rarely pain.

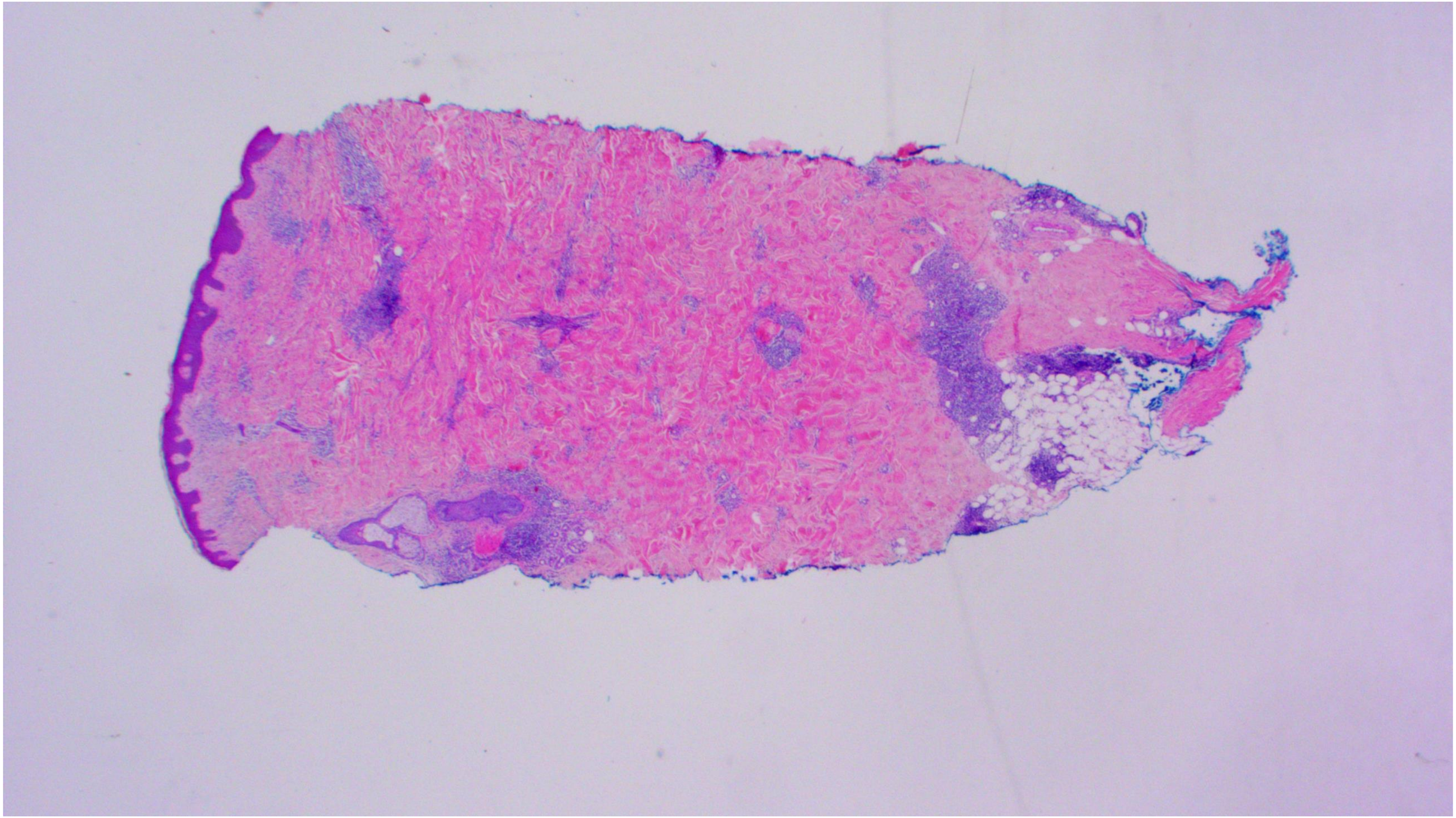
ERYTHEMA CHRONICUM MIGRANS: HISTOLOGY

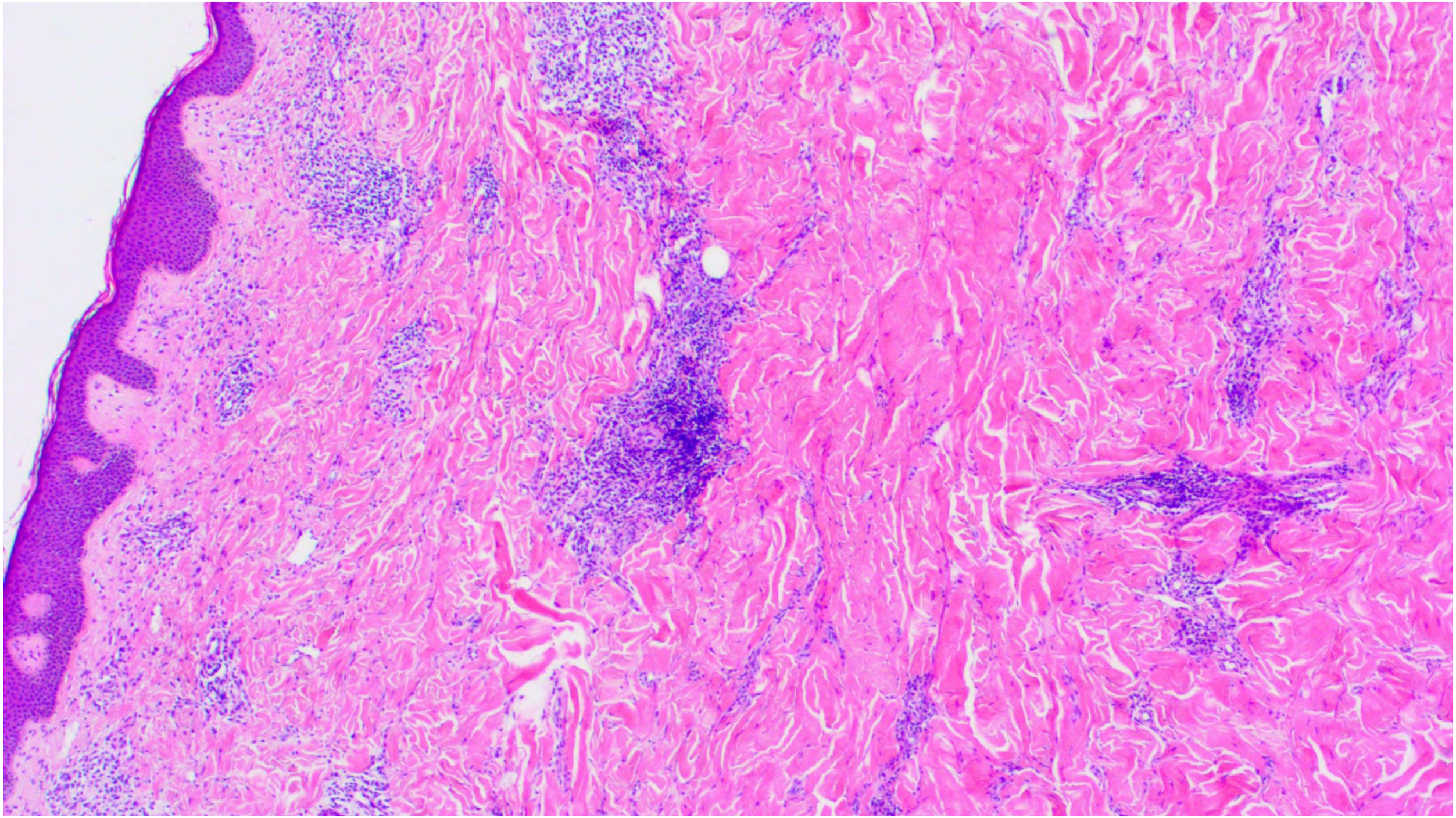
- **Superficial and deep perivasculair (neurotropic and eccrinotropic) infiltrate predominated by lymphocytes** with a variable admixture of plasma cells and eosinophils

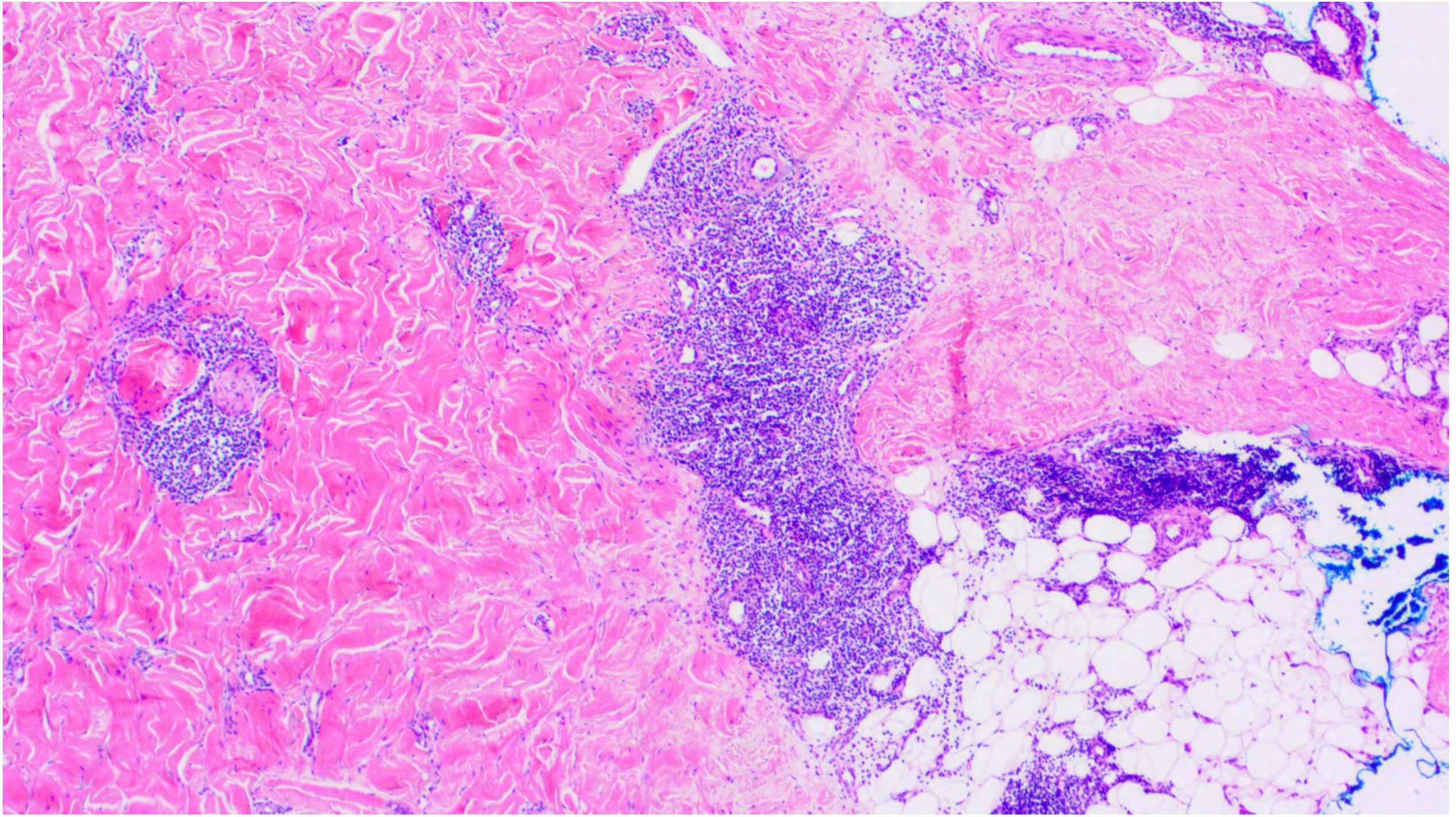
- **Plasma cells** have been identified most frequently in the peripheries of lesions, whereas **eosinophils** are identified in the centers of the lesions

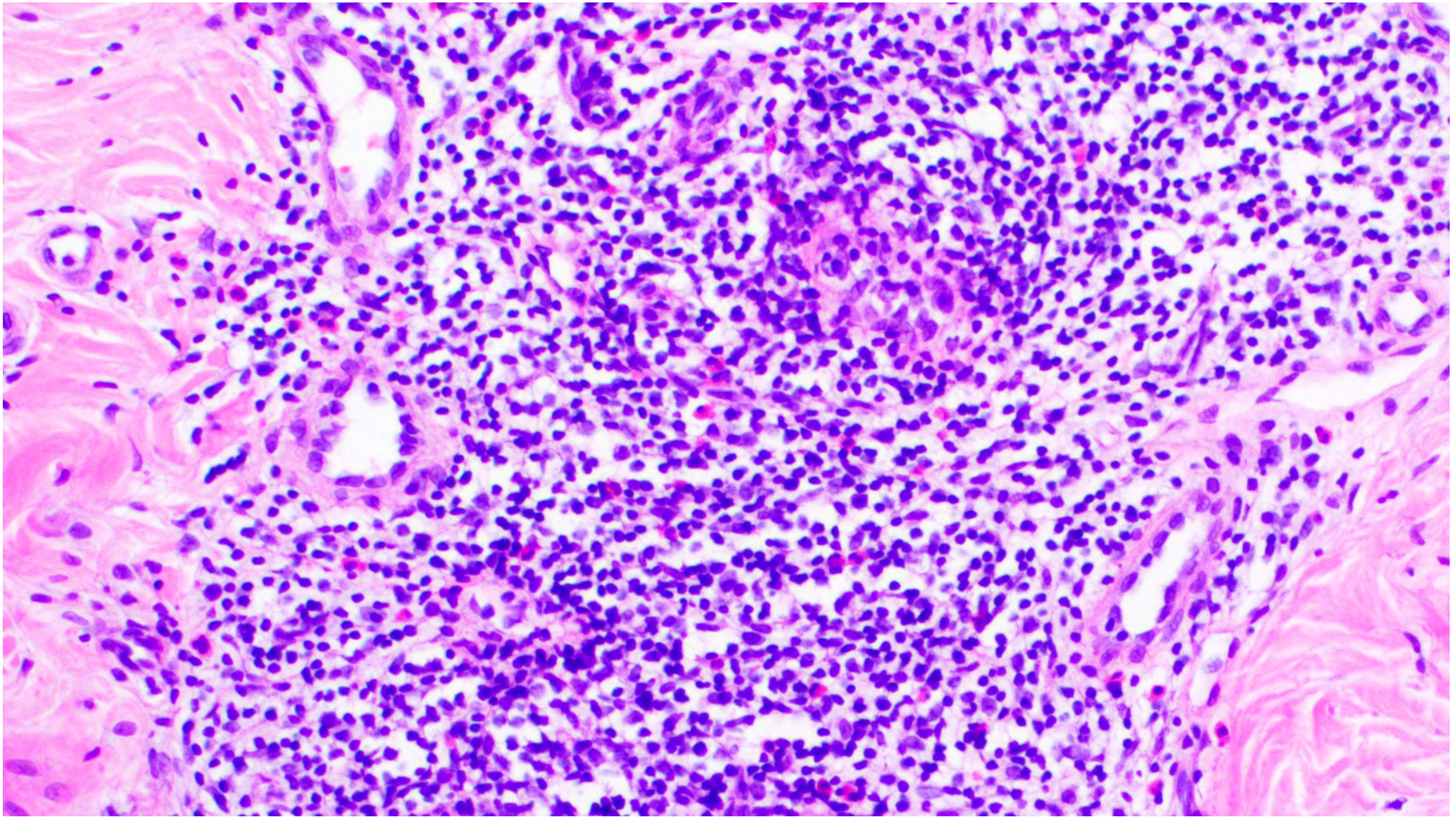
- Not infrequently, these florid dermal alterations are accompanied by **eczematous epithelial alterations** (spongiosis, exocytosis,…)

