ROSACEA

in pediatric patients

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1. Rosacea phenothypes
a) Trasient erythema (flushing)
b) Persistent erythema
c) Telangiectasia
d) Inflammatory papules/pustules
e) Phymatous changes: rhinophyma(nose), gnatophyma (chin), metophyma (forehead), otophyma (ears) and blepharophyma (eyelids)
f) **Ocular rosacea**

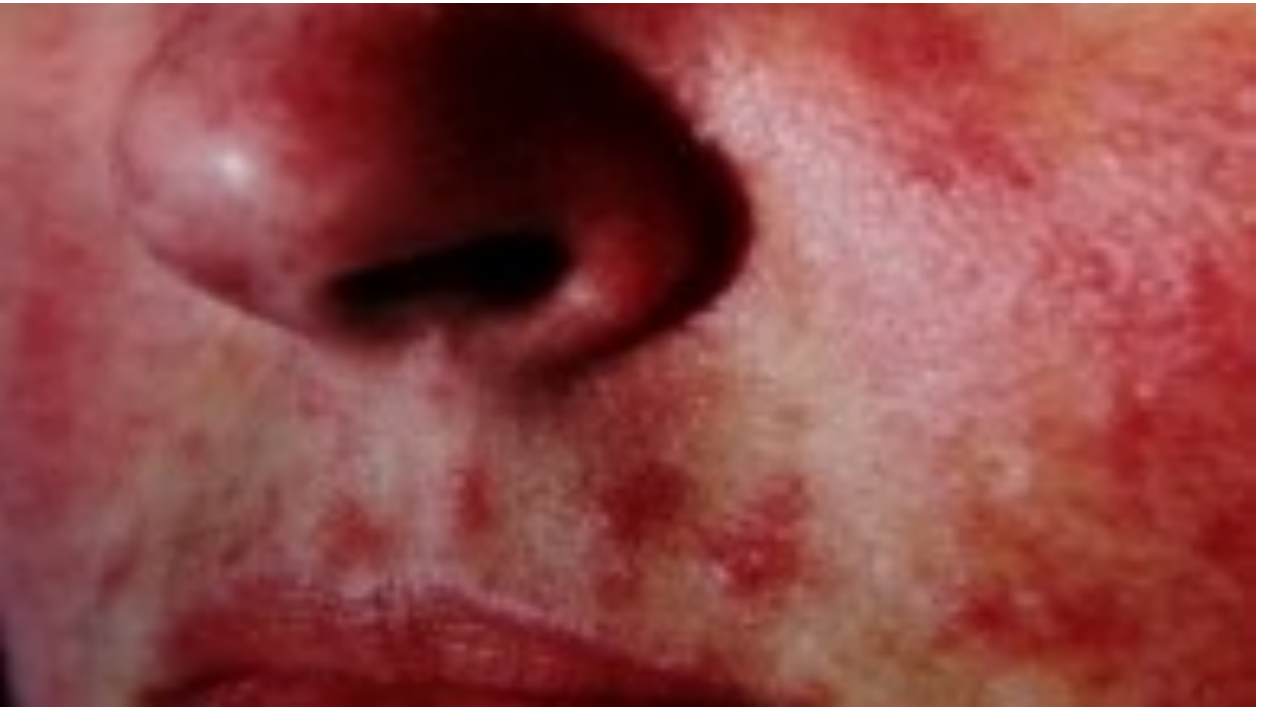
2. Pathopysiology

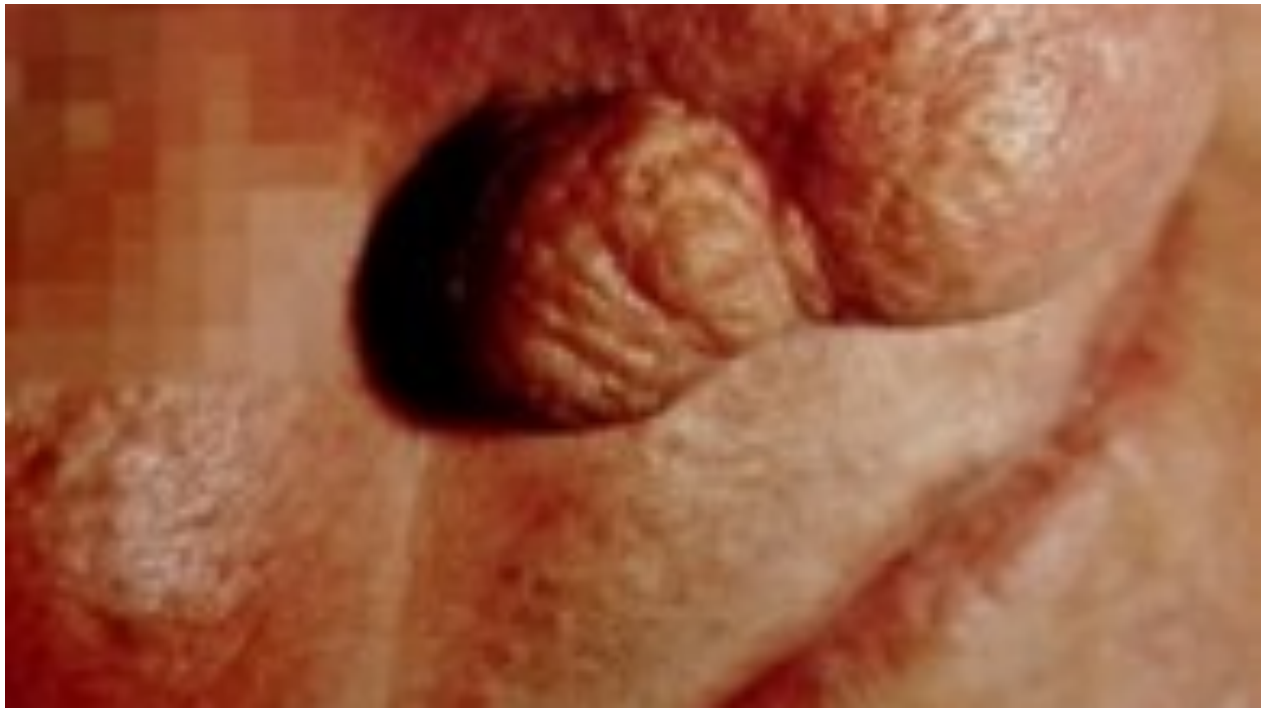
3. Introduction of the ROSCO (rosacea consensus panel)

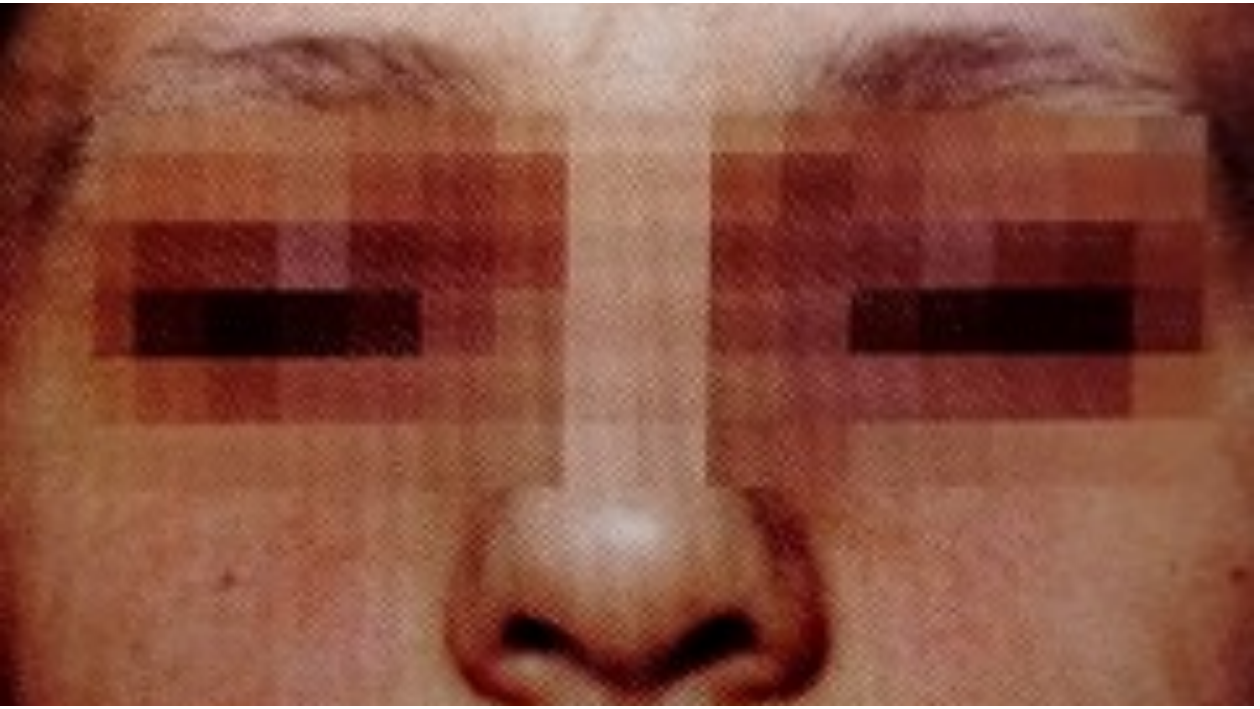
4. Treatment

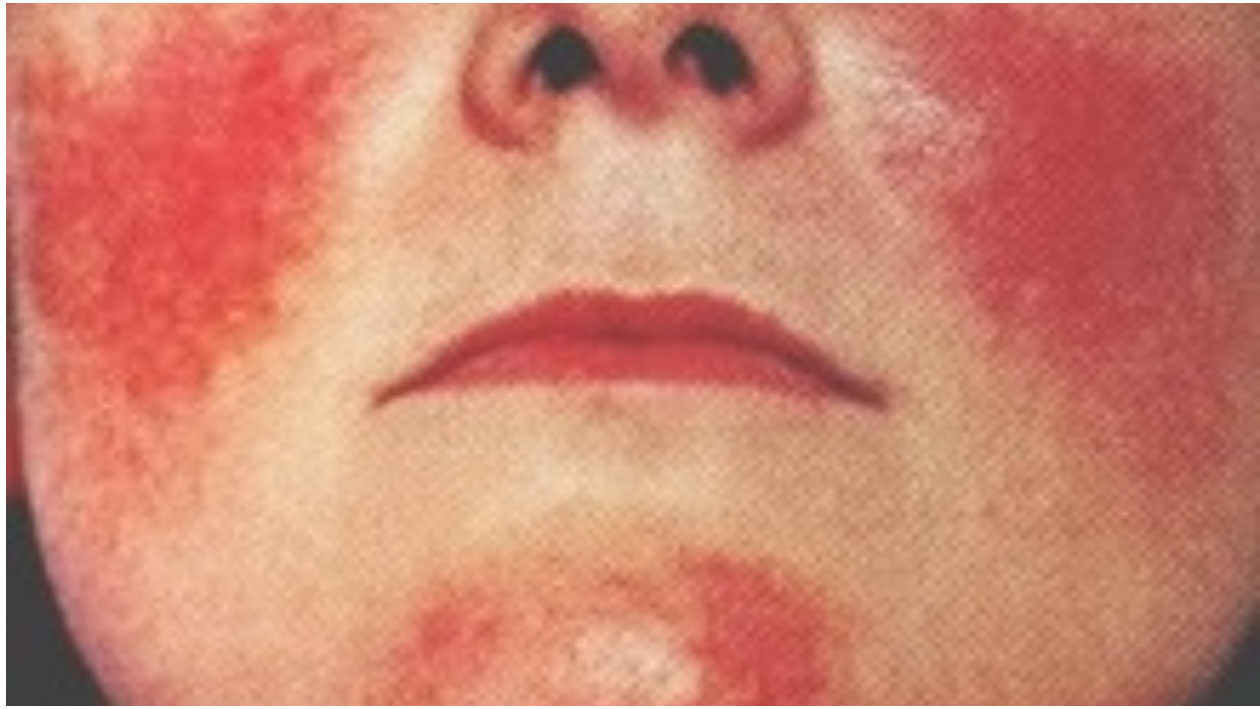
Cutaneous Rosacea Features	Description
Diagnostic features	
Phymatous changes	Facial skin thickening due to fibrosis and/or sebaceous glandular hyperplasia. Most commonly affects the nose, where it can impart a bulbous appearance.
Persistent erythema	Background ongoing centrofacial redness. May periodically intensify in response to variable triggers. In darker skin phototypes (V and VI), erythema may be difficult to detect visually.
Major features	
Flushing/transient erythema	Temporary increase in centrofacial redness, which may include sensations of warmth, heat, burning and/or pain.
Papules and pustules	Red papules and pustules, usually in the centrofacial area. Some may be larger and deeper.
Telangiectases	Visible vessels in the centrofacial region but not only in the alar area.
Minor features	
Burning sensation of the skin	An uncomfortable or painful feeling of heat, typically in the centrofacial region.
Stinging sensation of the skin	An uncomfortable or painful sharp, pricking sensation, typically in the centrofacial region.
Dry sensation of the skin	Skin that feels rough. May be tight, scaly and/or itchy.
Edema	Localized facial swelling. Can be soft or firm (nonpitting) and may be self-limited in duration or persistent.

Kang CN, Shah M, Tan J. Rosacea: An Update in Diagnosis, Classification and Management. *Skin Therapy Lett*. 2021;26(4):1-8.









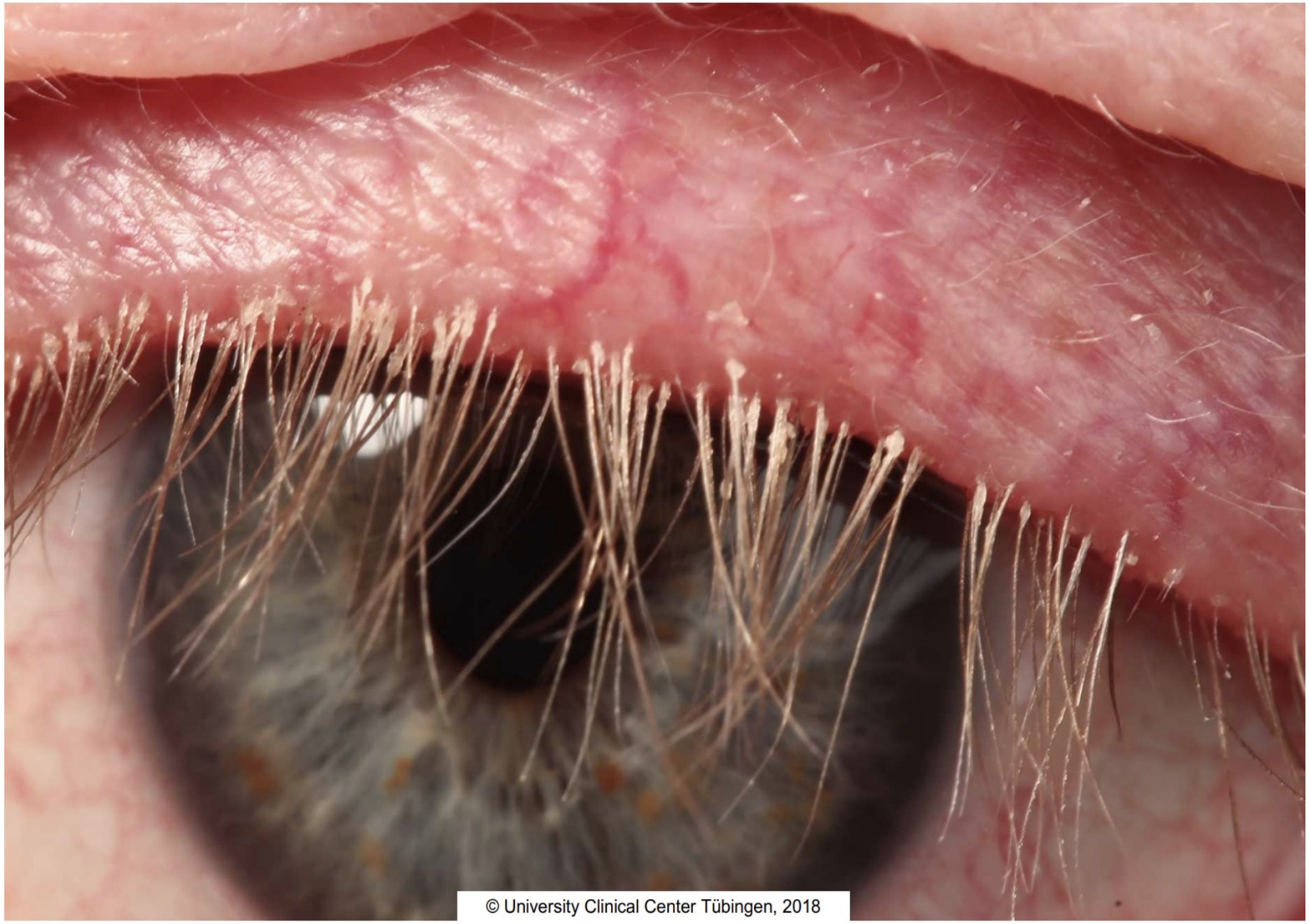
Rosacea symptoms in pediatric patients are often misleading and may be limited to **an isolated red eye without skin involvement.** Symptoms may include blinking, pruritus, tearing and/or secretions.