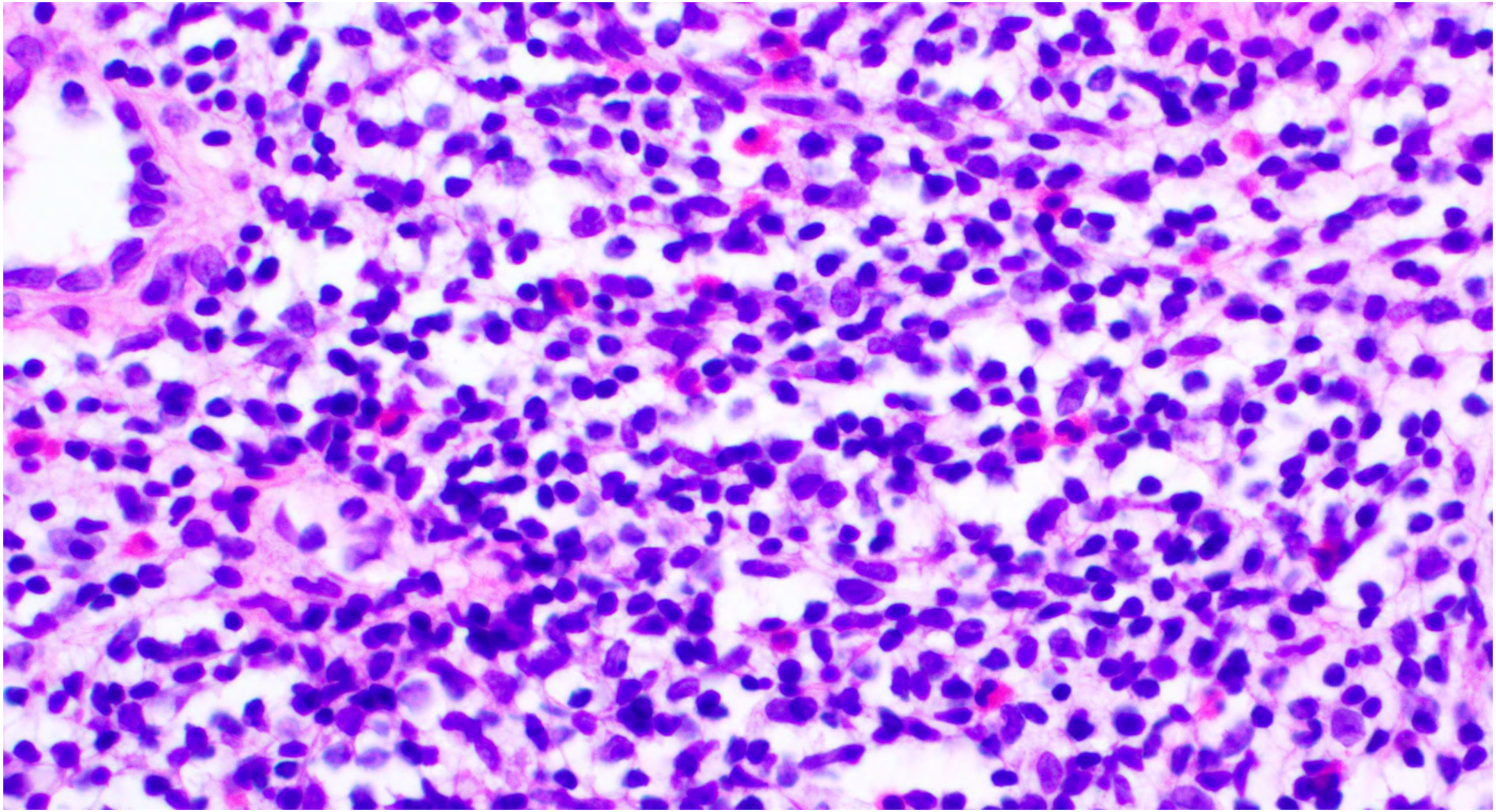
- A Warthin-Starry stain may be positive (**spirochetes**)