Nabih O, Hamdani H, El Maaloum L, Allali B, El Kettani A. Spontaneous corneal perforation complicating ocular rosacea: Case report. *Int J Surg Case Rep*. 2022;90:106597.

Ocular Rosacea Features	Description
Lid margin telangiectasia	Visible vessels around the eyelid margins. May be difficult to detect visually in darker skin phototypes (V and VI).
Blepharitis	Inflammation of the eyelid margin, most commonly arising from Meibomian gland dysfunction.
Keratitis	Inflammation of the cornea that can lead to defects and, in the most severe cases, vision loss.
Conjunctivitis	Inflammation of the mucous membranes lining the inner surface of the eyelids and bulbar conjunctiva. Typically associated with injection or vascular congestion and conjunctival oedema.
Anterior uveitis	Inflammation of the iris and/or ciliary body.

Kang CN, Shah M, Tan J. Rosacea: An Update in Diagnosis, Classification and Management. *Skin Therapy Lett*. 2021;26(4):1-8.

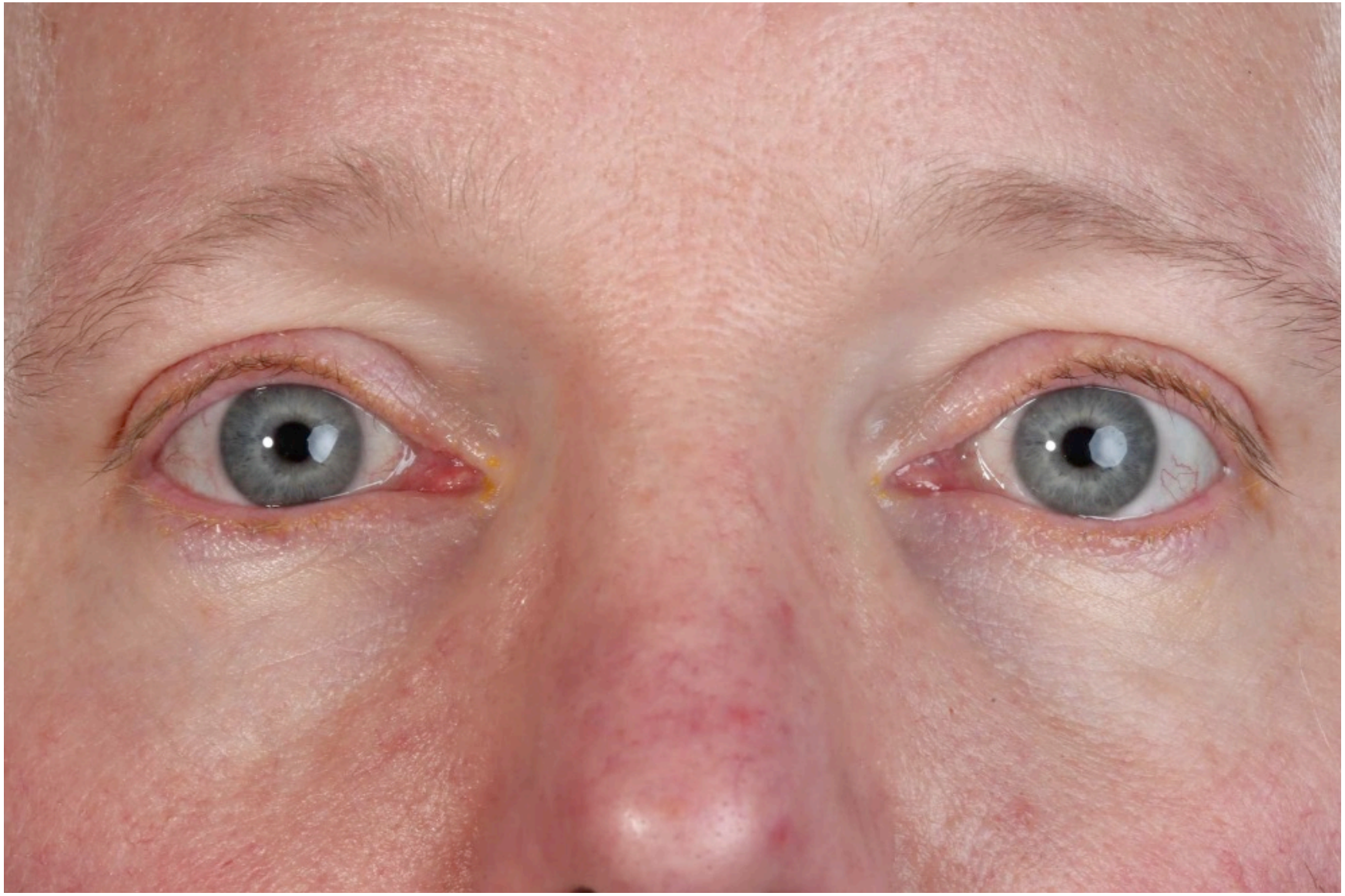
Moderate blepharitis severe conjunctivitis and lid margin telangiectasias. Cylindrical casts around the base of the lashes, typical for Demodex blepharitis.



Supporting information to Schaller M, et al. Recommendations for rosacea diagnosis, classification and management: Update from the global ROSacea COnsensus (ROSCO) 2019 panel. Br J Dermatol 2019.

Severe blepharitis, severe conjunctivitis and lid margin telangiectasias.

Supporting information to Schaller M, et al. Recommendations for rosacea diagnosis, classification and management: Update from the global ROSacea COnsensus (ROSCO) 2019 panel. Br J Dermatol 2019.