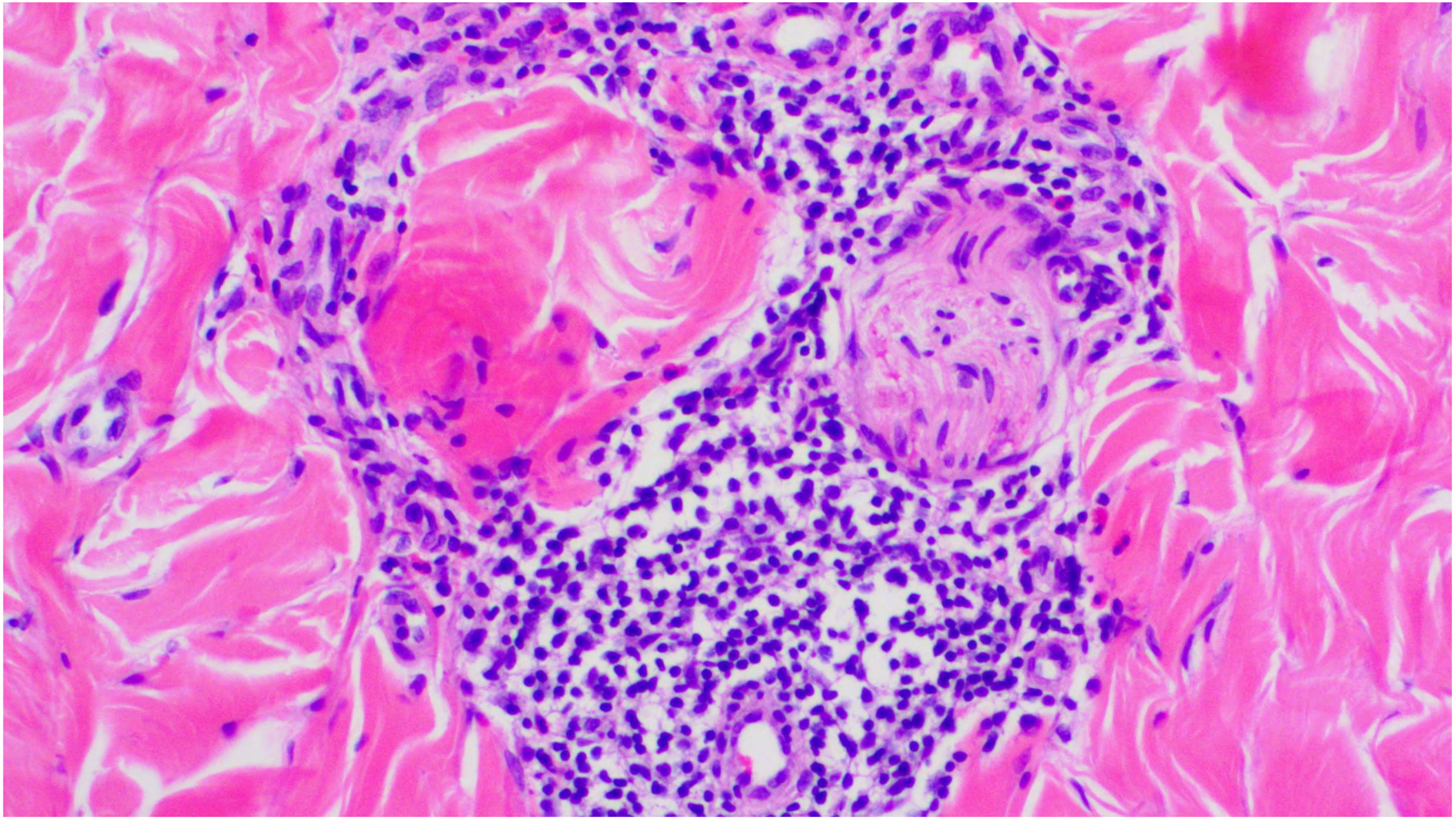


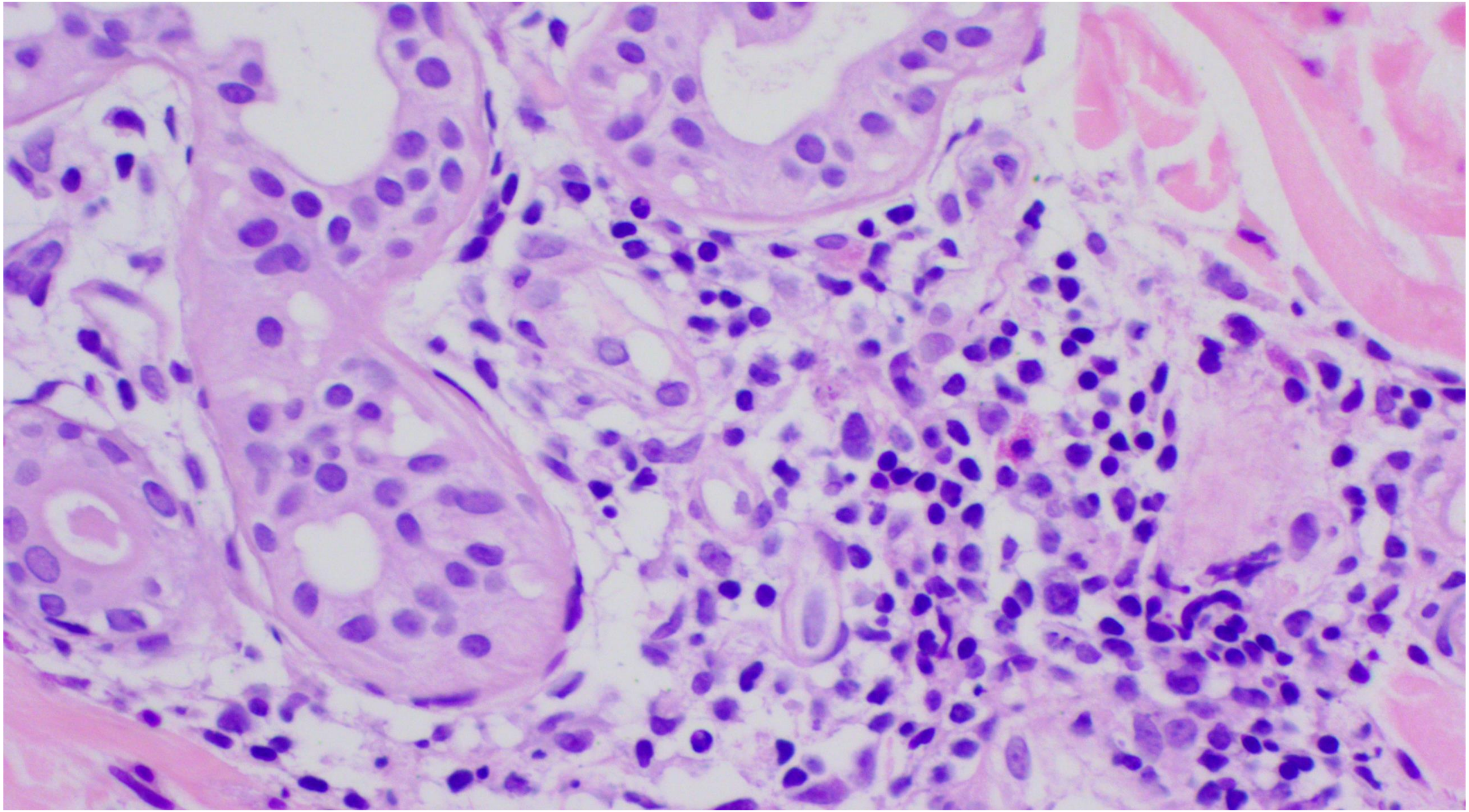


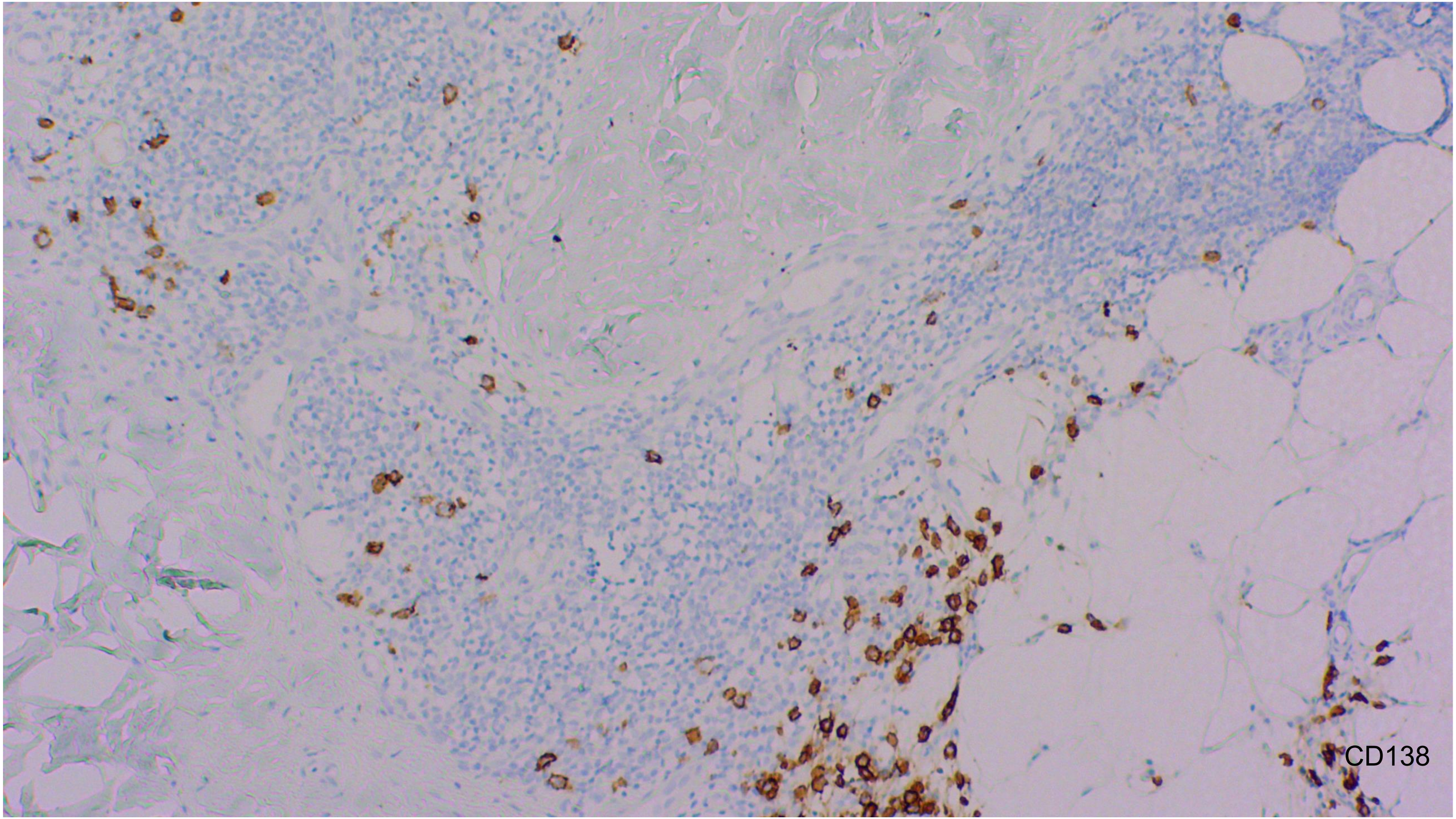


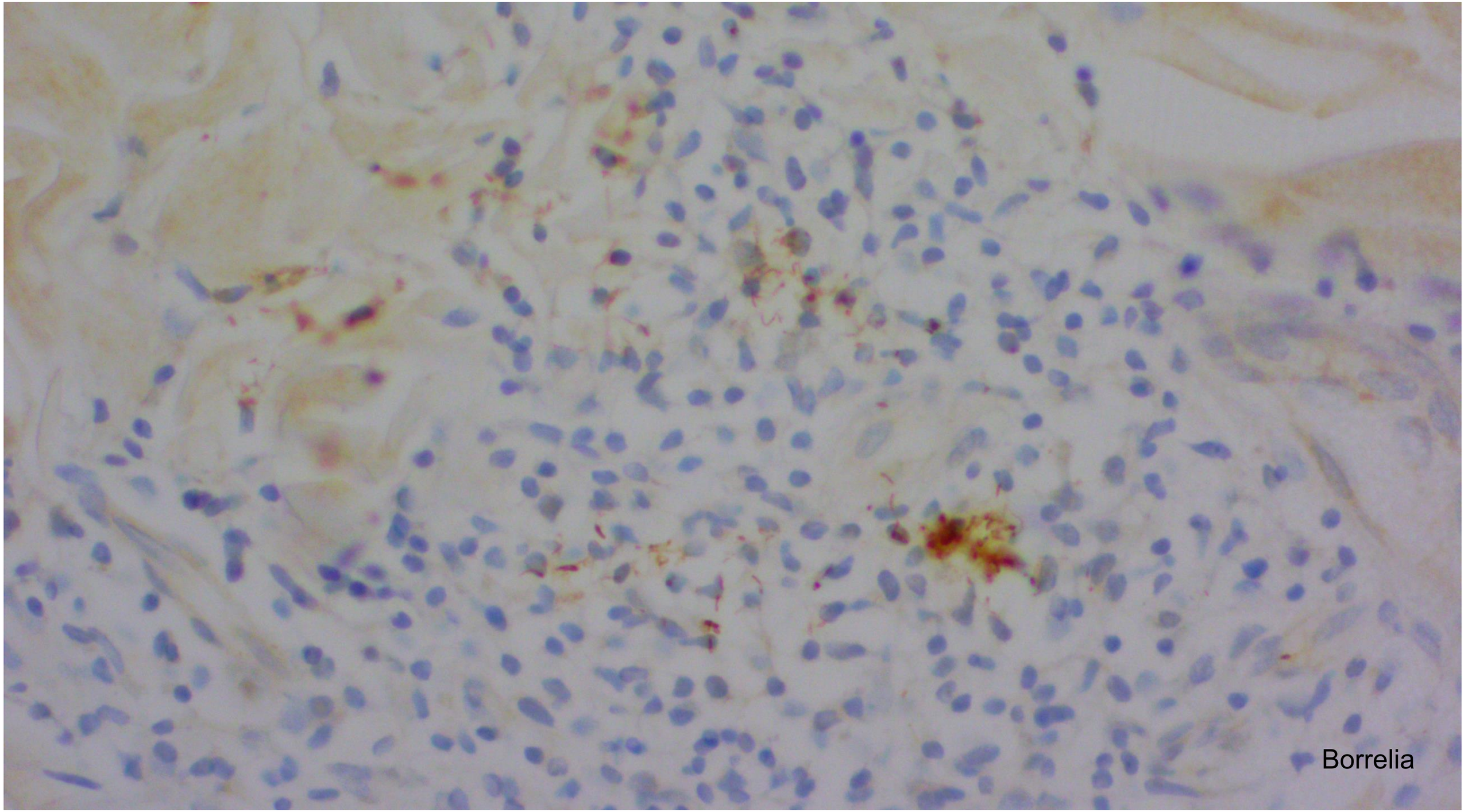









CD138


Borrelia

ERYTHEMA CHRONICUM MIGRANS: DIFFERENTIAL DIAGNOSIS

- Arthropod assault
- Drug reaction
- Contact allergic reaction
- Erythema annulare centrifugum
- ….

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PATHOLOGY INVOLVING SWEAT GLANDS

- **With lymphocytes**: lupus erythematosus (interface), lichen striatus (interface), perniones (chilblains) (perivascular dermatitis), erythema chronicum migrans (perivascular dermatitis)

- **With eosinophils:** arthropod bite reaction (perivascular dermatitis), erythema chronicum migrans (perivascular dermatitis)

- **With neutrophils:** neutrophilic eccrine hidradenitis

- **With plasma cells**: cheilitis glandularis, erythema chronicum migrans (perivascular dermatitis)

PATHOLOGY INVOLVING NERVES

- Lymphocytic infiltrates: herpes zoster

- Mixed inflammatory infiltrates (e.g. plasma cells): leprosy, syphilis, lyme disease (erythema chronicum migrans)

POLYMORPHOUS LIGHT ERUPTION (PMLE)

- PMLE is a **common photoinduced eruption**, clinically characterized by **recurrent delayed reactions to sunlight**

- Ranging from **erythematous papules, papulovesicles, and plaques to erythema multiforme-like lesions on sun-exposed surfaces**

- Lesions often develop 30 minutes to 3 days after ultraviolet exposure and resolve in up to 10 days

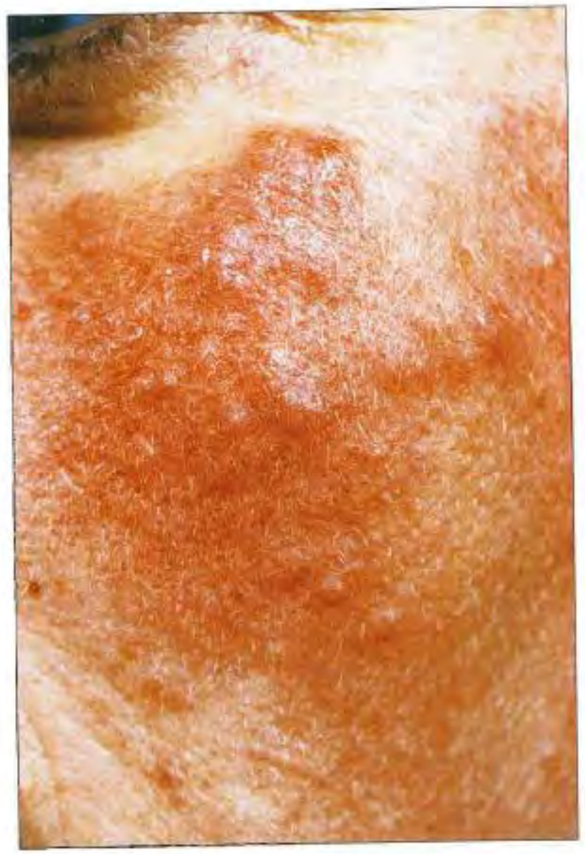

Fig. 7.25
Polymorphous light eruption: patients present with erythematous papules and vesicles on sun-exposed skin. By courtesy of the Institute of Dermatology, London, UK.

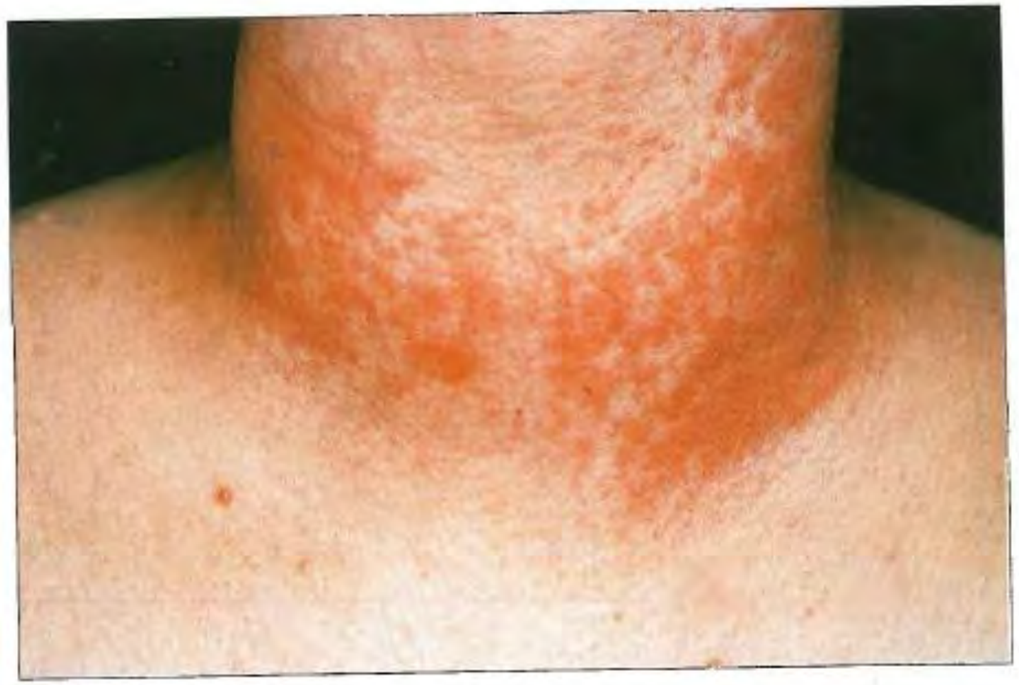

Fig. 7.26
Polymorphous light eruption: the eruption is typically symmetrical and is usually pruritic. By courtesy of the Institute of Dermatology, London, UK.

Pathology of the Skin, 3th edition, Phillip H. McKee, Eduardo Calonje, Scott R. Granter

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POLYMORPHOUS LIGHT ERUPTION (PMLE): HISTOLOGY

- **Superficial and deep perivascular lymphocytic infiltrate**
  (only a superficial perivascular pattern in early lesions)
- **Subepidermal edema**
- Mild spongiosis
- Rare dyskeratotic keratinocytes

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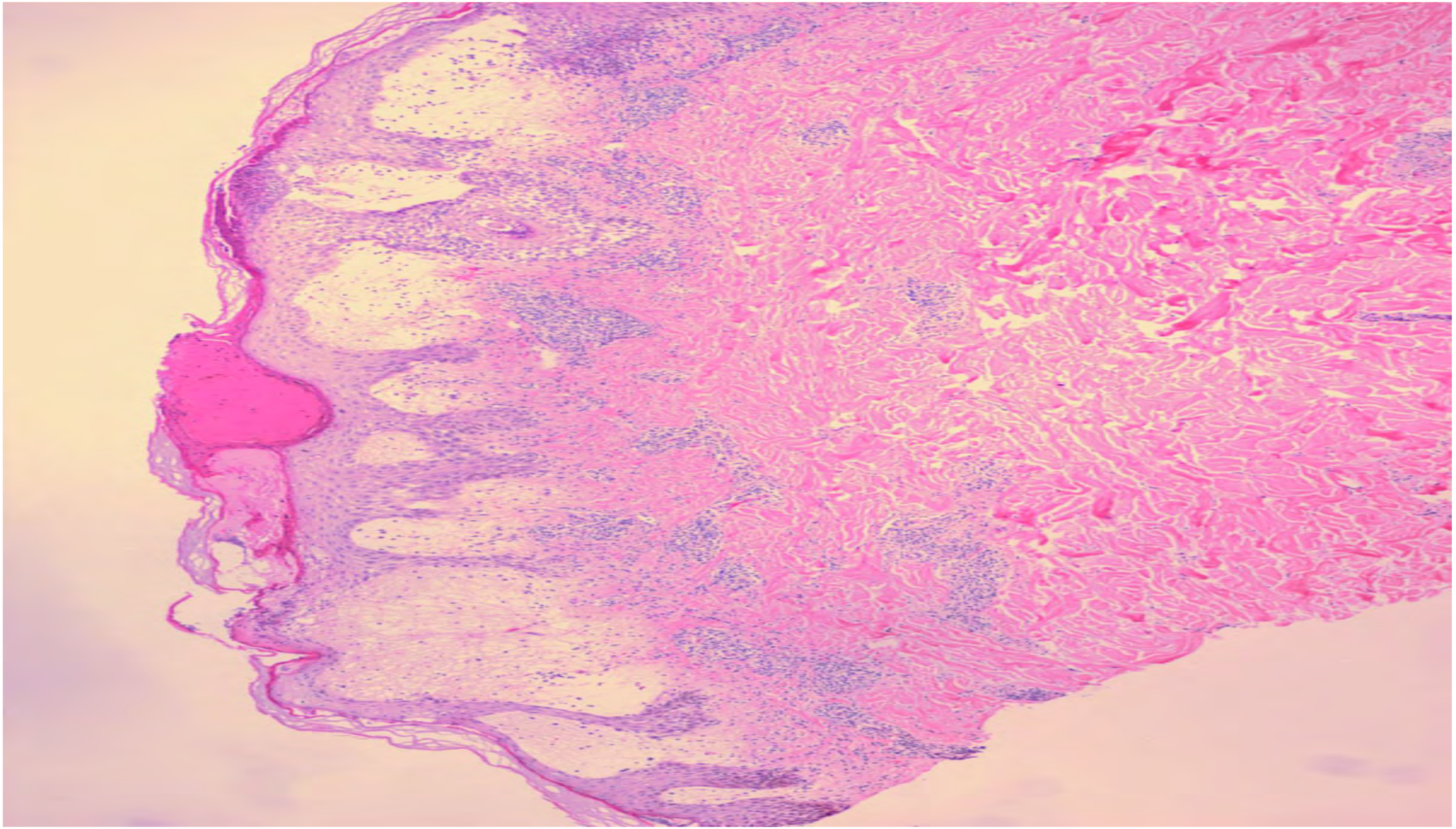