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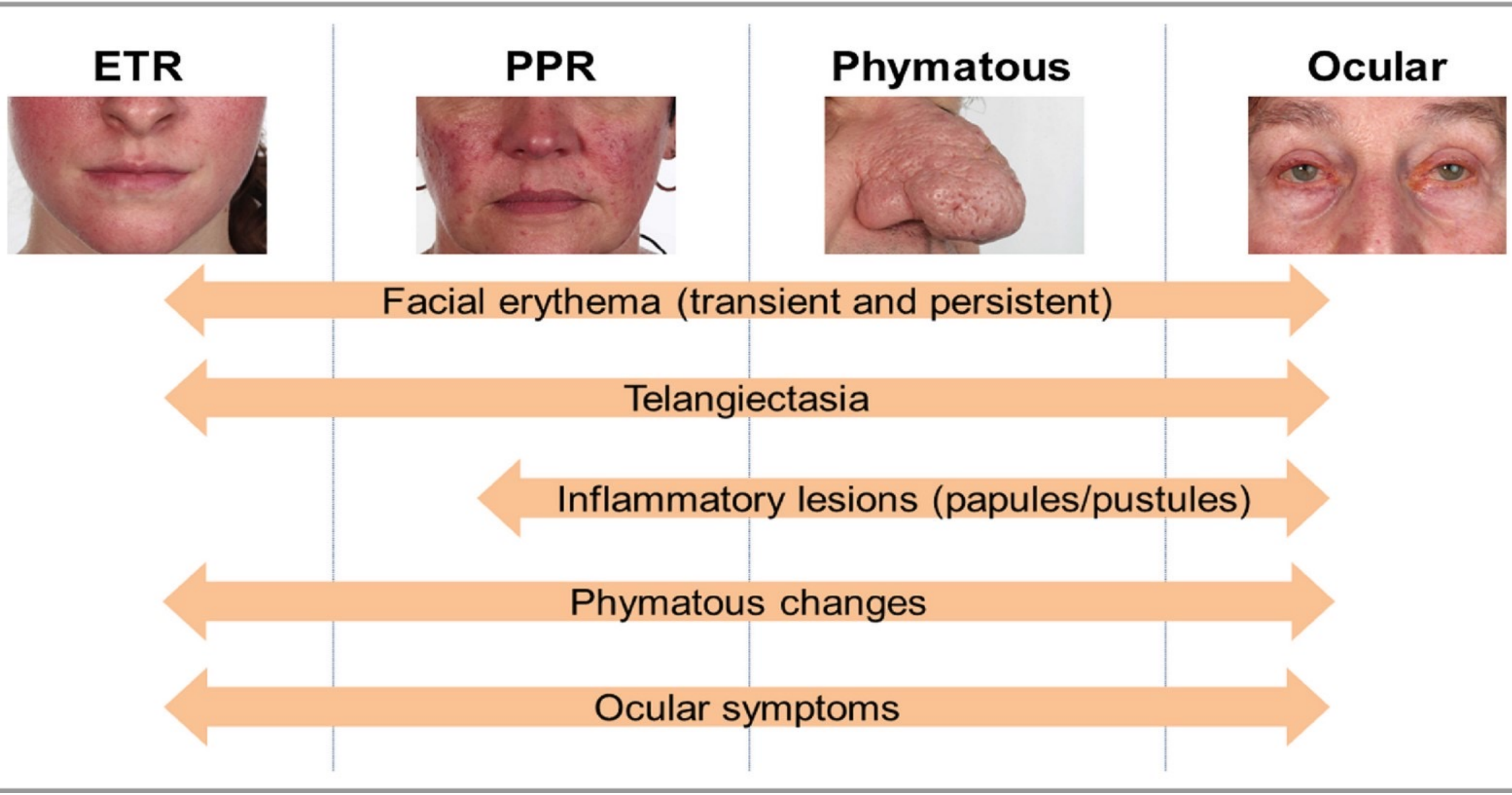
ETR
PPR
Phymatous
Ocular
Facial erythema (transient and persistent)
Telangiectasia
Inflammatory lesions (papules/pustules)
Phymatous changes
Ocular symptoms

Butterfly Effect – the Concept and the Implications in Dermatology, Acne, and Rosacea

Victor Gabriel Clatici, Francesca Satolli, Alin Laurentiu, Cristiana Voicu, Ana Maria Veronica Draganita, Torello Lotti

Acne and Rosacea are chronic inflammatory skin diseases with an increasing frequency and an important negative impact on the quality of life, which are associated with a large number of false myths regarding causes and treatment. The butterfly effect is associated with chaos theory, and it is a concept originated in meteorology, which represents the dependence on initial conditions.

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Demodex folliculorum has been detected mainly in patients with steroid induced rosacea-like facial dermatitis.

A magnified image of the D. folliculorum mite on a human eyelash.
Image credit: Vladimir064, 2017

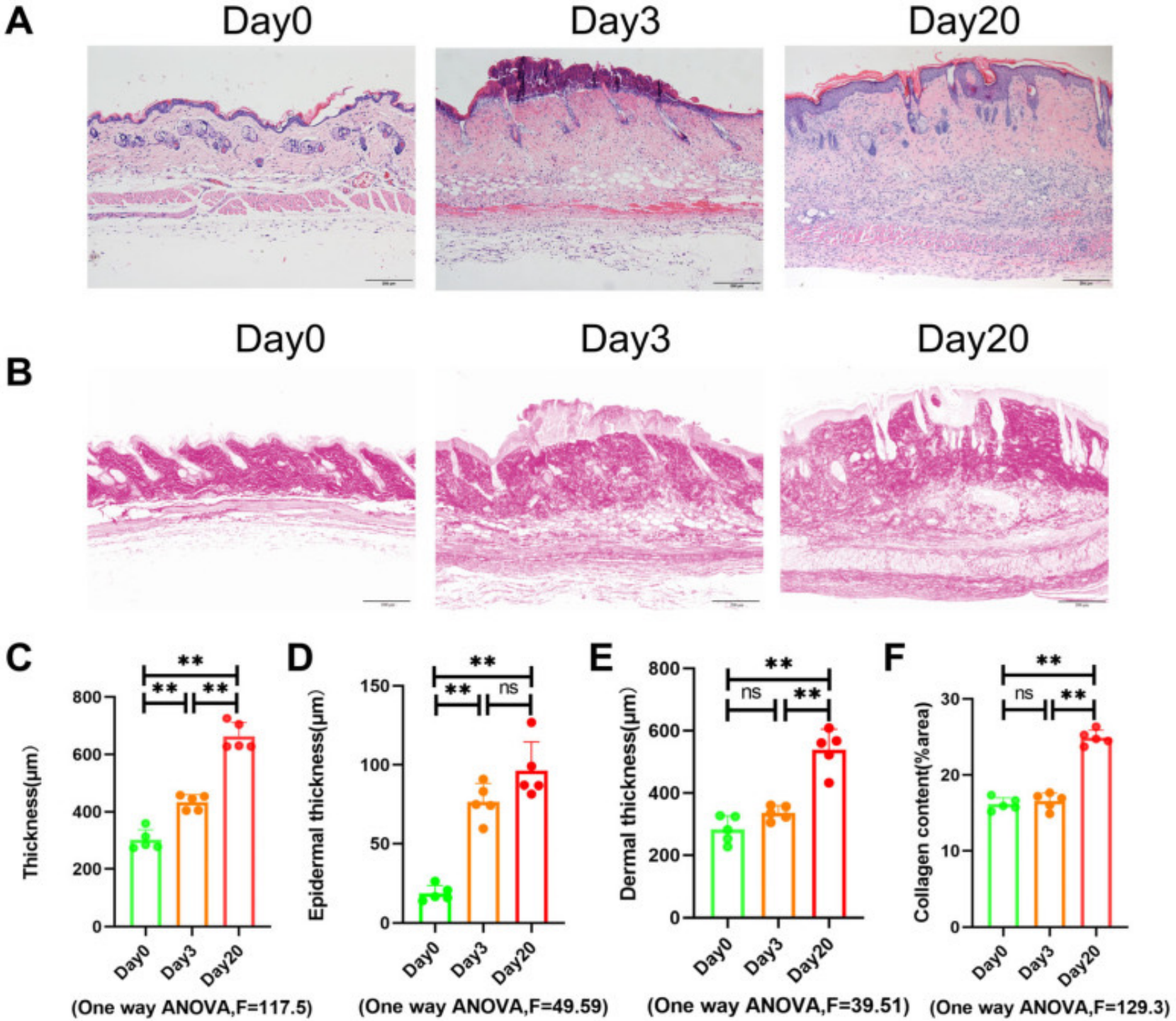
Cathelicidins

- antimicrobial activity
- the promotion and regulation of the host immune response by angiogenesis, expression of extracellular matrix proteins, induces mast cells chemotaxis, degranulation, and release of proinflammatory cytokines, and leukocyte chemotaxis.