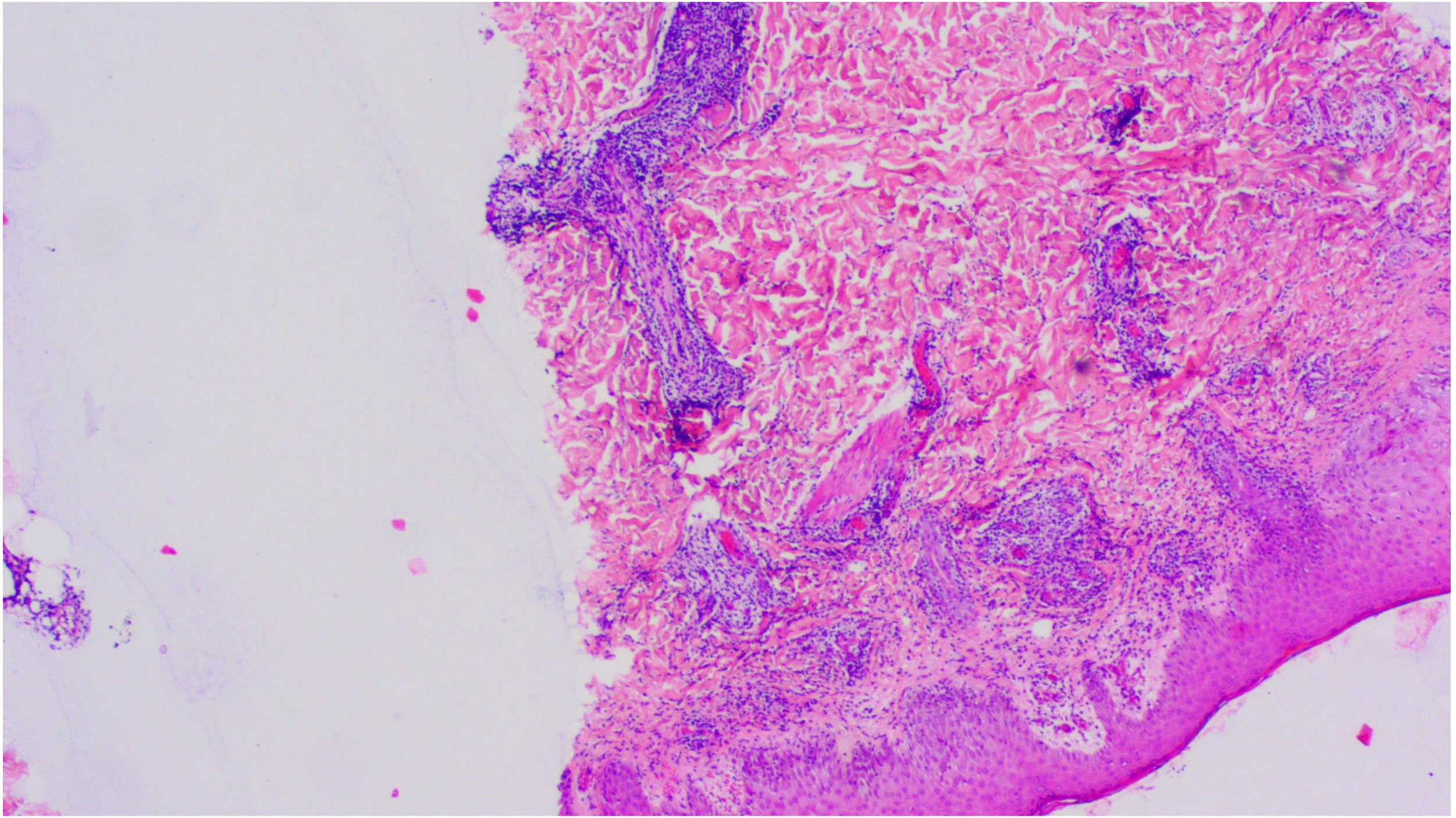

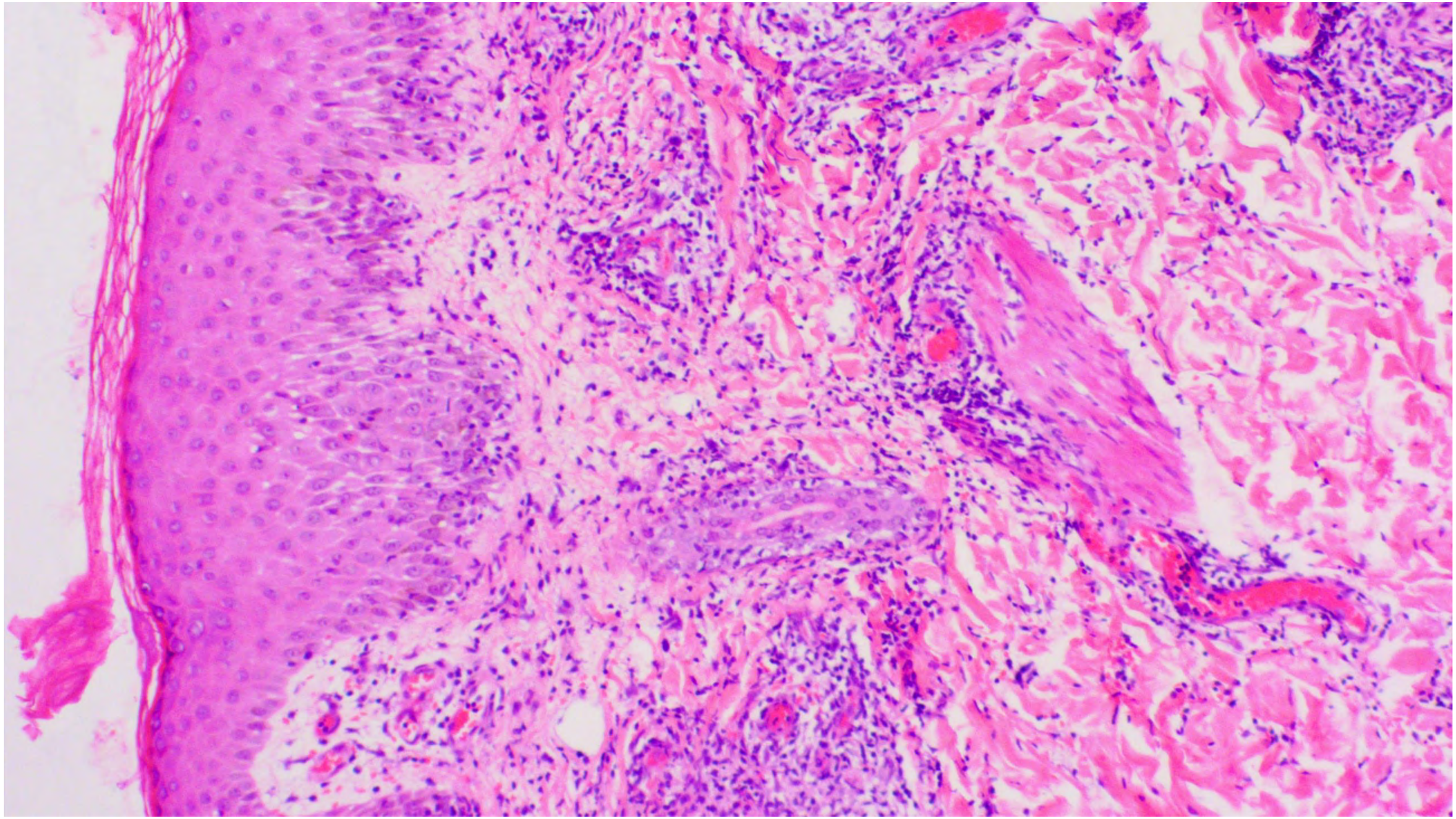

POLYMORPHOUS LIGHT ERUPTION: DIFFERENTIAL DIAGNOSIS

- *Erythema annulare centrifugum* (no prominent subepidermal edema)
- Jessner lymphocytic infiltrate (no prominent subepidermal edema)
- *Arthropod bite reaction* (prominent component of eosinophils, usually absent in PLE)
- *Lupus erythematosus (LE)* (prominent interface vacuolar damage in the epidermis; papillary edema is not a feature; dermal mucin; basement membrane zone thickening)=sometimes a difficult clinical and histologic differential diagnosis

→**clinical presentation of PLE is a helpful clue to the diagnosis:** pruritic eruption presenting in spring or early summer

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LYMPHOCYTIC INFILTRATE OF THE SKIN (JESSNER'S LYMPHOCYTIC INFILTRATE

- **Uncommon dermatosis of unknown etiology**, although the relationship with sun exposure (at least in the early stages) is occasionally documented

- Lesions, which may be single or more often multiple, occur most often **on the face, neck, back and upper chest**

- Lesions present as **1-2 cm diameter, asymptomatic, discoid, erythematous or brownish papules or plaques that often show central clearing ('circinate lesion')**

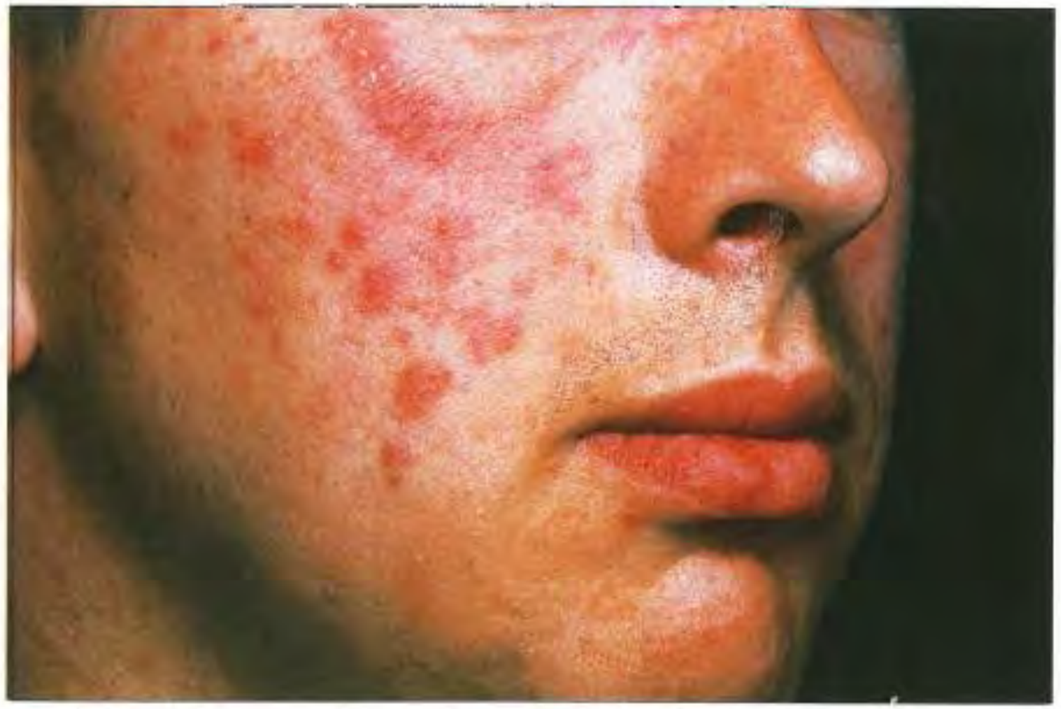

Fig. 7.15
Jessner's lymphocytic infiltrate: there are multiple erythematous plaques on this young man's cheek. By courtesy of the Institute of Dermatology, London, UK.

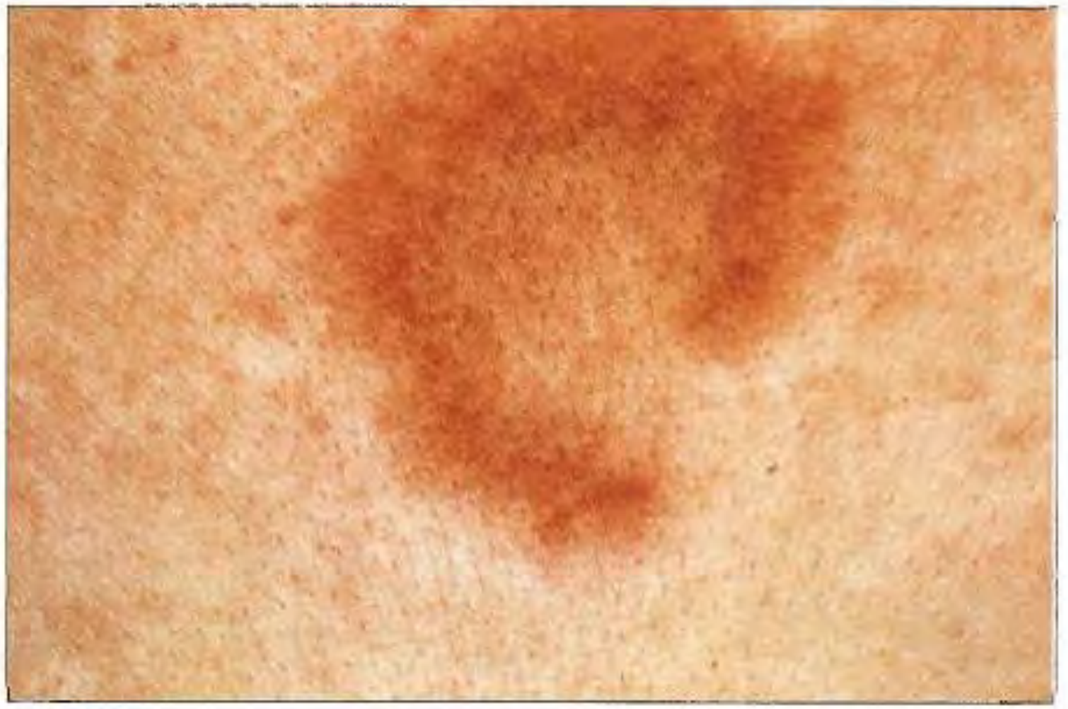

Fig. 7.16
Jessner's lymphocytic infiltrate: central clearing has resulted in this circinate lesion. By courtesy of the Institute of Dermatology, London, UK.

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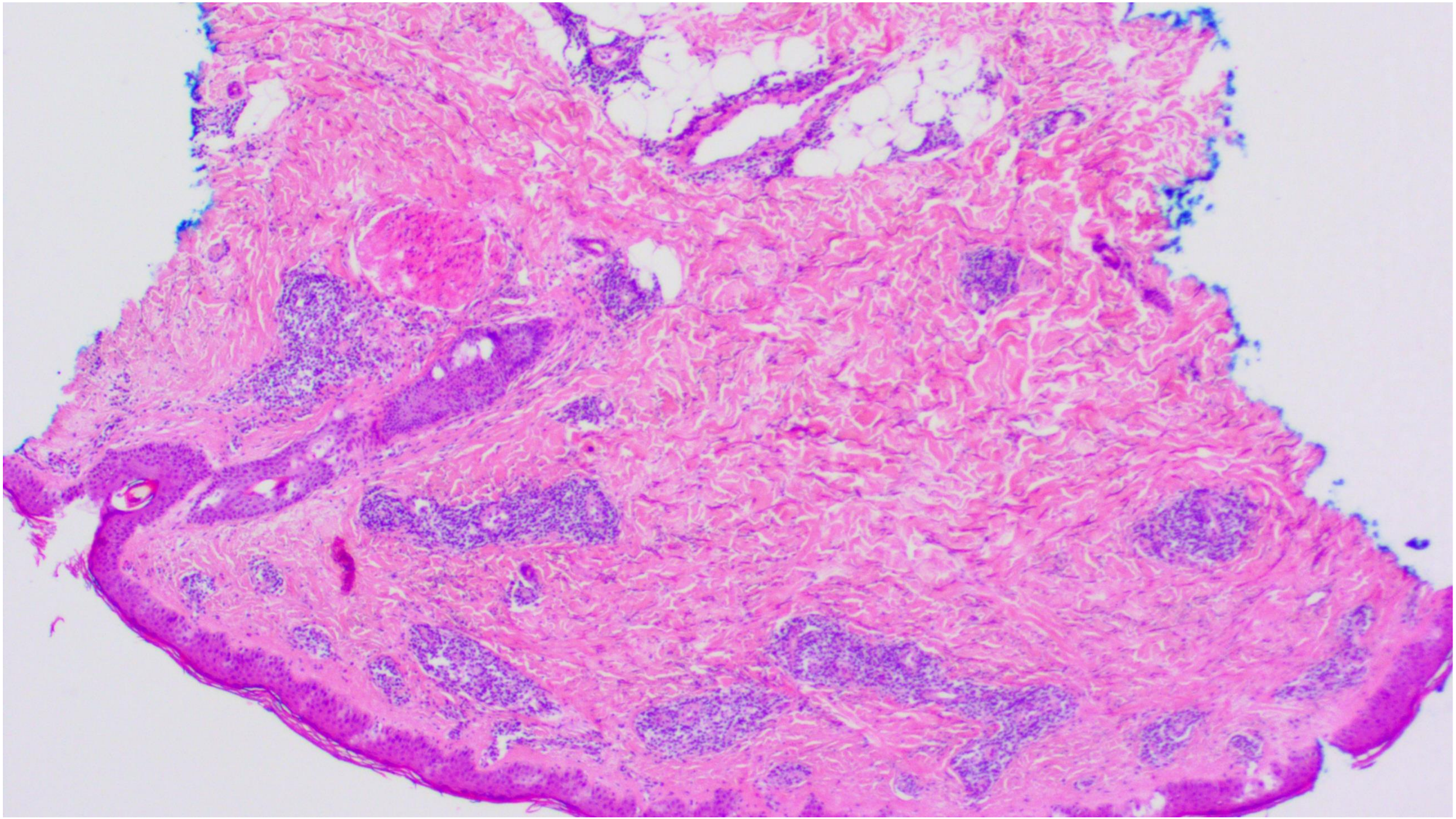
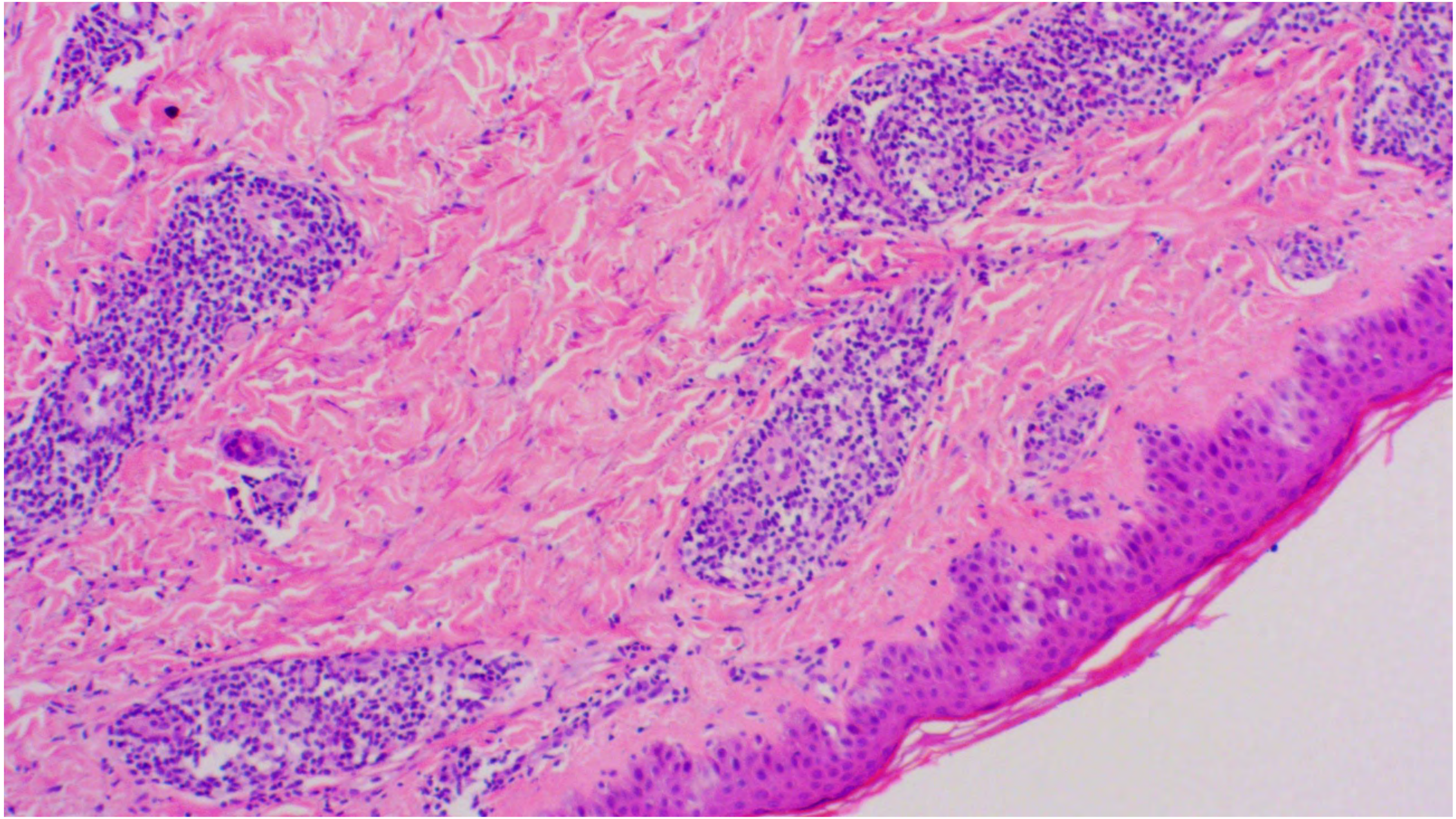
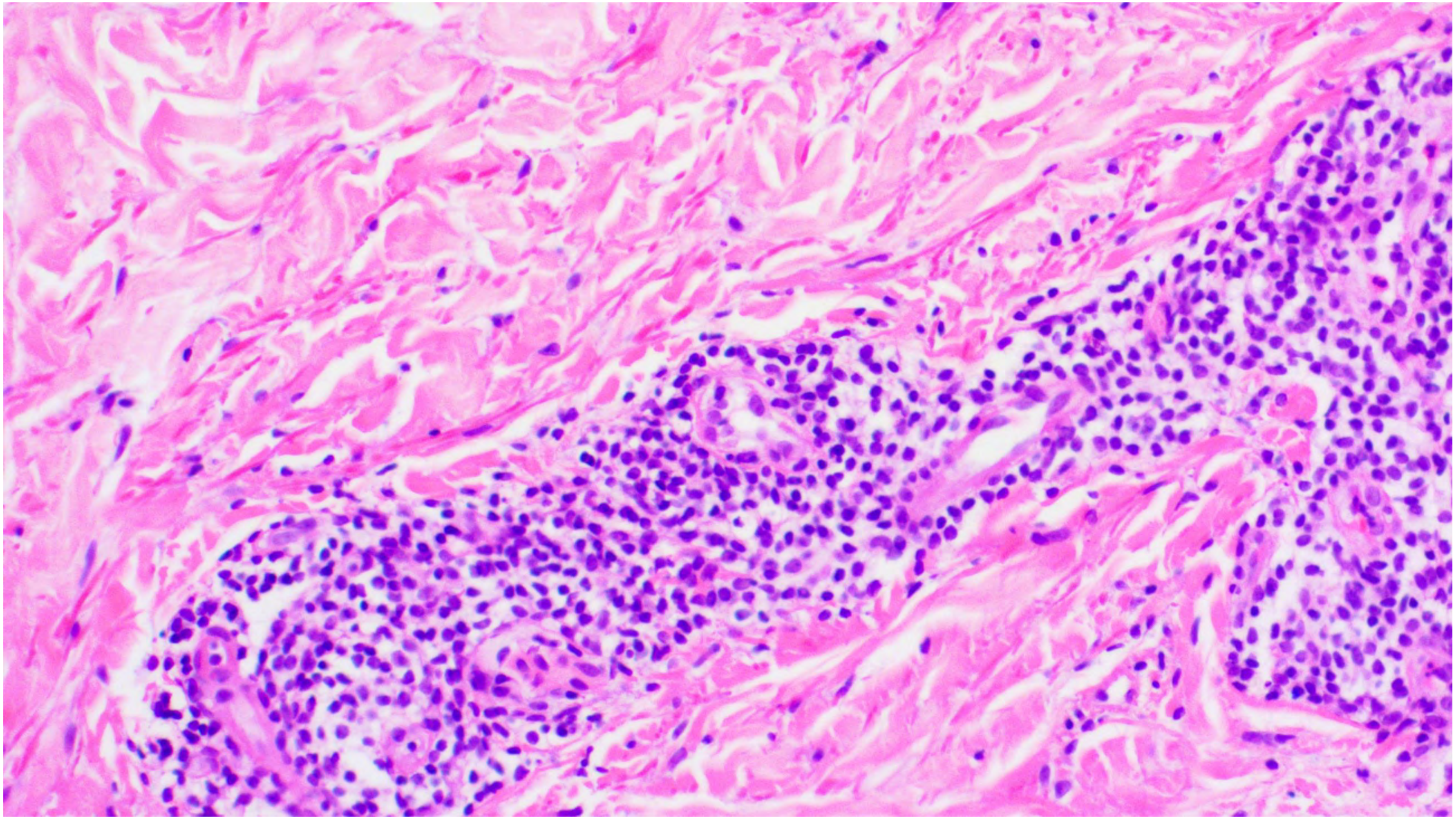
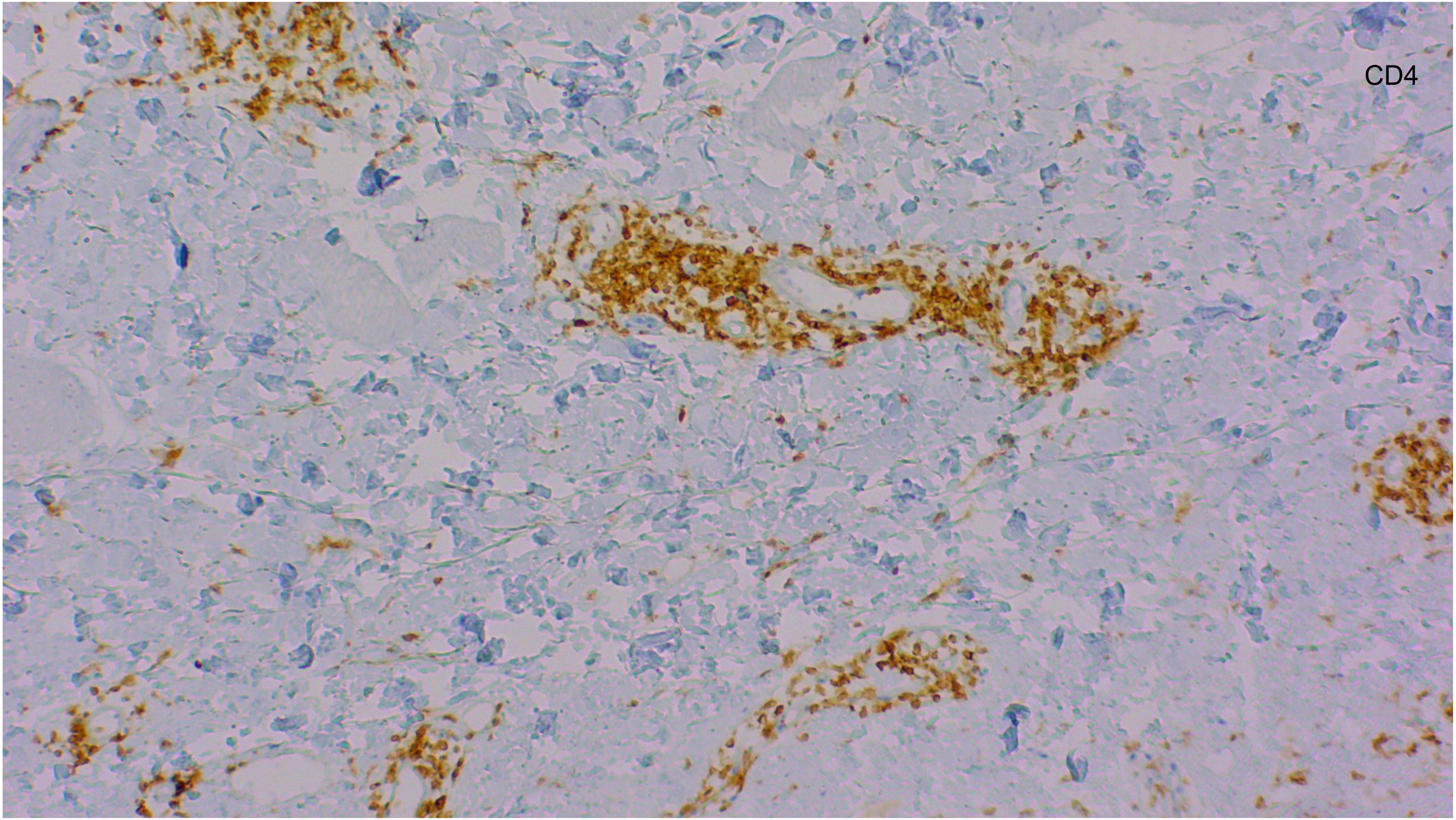
LYMPHOCYTIC INFILTRATE OF THE SKIN (JESSNER'S LYMPHOCYTIC INFILTRATE: HISTOLOGY

- **Perivascular (and much less commonly a perifollicular) infiltrate of mature lymphocytes in the superficial and mid-dermis (CD4+ T-lymphocytes)**
- Occasional histiocytes and scattered plasma cells may also been present
- Sometimes there is an slight increase in dermal ground substance (mucin)
- **The epidermis is typically unaffected**








CD4

LYMPHOCYTIC INFILTRATE OF THE SKIN (JESSNER'S LYMPHOCYTIC INFILTRATE: DIFFERENTIAL DIAGNOSIS

- Discoid lupus erythematosus (epidermal interface changes, lupus band test, mixture of T- and B-cells)
- Polymorphous light eruption (usually indistinguishable, papillary edema in early lesions, clinical: phototesting!)
- Reticular erythematous mucinosis (REM) (more mild infiltrate, prominent mucin deposition)
- Chronic lymphocytic leukemia/lymphocytic lymphoma (cytonuclear atypia, immunohistochemical studies!)

RETICULAR ERYTHEMATOUS MUCINOSIS (REM)

- **Rare chronic dermatosis**
- It most frequently develops in the second to fourth decades
- It usually presents as **a persistent, reticulate, urticated, macular, and sometimes papular, erythema with an irregular but well-defined border**
- Patients frequently notice an exacerbation in the sun, but the relationship between sunlight and the disease (if any) is not well understood
- Although patients are **usually asymptomatic**, some report pruritus or burning following exposure to sunlight
- There is **no evidence of systemic involvement**

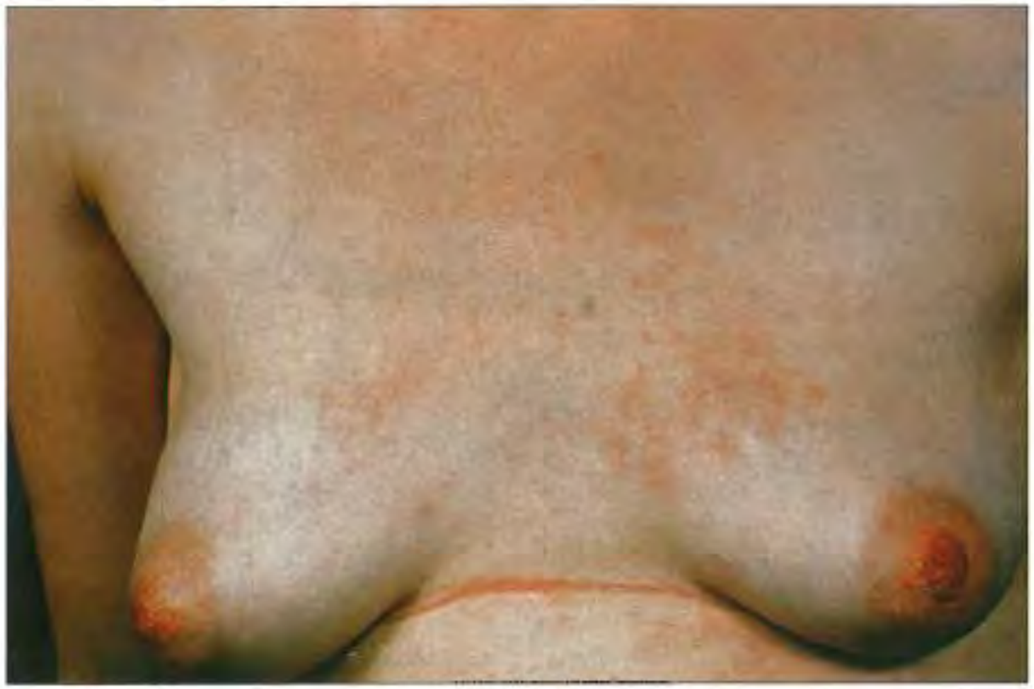


Fig. 7.20
Reticular erythematous mucinosis: erythematous reticular eruption in a characteristic distribution in a young woman. By courtesy of the Institute of Dermatology, London, UK.

Fig. 7.21
Reticular erythematous mucinosis: in this patient, the lesions are entirely macular. By courtesy of the Institute of Dermatology, London, UK.