Cathelicidin LL-37 appears to have a central role in the pathogenesis of rosacea.

LL-37

Choi JE, Werbel T, Wang Z, Wu CC, Yaksh TL, Di Nardo A. Botulinum toxin blocks mast cells and prevents rosacea like inflammation. *J Dermatol Sci*. 2019;93(1):58-64.



Zhang C, Kang Y, Zhang Z, et al. Long-Term Administration of LL-37 Can Induce Irreversible Rosacea-like Lesion. *Curr Issues Mol Biol*. 2023;45(4):2703-2716. Published 2023 Mar 24.

Butterfly Effect – the Concept and the Implications in Dermatology, Acne, and Rosacea

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Triggers of Rosacea include sun exposure, hot temperatures, exercise, feelings of embarrassment or anger, spicy foods, alcohol consumption. Some of these triggers act directly to trigger vasodilatation, while other factors such as Demodex or its endosymbionts act via different mechanisms, with an ultimate increase in skin inflammation.

In one patient survey conducted by the National Rosacea Society, 78% of all subjects had altered their diet, and 95% of this group reported subsequent reduction in flares. Triggers food were represented by capsaicin containing foods, cinnamaldehyde containing foods, heat related foods.

Butterfly Effect – the Concept and the Implications in Dermatology, Acne, and Rosacea

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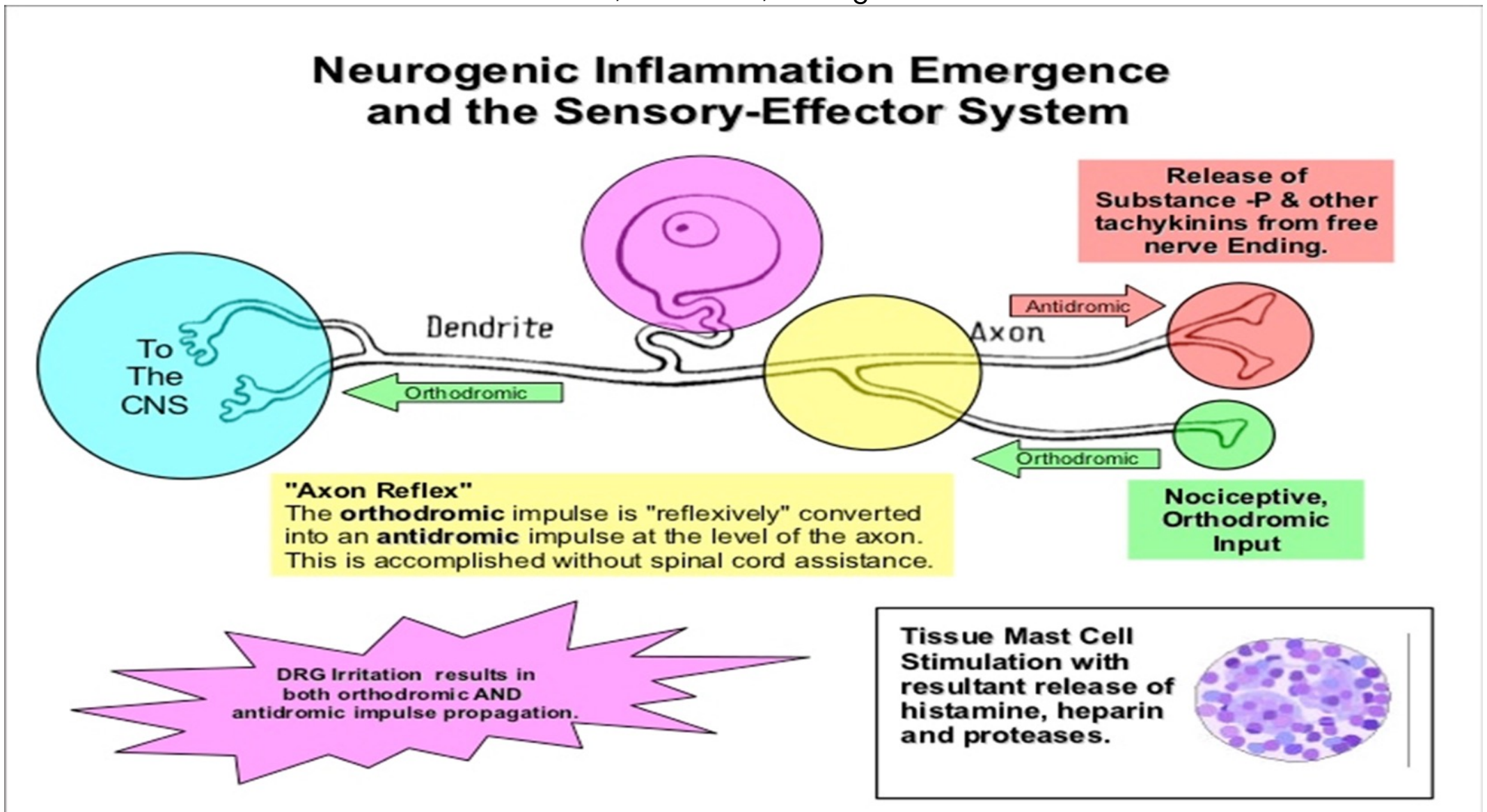
Capsaicin and high temperatures can induce vanilloid receptors activation, which results in inflammation and vasodilation, and cinnamaldehyde activates TRPA1 (an ankyrin receptor) which induces flushing by neurogen vasodilation.

Rosacea patients may be adivsed to consider fiber-rich (prebiotic) diet measures to promote a healthy gut microbiome and also to avoid trigger factors or learn simple methods to control them.

The role of neuropeptides in the control of regional immunity and vasodilation.

Clin Dermatol. 2014 Sep-Oct;32(5):633-45.

Lotti T, D'Erme AM, Hercogová J.