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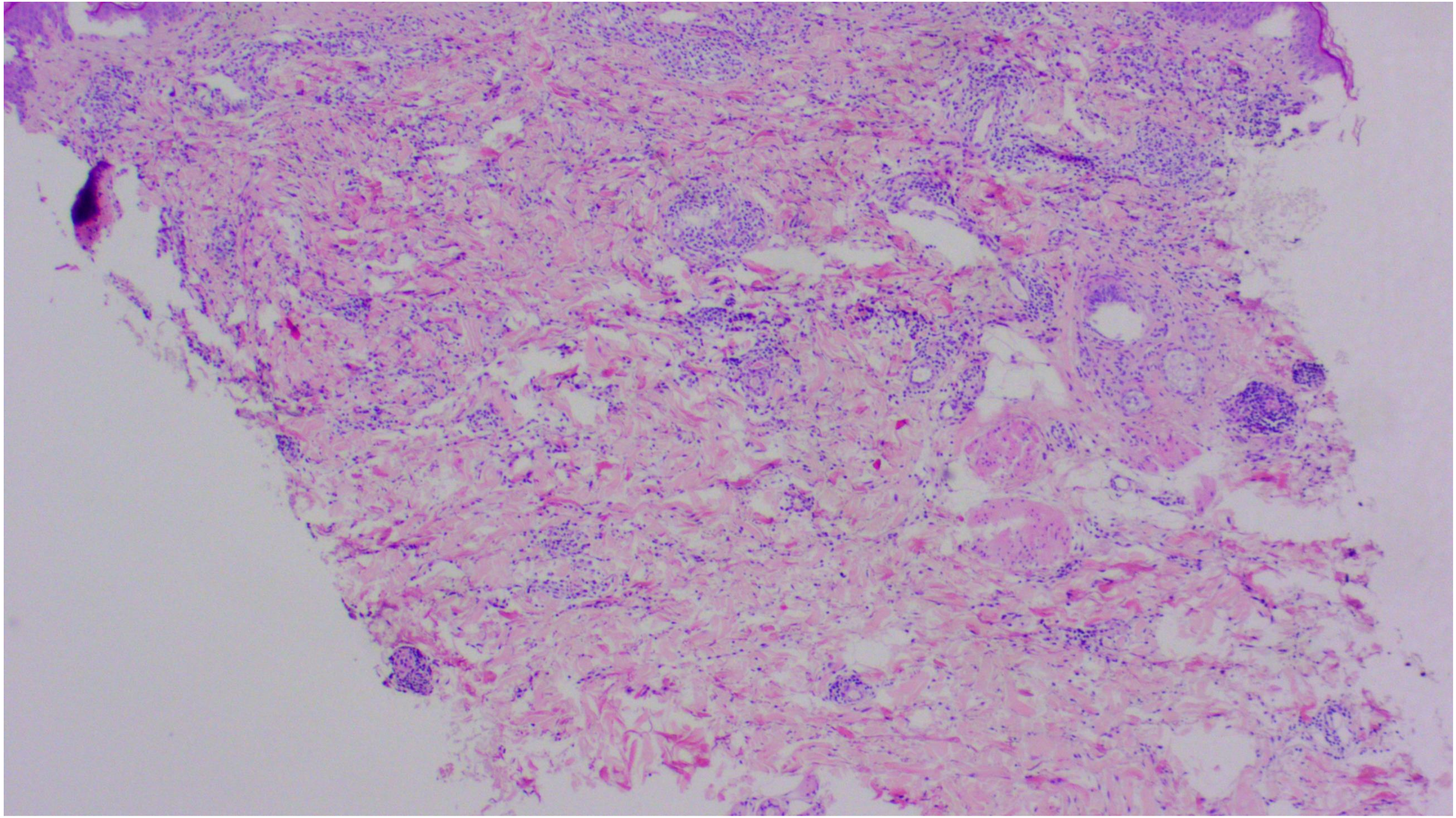
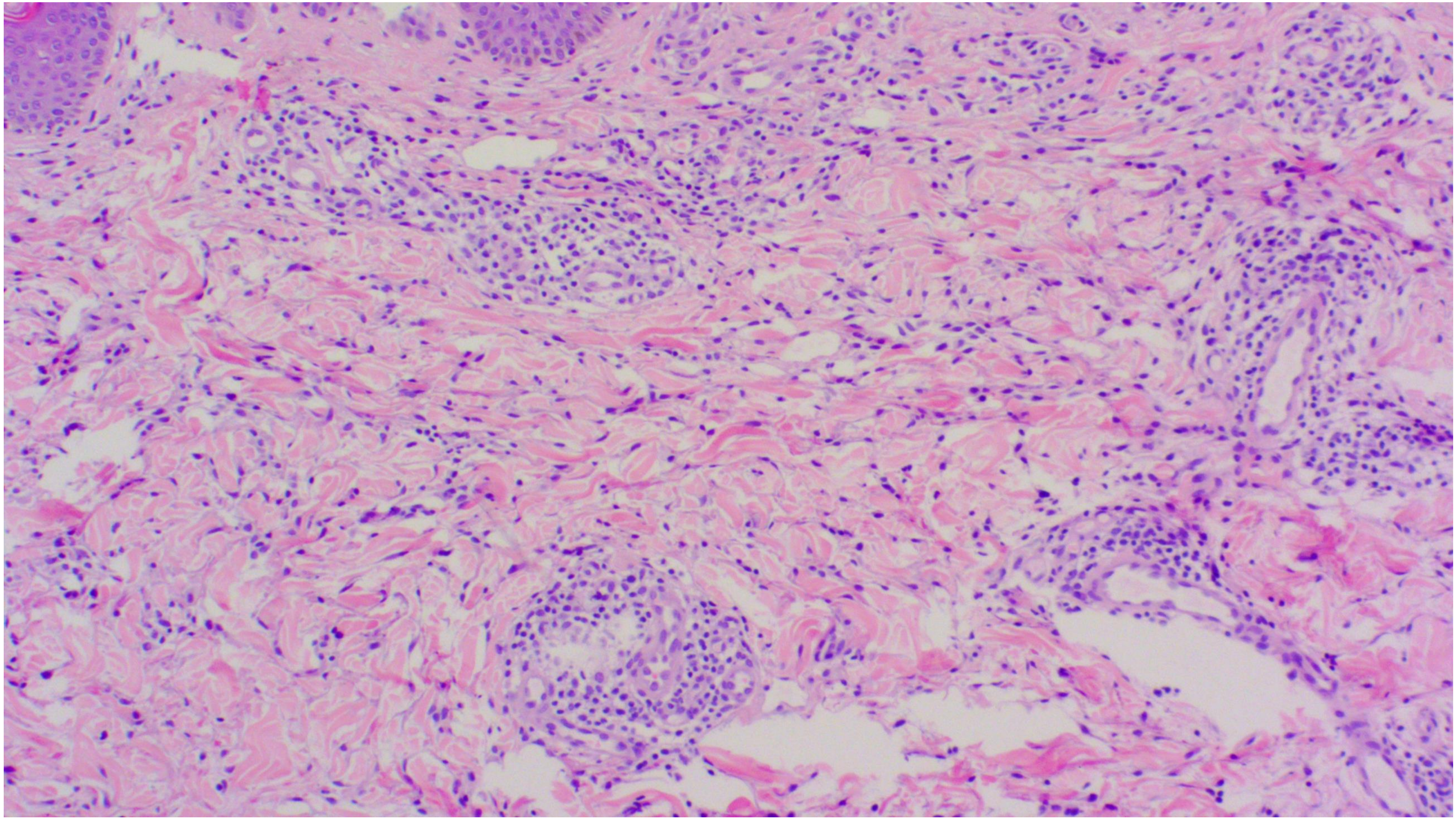
RETICULAR ERYTHEMATOUS MUCINOSIS (REM): HISTOLOGY

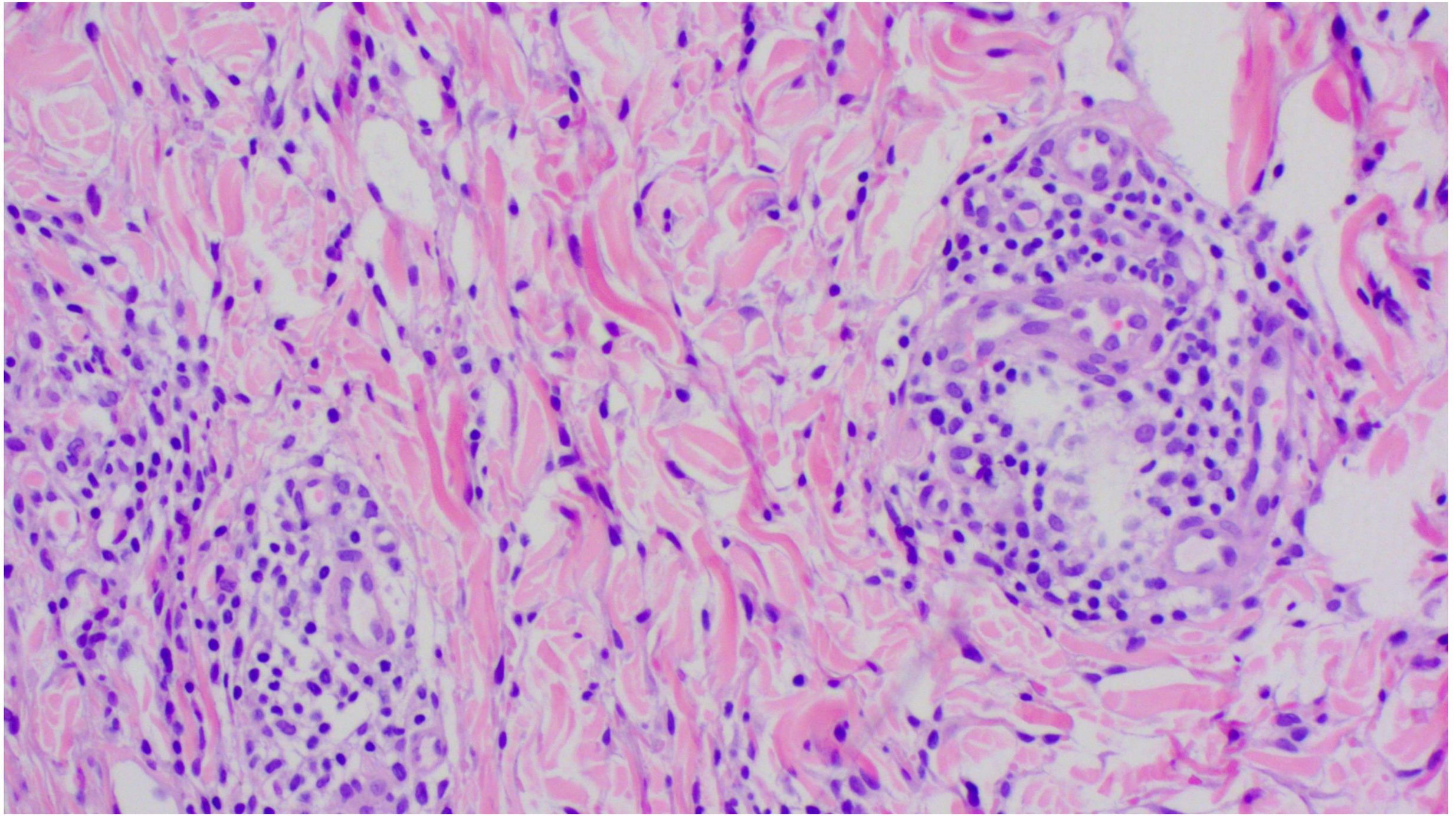
- **Superficial and deep lymphocytic perivascular and often perifollicular infiltrate** (mainly T-helper lymphocytes)

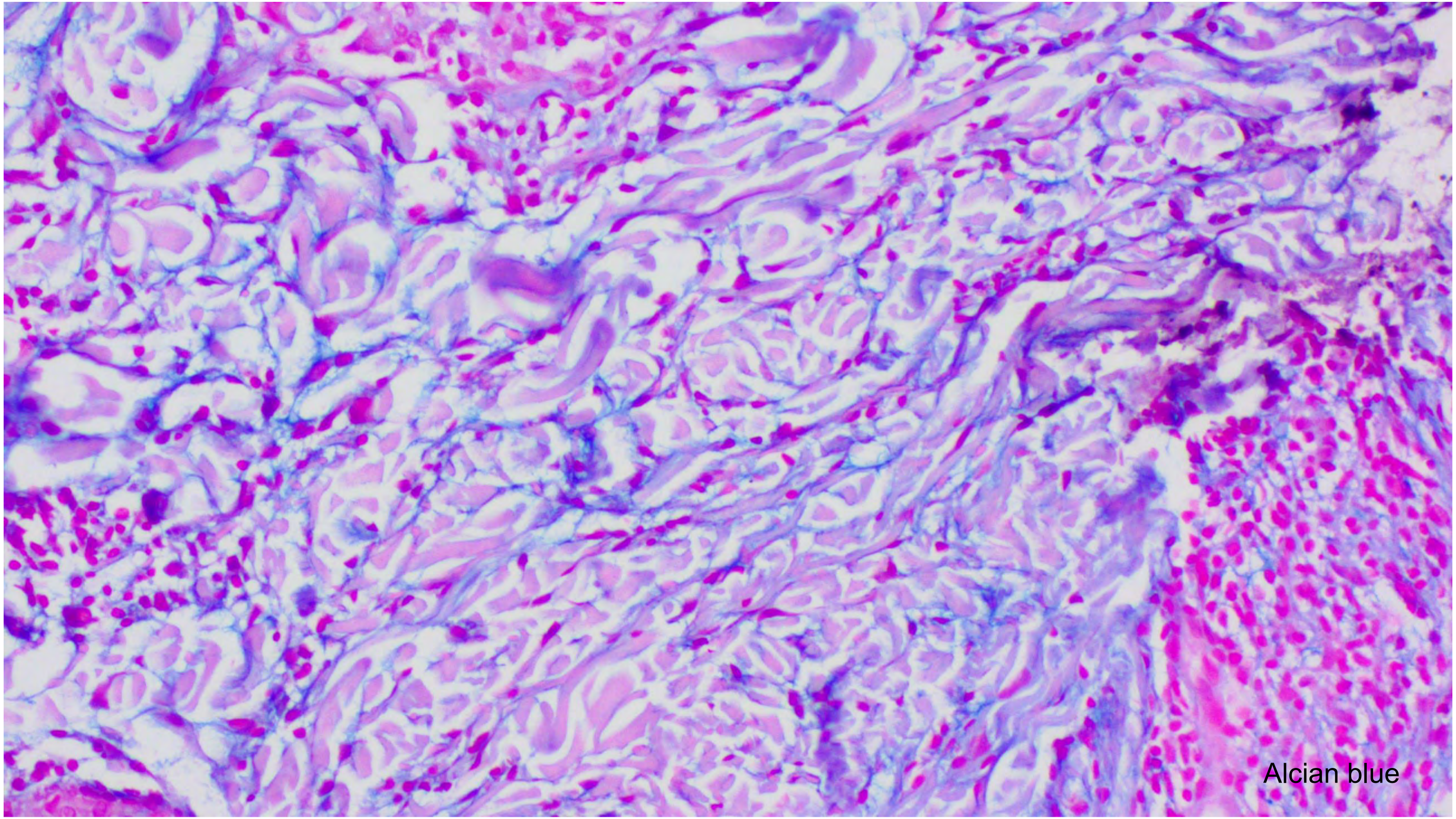
- **Excess mucin** (predominantly hyaluronic acid) is usually present in the upper dermis, the mucin stains positively with alcian blue and colloidal iron

- **The epidermis appears normal**








Alcian blue

RETICULAR ERYTHEMATOUS MUCINOSIS (REM): DIFFERENTIAL DIAGNOSIS

- Lupus erythematosus (REM lacks the epidermal changes of LE, and the IF findings are usually negative in REM)
- Polymorphous light eruption (in PLE mucin deposition is much less striking and is limited to the papillary dermis, subepidermal edema in PLE)
- Lymphocytic infiltrate of Jessner (prominent mucin deposition is not generally a feature of Jessner)

PERNIOSIS (IDIOPATHIC CHILBLAINS)

- Perniosis is an **inflammatory dermatosis that presents after exposure to cold.**

- Clinically, manifests as **pruritic and/or painful erythematous-to-violaceous nodular or papular acral lesions** (also can be seen in the buttock and thigh)

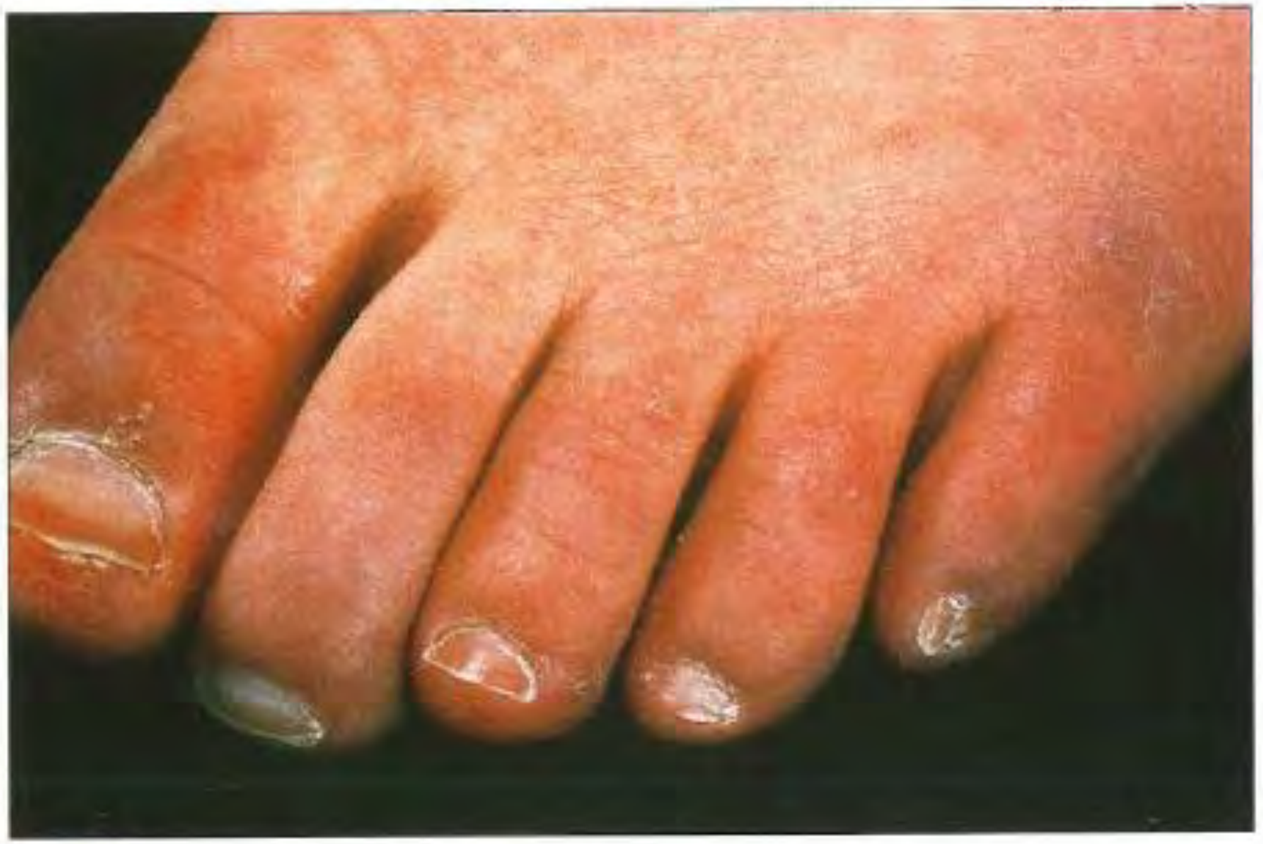


Fig. 7.31
Perniosis: erythematous nodules are present over the toes. By courtesy of the Institute of Dermatology, London, UK.

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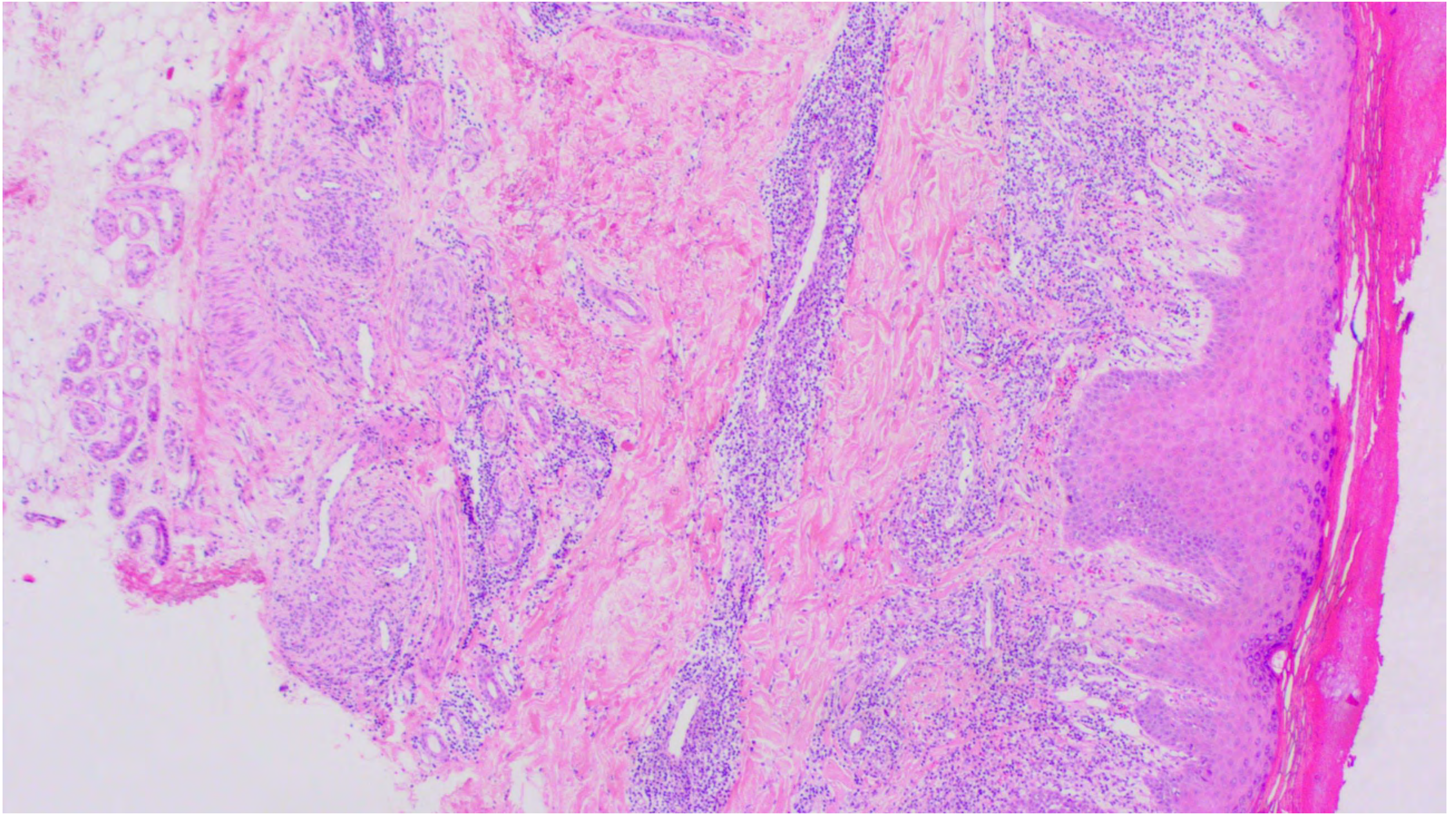
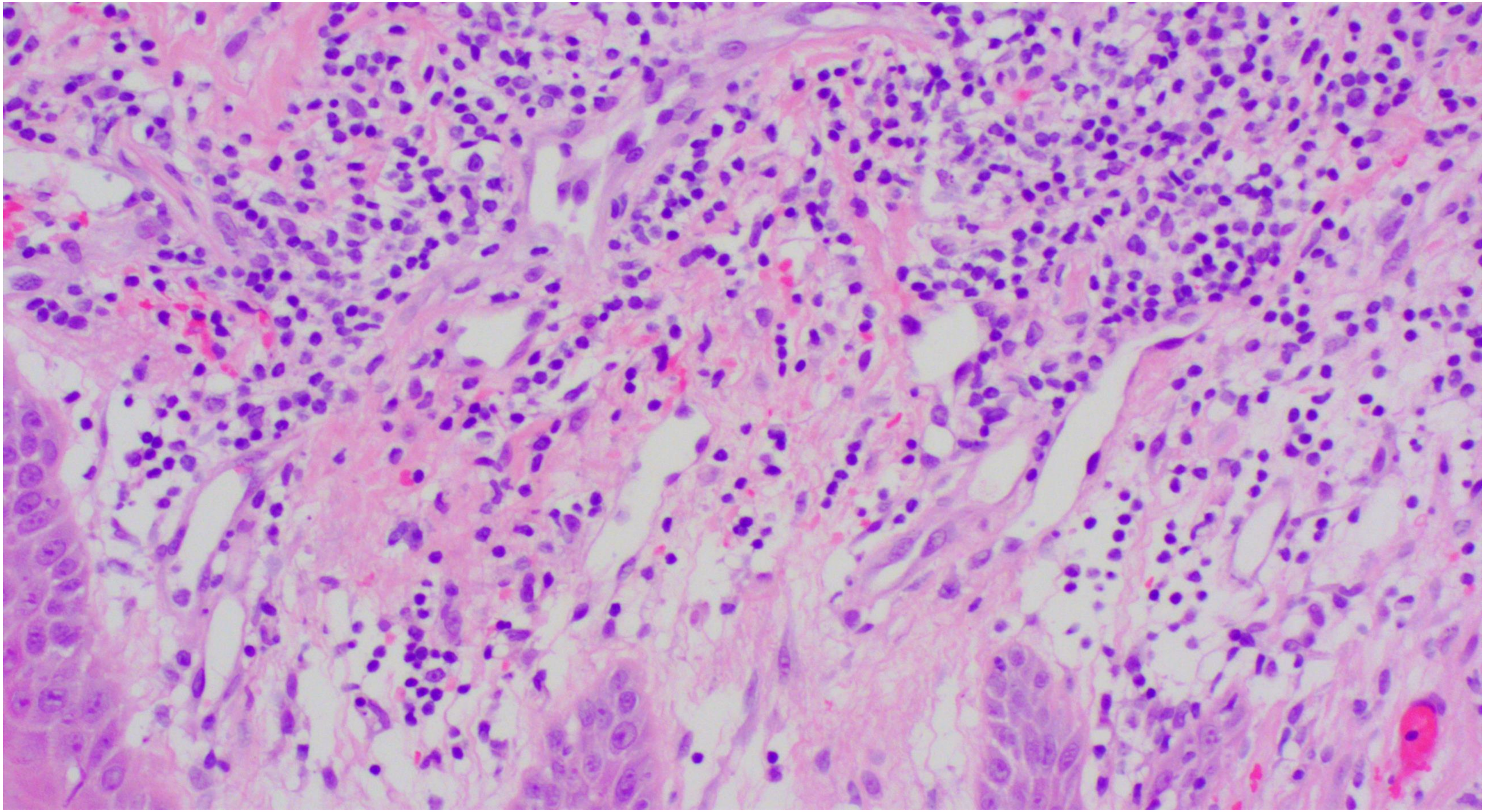
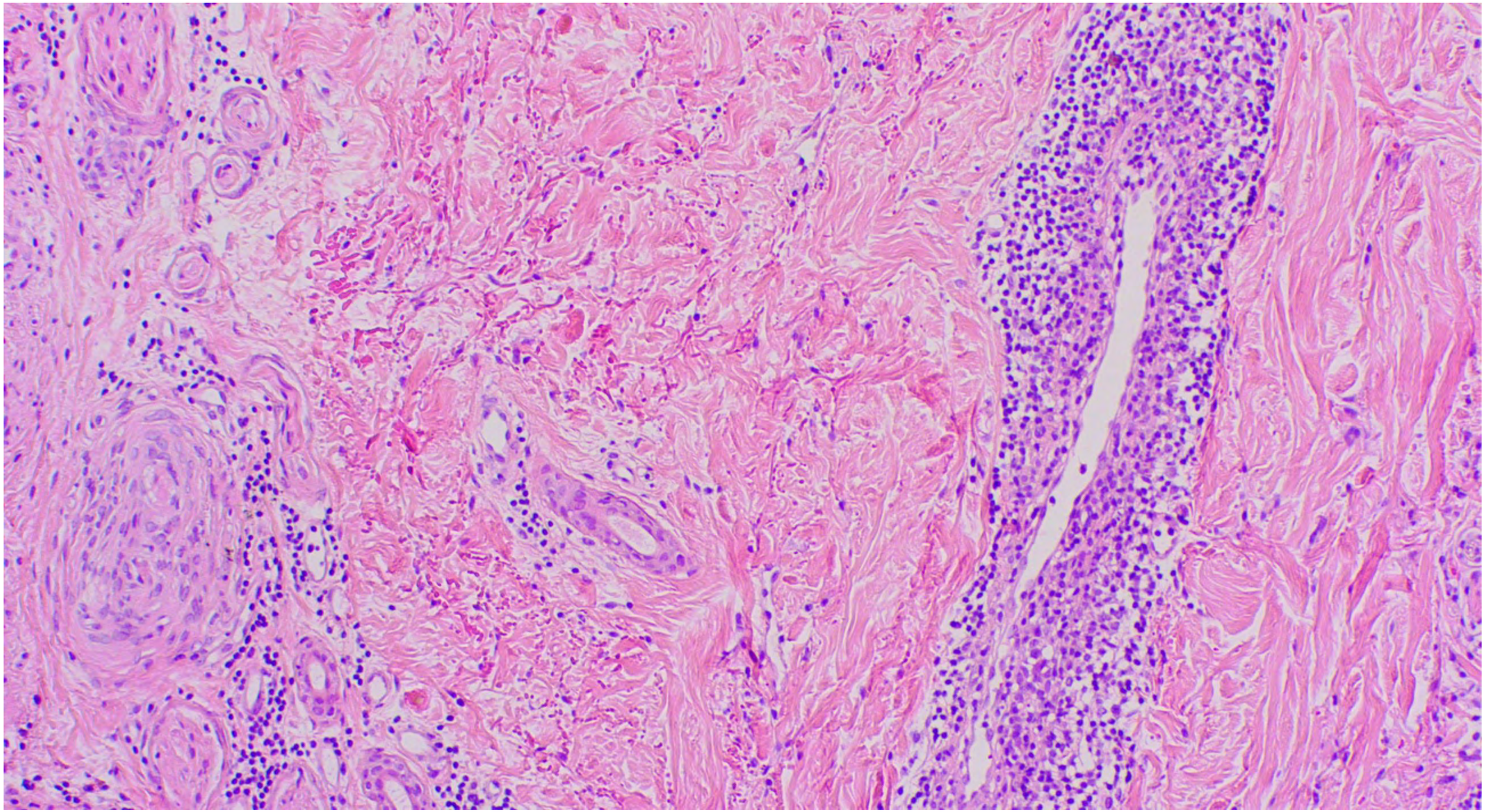
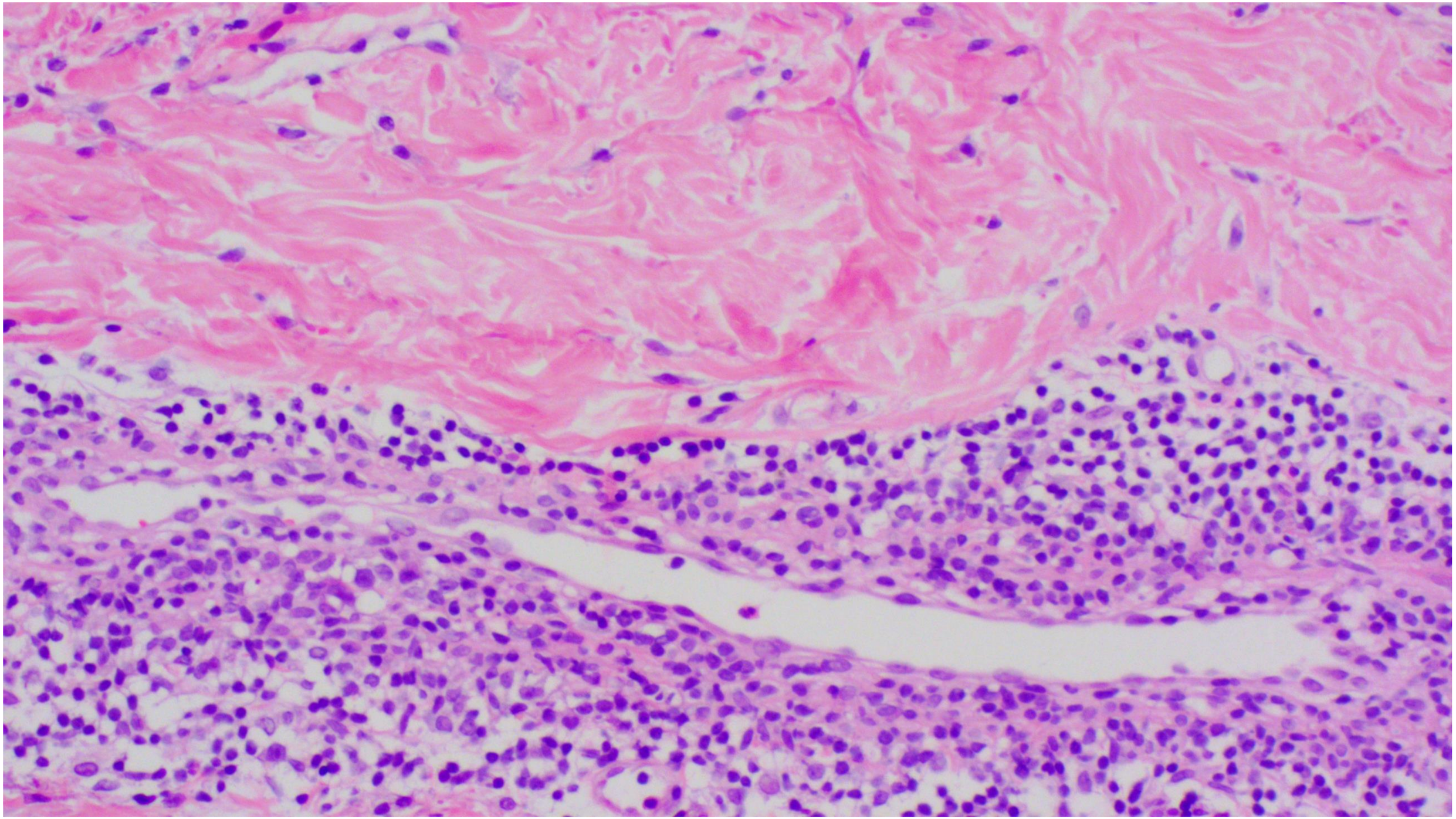
PERNIOSIS (IDIOPATHIC CHILBLAINS): HISTOLOGY