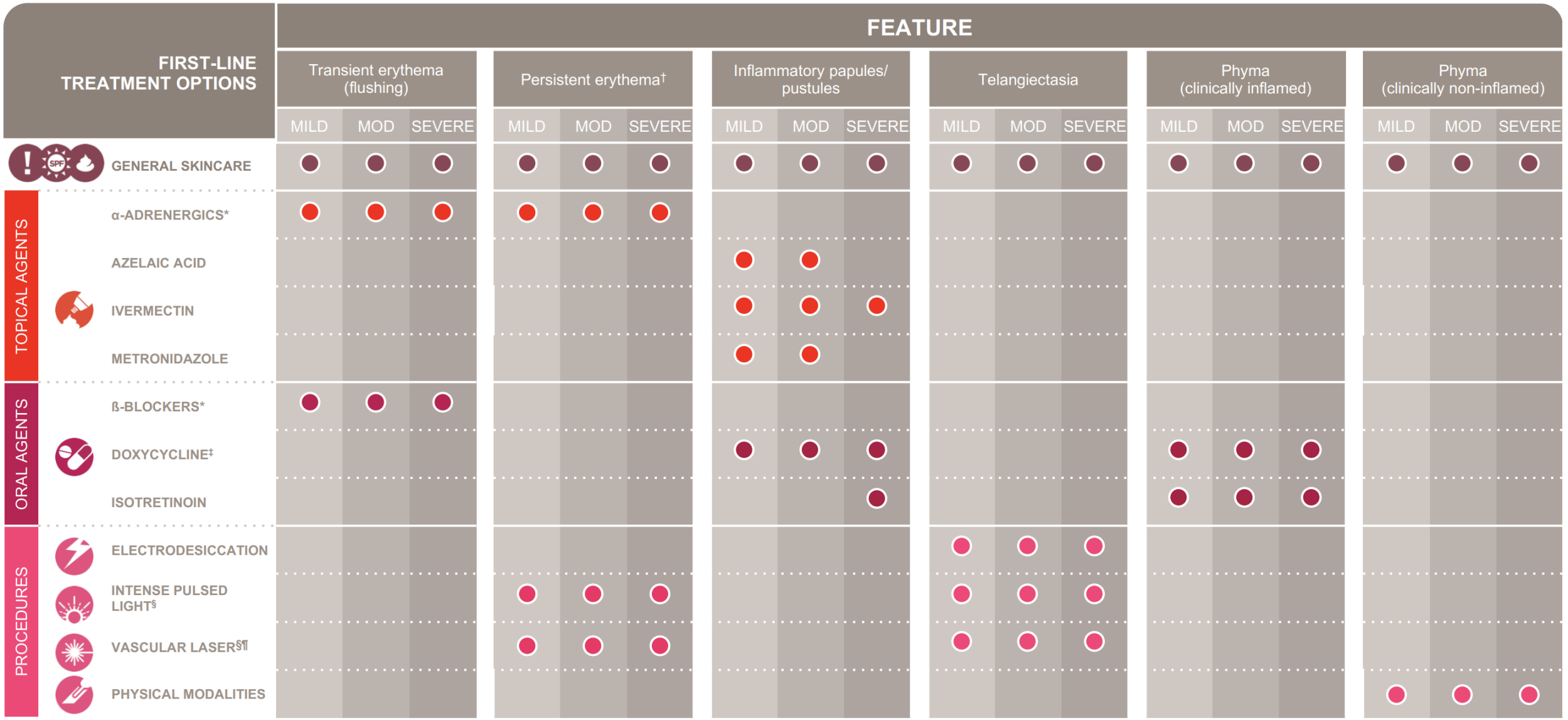
Botulinum toxin may inhibit the release of substance P, calcitonin gene-related peptide (CGRP) and glutamate modulating cutaneous inflammation and wound healing.

Scala J, Vojvodic A, Vojvodic P, Vlaskovic-Jovicevic T, Peric-Hajzler Z, Matovic D, Dimitrijevic S, Vojvodic J, Sijan G, Stepic N, Wollina U, Tirant M, Thuong NV, Fioranelli M, Lotti T. Botulin Toxin Use in Rosacea and Facial Flushing Treatment. Open Access Maced J Med Sci. 2019 Aug 30;7(18):2985-2987.

The Rosacea Consensus treatment algorithm.

A phenotype-led treatment algorithm for the cutaneous features of rosacea, based on consensus statements from the ROSacea COnsensus panel

ROSCO project 2019: Updated treatment algorithm



*There is limited evidence to support the use of topical alpha-adrenergic modulating agents or oral beta blockers for treatment of flushing/transient erythema. However, clinical experience suggests that they could be considered in certain situations. †Persistent centrofacial erythema associated with periodic intensification by potential trigger factors. ‡Doxycycline 40 mg modified release superior to placebo; doxycycline 40 mg modified release non-inferior to doxycycline 100 mg. No inference possible from indirect comparison. §Use of IPL and vascular lasers in darker skin phototypes may require consideration by a healthcare provider with experience in this situation. ¶e.g. pulsed-dye laser and 532-nm KTP laser.

Supporting information to Schaller M, *et al.* Recommendations for rosacea diagnosis, classification and management: Update from the global ROSacea COnsensus (ROSCO) 2019 panel. *Br J Dermatol* 2019.

Before puberty

Ivermectin gel 1% in the morning.

Metronidazole 0,75% in the evening.

PHOTOPROTECTION!

Erthromycin

<8 yers old

20-30 mg/kg/die

>8 years old

1-2 g daily

After puberty

Ivermectin gel 1% in the morning.

Metronidazole 0,75% in the evening.

Doxycyclin 100 mg daily.

Erythromycin

Ivermectin

PHOTOPROTECTION!

Eyelid compression and hygiene

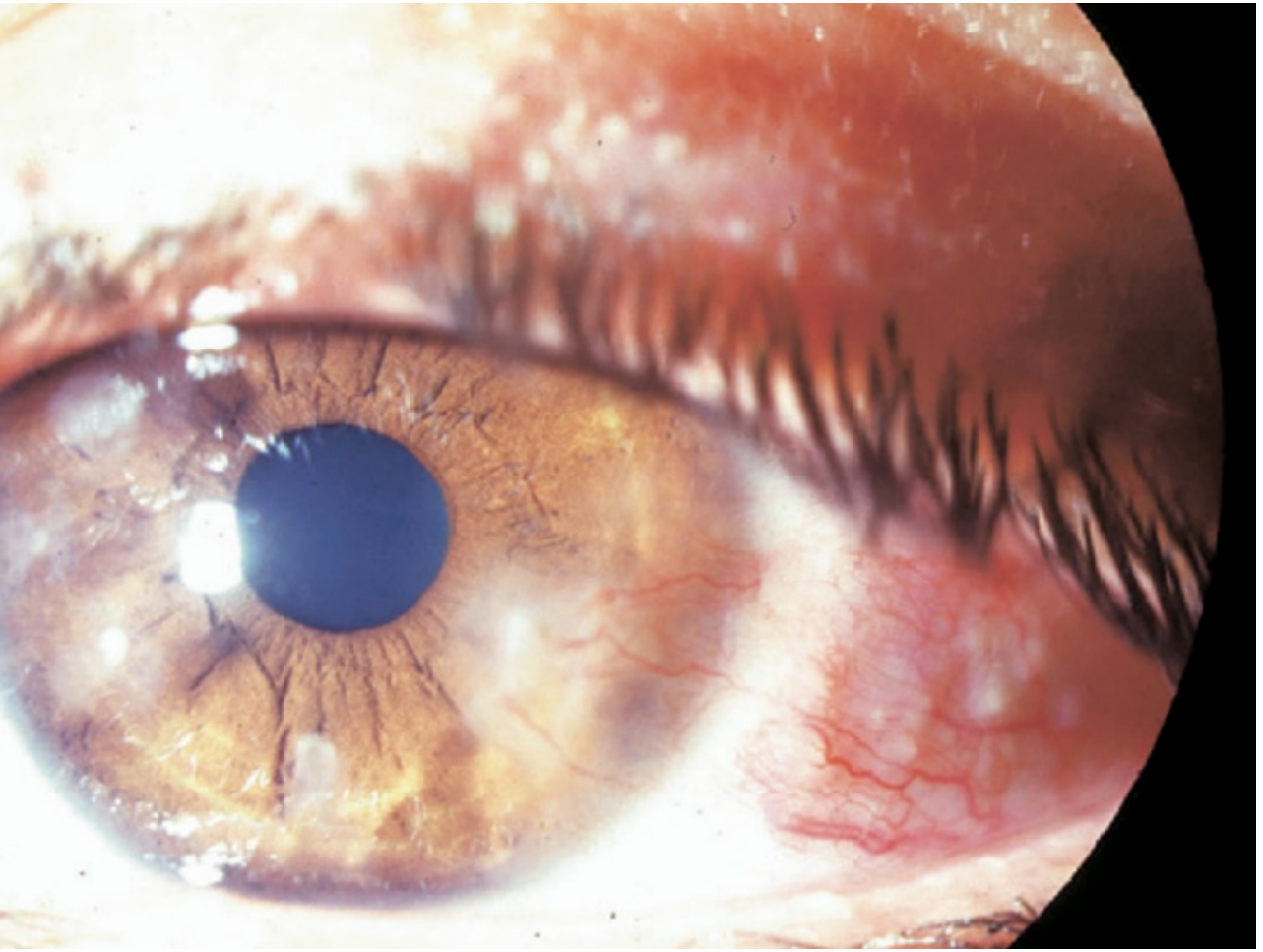
The aim is to openin the plugged up meibomian glands and clearing them of bacteria and oily debris.

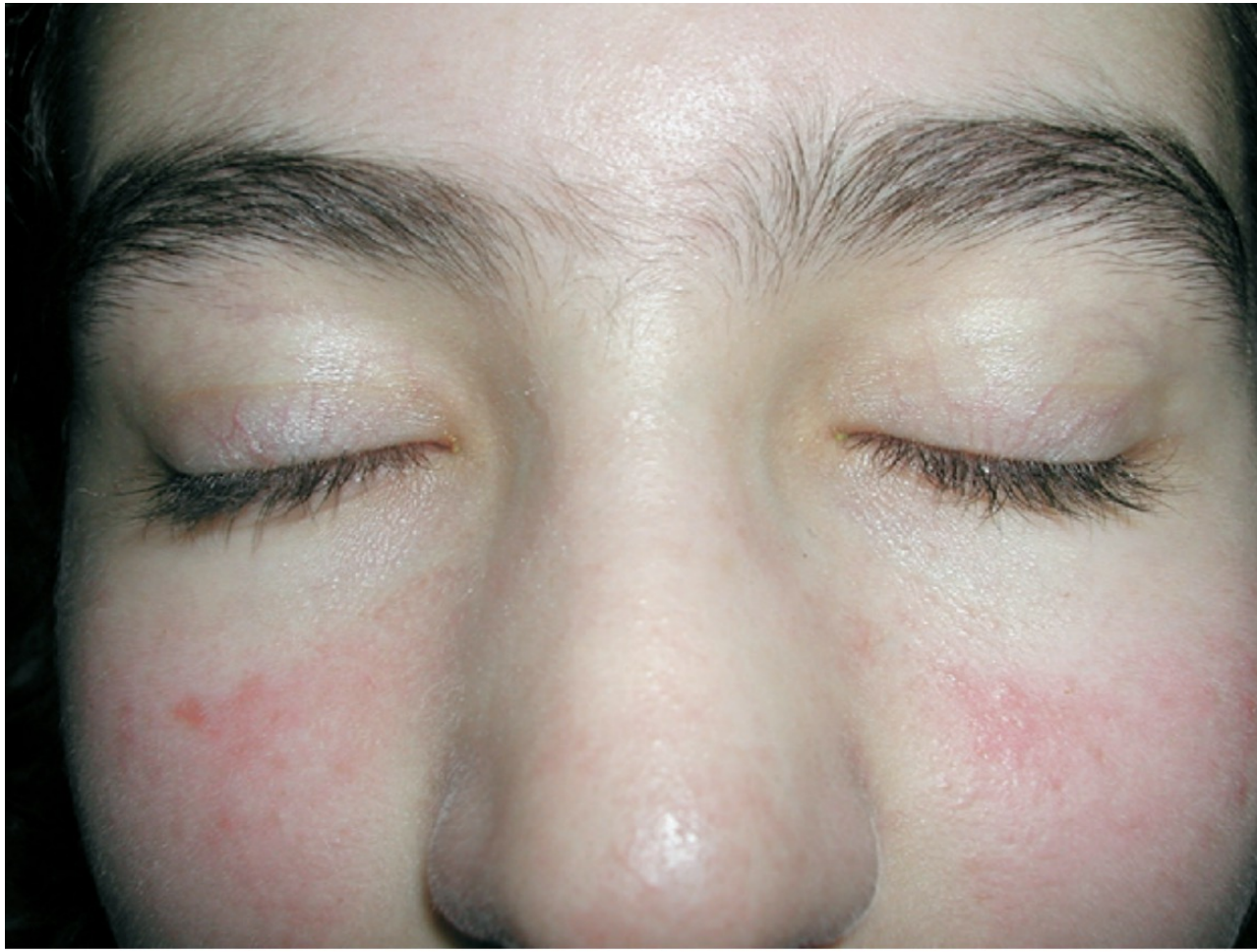
1. Hot compresses to the eyelid margins for several minutes at least twice daily.
2. Massage of the lids just at the margin with firm pressure applied by a fingertip.
3. Tea tree oil therapy (weekly lid scrubs with 50% tea tree oil and daily lid scrubs with tea tree shampoo for a minimum of 6 weeks).

Rousta, Sepideh T.[a,b]. Pediatric blepharokeratoconjunctivitis: is there a ‘right’ treatment?. Current Opinion in Ophthalmology 28(5):p 449-453, September 2017.

Acne rosacea can be a potential diagnosis for any child who has any combination of meibomian disease, chronic blepharitis, recurrent chalazia, and chronic symptoms of photophobia, ocular irritation, and redness that does not respond to routine medical treatment.

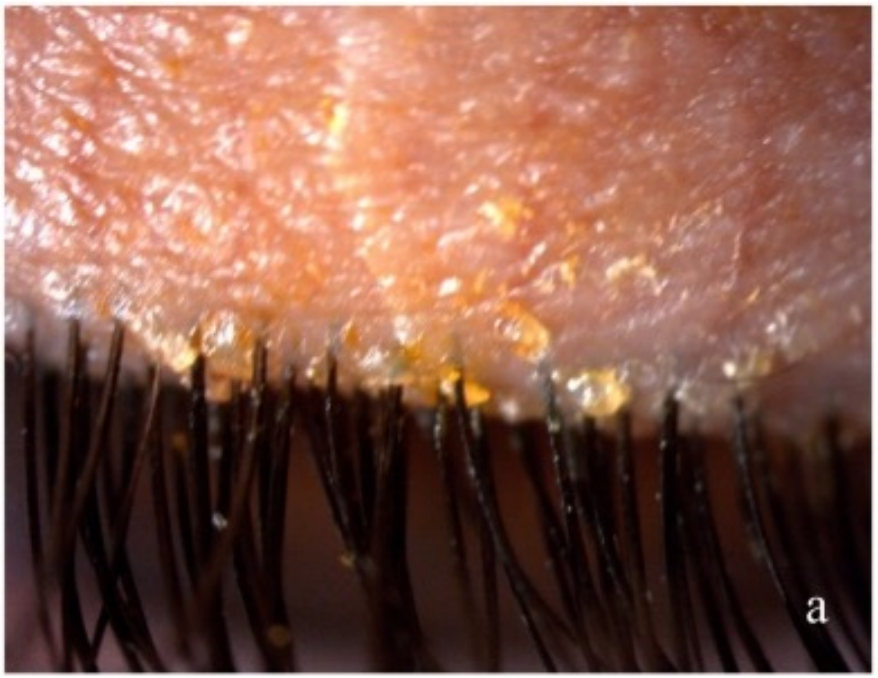
Such patients respond very well to long-term treatment with systemic erythromycin/doxycycline.