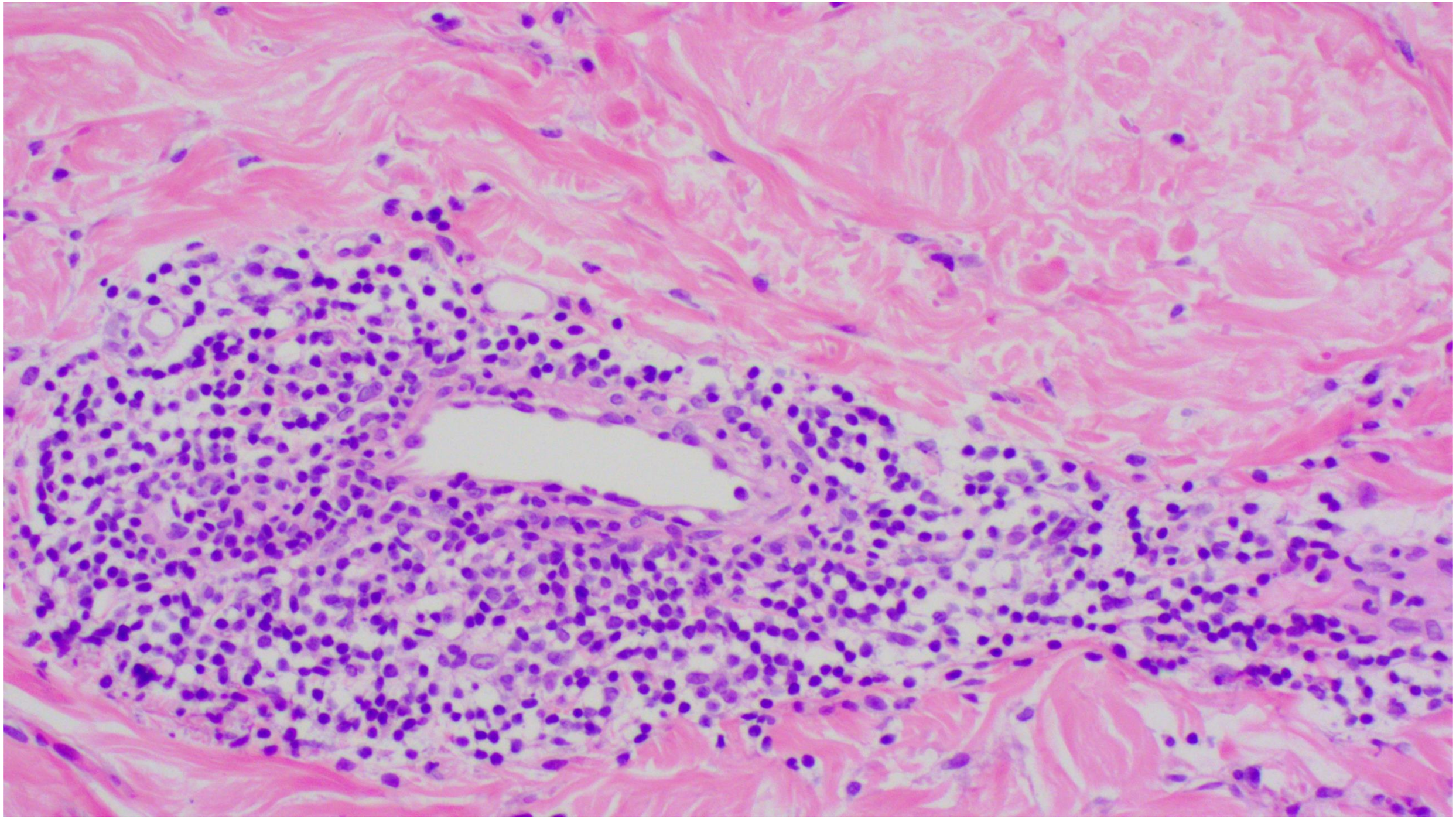
- **Dense superficial and deep (in deep dermis and subcutaneous adipose tissue) perivascular lymphocytic infiltrate**
- Occasional epidermal edema and/or necrosis; lymphocytic exocytosis
- Interface changes (either vacuolar interface or lichenoid dermatitis) may be seen
- **Papillary edema**
- Edema of blood vessels wall with dense transmural lymphocytic infiltrate (‘**lymphocytic vasculitis’)**
- Fibrinoid vascular damage with thrombi may be noted in superficial dermis
- Mucin around eccrine coil

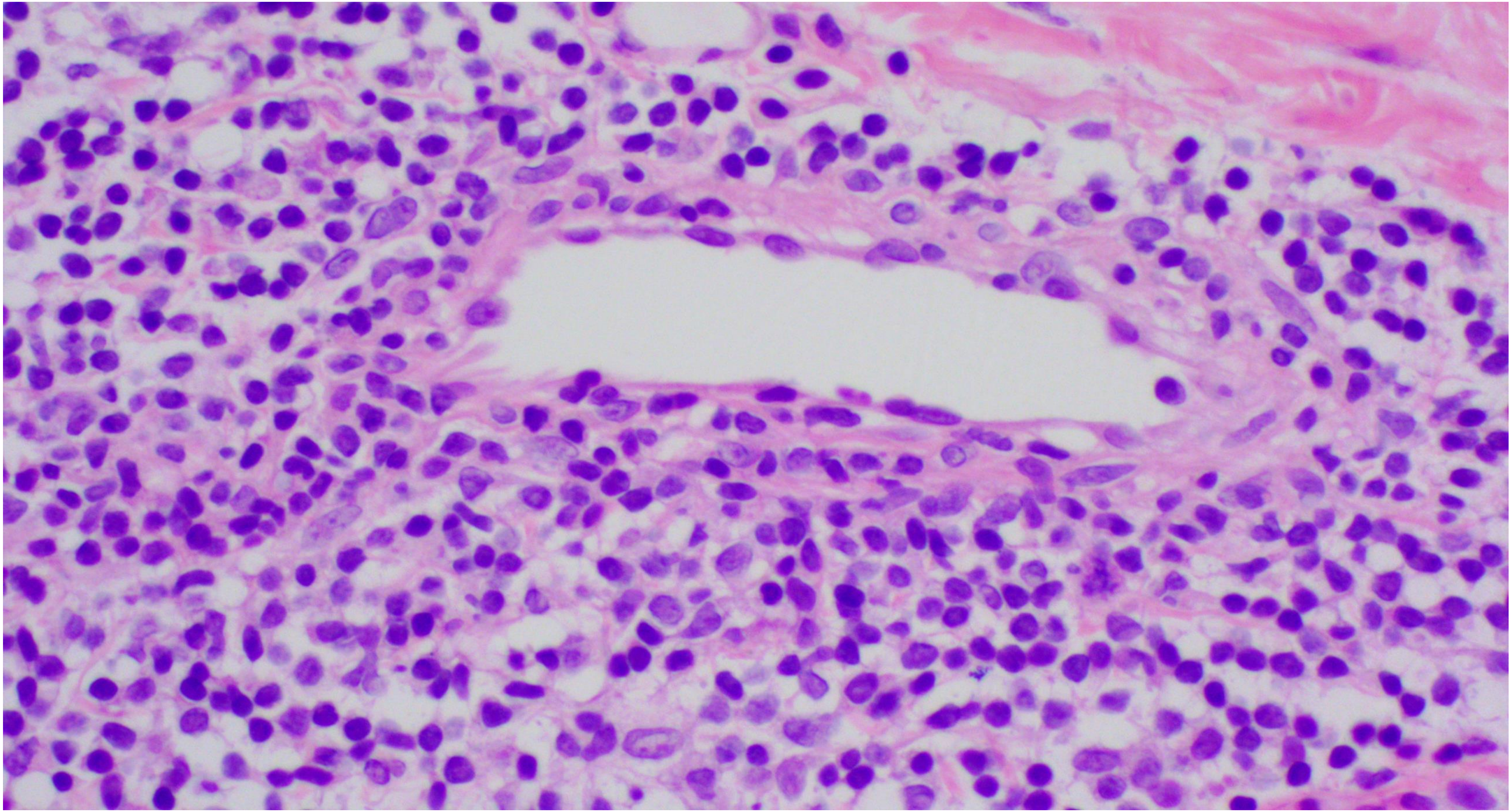


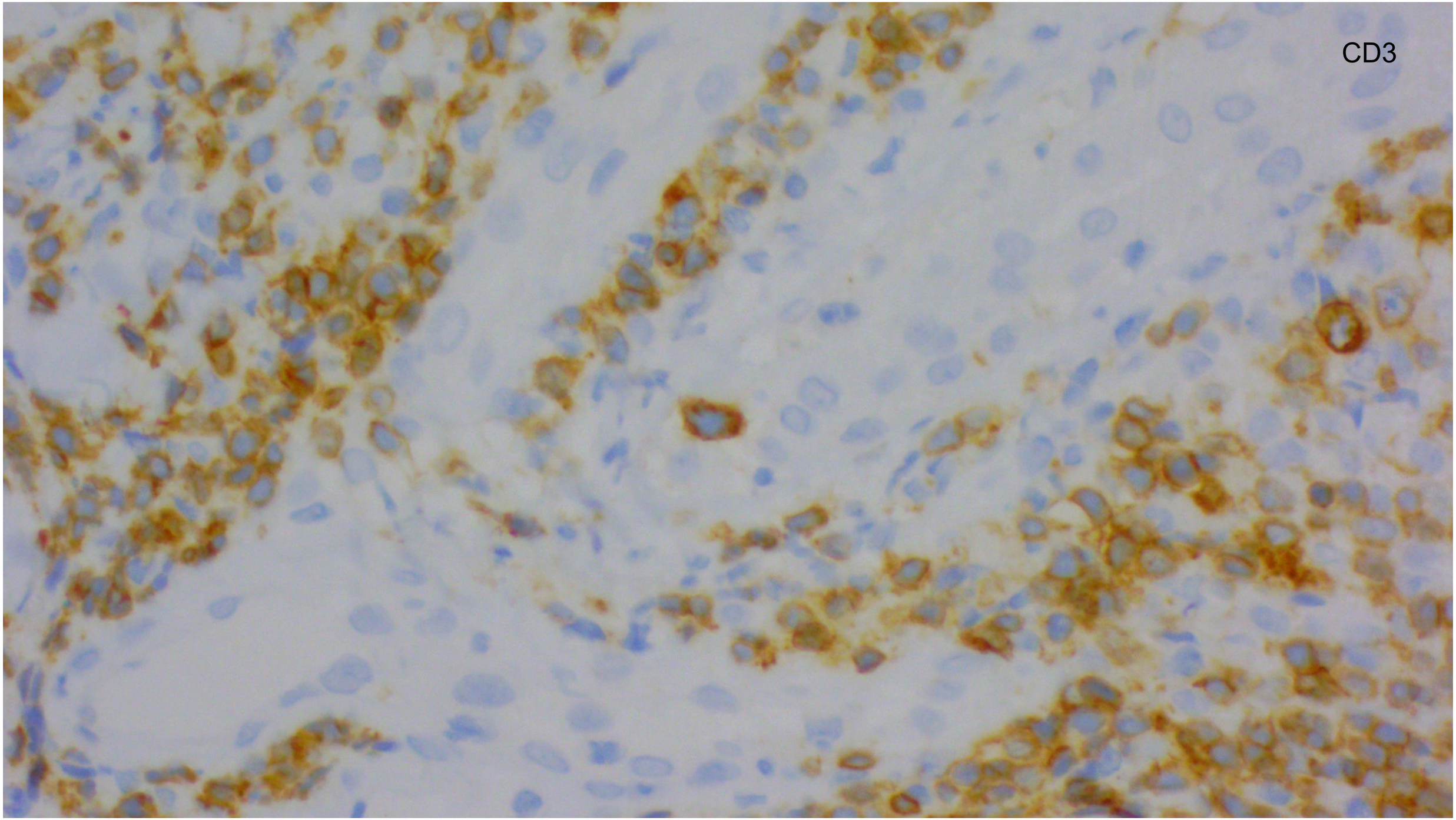











CD3

PERNIOSIS (IDIOPATHIC CHILBLAINS): DIFFERENTIAL DIAGNOSIS

- The diagnosis is rendered only after **careful clinical correlation**

- **Biopsy findings are non-specific** and other diseases causing cuffed perivascular lymphocytic reactions and lymphocytic vasculitis enter into the differential diagnosis

- **Frank lymphocytic vasculitis and interface changes seem to be more common in patients with chilblain lupus.** The presence of a positive lupus band test or antinuclear antibodies favors a diagnosis of chilblain lupus erythemosus

PERNIOSIS: DIFFERENTIAL DIAGNOSIS

- *PLE* (no lymphocytic vasculitis, clinical presentation on the digits, especially toes, is not characteristic of PLE)

- *Chilblain lupus* (essentially indistinguishable from the idiopathic form of perniosis) (interface change, when present, favors chilblains lupus)

→***clinical presentation of perniones***: painful erythematous nodules on the fingers and/or toes (acral sites), presents during cold damp weather, usually at the beginning of or at the end of winter

Macroscopy course
for young resident

26 November 2022 _Onderwijs en Navorsing 5
LEUVENOnderwijs en Navorsing 5 (ON5)
Herestraat 49
3000 Leuven

Program

08:45: Welcome
09:00
The technical side
Geert Van Der Borght, UZ Leuven
9:40
Thorax
Birgit Weynand, UZ Leuven
10:20
Head and neck
Senada Koljenovic, UZ Antwerpen
11:00: Break
11:30
Gastro-enterology
Pamela Baldain, UCLouvain Bruxelles | Ann Driessen, UZ Antwerpen | Laurine Verset, ULB Erasme Bordet Bruxelles
12:50 Lunch break
13:30
Gynaecology
Quitterie Fontanges, HC Marie Curie
14u10
Breast
Giuseppe Floris, UZ Leuven
14u50 Break
15u20
Urology
Sofie Verbeke, UZ Gent
16:00
Soft tissue and bone lesions
David Creytens, UZ Gent
16:40 Conclusions