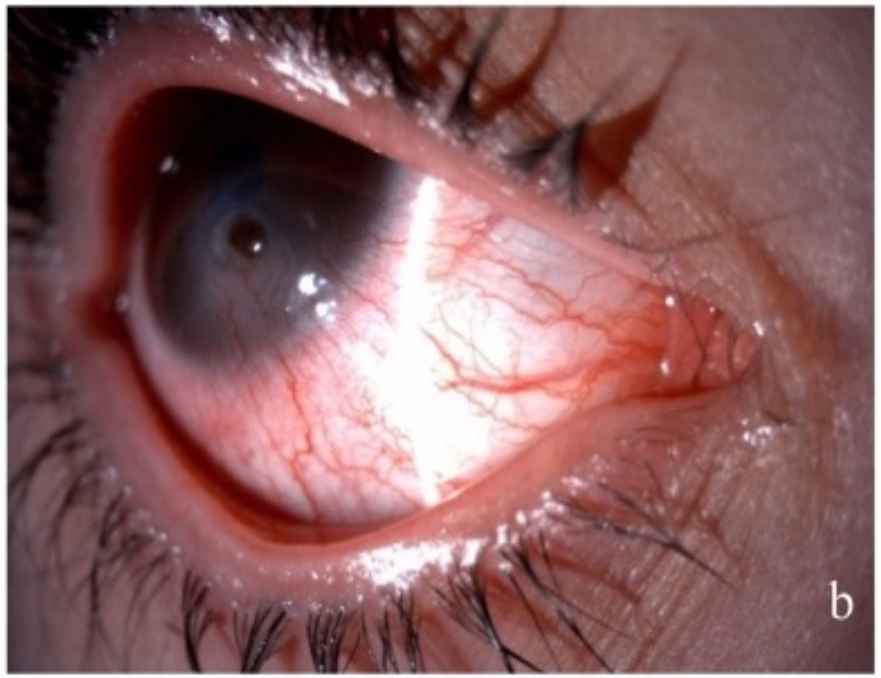




Cetinkaya A, Akova YA. Pediatric ocular acne rosacea: long-term treatment with systemic antibiotics. *Am J Ophthalmol*. 2006;142(5):816-821.

The symptoms of ocular rosacea range from simple blepharoconjunctivitis to sight-threatening corneal neovascularization. Corneal thinning and corneal perforation may occur. Early diagnosis is crucial.





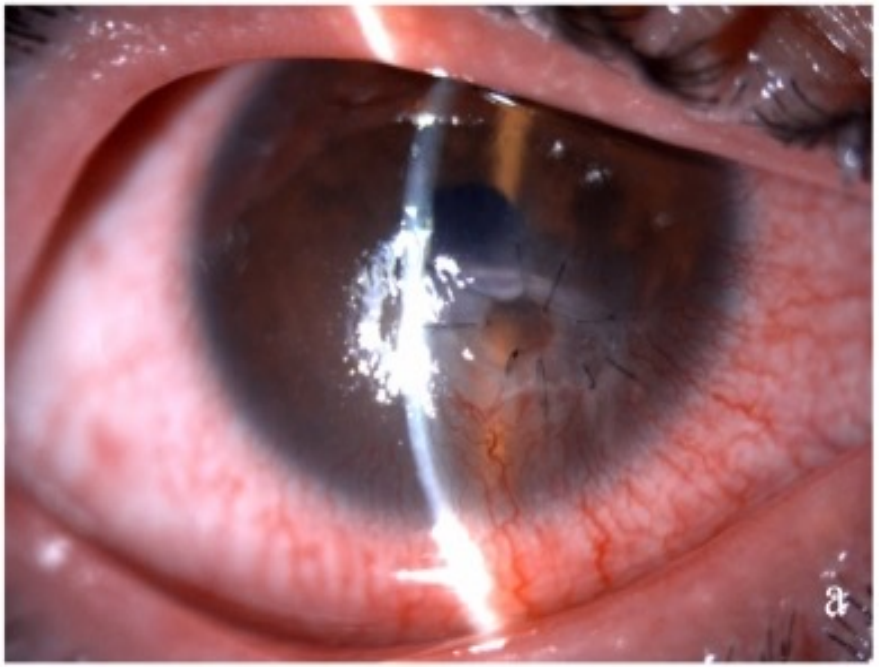
a. Slit lamp pictures showing anterior palpebral blepharitis with scaling sticking to the lashes.

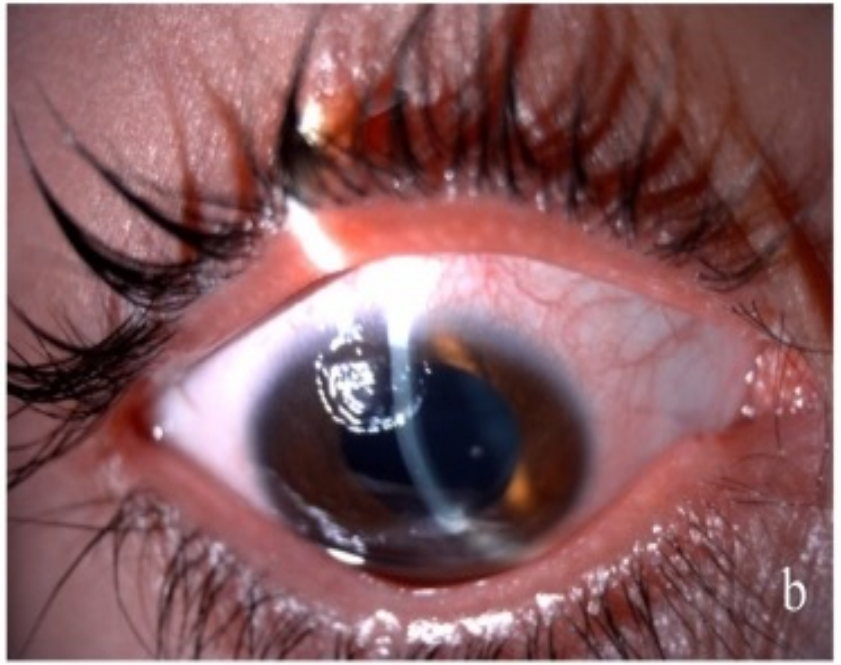
b. Slit lamp image showing an inferonasal corneal perforation sealed by the iris with neovascular appeal in front.

The patient is 10 years old.

Nabih O, Hamdani H, El Maaloum L, Allali B, El Kettani A. Spontaneous corneal perforation complicating ocular rosacea: Case report. *Int J Surg Case Rep*. 2022;90:106597

Corneal perforation is a serious vision-threatening complication. In such clinical situantion an ipsilateral lamellar autokeratoplasty by lamellar autograft is required.





a. Slit lamp image showing ipsilateral lamellar autokeratoplasty by lamellar autograft.

b. Slit lamp image showing the site of corneal sampling in the superior temporal region, larger than the size of the ulceration.

Nabih O, Hamdani H, El Maaloum L, Allali B, El Kettani A. Spontaneous corneal perforation complicating ocular rosacea: Case report. *Int J Surg Case Rep*. 2022;90:106597.

The use of botulinum toxin in rosacea

Zhang H, Tang K, Wang Y, Fang R, Sun Q. Use of Botulinum Toxin in Treating Rosacea: A Systematic Review. *Clin Cosmet Investig Dermatol*. 2021;14:407-417. Published 2021 Apr 30.

- The total number of participants was 130.
- The improvement was observed in all studies in signs and symptoms compared with baseline. Adverse events were transitory and self-limited.

Botulin Toxin Use in Rosacea and Facial Flushing Treatment

Scala J, Vojvodic A, Vojvodic P, Vlaskovic-Jovicevic T, Peric-Hajzler Z, Matovic D, Dimitrijevic S, Vojvodic J, Sijan G, Stepic N, Wollina U, Tirant M, Thuong NV, Fioranelli M, Lotti T. Botulin Toxin Use in Rosacea and Facial Flushing Treatment. Open Access Maced J Med Sci. 2019 Aug 30;7(18):2985-2987.

All works, randomised and not, while all using intradermal injections, differ for the amount of BTX used ranging from 1 to 6 IU every cm2 of affected skin and for the frequency of treatment ranging from a single treatment to three treatments done with different intervals, but all gave positive results.

Thank you.