



PRACTICE

PRACTICE POINTER

Periocular rash

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What you need to know

- Take a focused history of the rash and consider examining the whole skin surface, not just the periocular site, to narrow down the differential diagnosis
- Expect improvement in a periocular rash around 7-10 days into a trial of treatment (aside for suspected rosacea)
- If the rash does not improve, check how much and how frequently treatments have been used so far, and review the diagnosis
- For topical treatment, creams may be more cosmetically acceptable to patients than ointments, but ointments penetrate the skin more effectively
- Consider referral for those who have not responded to treatment, where there is diagnostic uncertainty, the person is systemically unwell, or for patch testing

Skin problems around the eyes can be challenging to diagnose because the differential is wide. They can also be difficult to manage because the periorbital skin is sensitive, and there are a multitude of treatment options, with little specific guidance on their use. This practice pointer outlines the common causes of a periocular rash in an adult, and offers an approach to help diagnosis and management.

How to approach the periocular rash

Start by taking a focused history of the rash, including the time course and symptoms. A diagnostic approach and key clinical features of each diagnosis are summarised in the infographic. Consider examining the whole skin surface, not just the periocular site—often the distribution of the rash on the face and other body sites is key to making an accurate diagnosis.¹ **Box 1** provides further pointers to consider when examining the patient. Factors in the history and examination can help differentiate which type of pathology is the predominant problem. For example, inflammation (endogenous such as atopic eczema, or exogenous such as irritant dermatitis), oedema, dyspigmentation, and systemic diseases can all cause periocular rashes.

Box 1: Clinical examination of periocular rash—key features

Morphology

- *Scaly rash*—Consider eczematous conditions such as atopic eczema, contact allergic dermatitis, irritant dermatitis, and seborrhoeic dermatitis
- *Papules*—Prominent in rosacea and periorificial dermatitis; also found in eczematous conditions
- *Telangiectasia*—A prominent feature in rosacea
- *Periocular swelling without significant erythema*—Consider angioedema or lymphoedema

Facial distribution

- *Periocular scale or erythema in eyebrows*—Consider seborrhoeic dermatitis, which is also associated with scaling in the nasolabial folds and dandruff
- *Papules around eyes and mouth, sparing vermilion border*—Typical of periorificial dermatitis
- *Localised site*—Consider exogenous cause resulting in irritant or contact allergic dermatitis
- *Associated lip swelling*—Consider angioedema
- *Sparing of shaded parts of the face*—Examine the skin on the upper eyelids and behind ears. Consider photosensitive causes including drugs.

Other skin involvement

- *Seborrhoeic areas affected (such as chest, axillae, groin)*—Consider seborrhoeic dermatitis
- *Flexural involvement (such as antecubital and popliteal fossae)*—Consider atopic eczema
- *Extensor involvement on elbows and/or knees, scalp involvement and/or nail changes*—Consider psoriasis

Endogenous inflammatory causes

Endogenous inflammatory causes of periorbital skin problems should be considered particularly, but not exclusively, where there is a relevant personal or family history.

Atopic eczema

This is the most common cause of endogenous eyelid dermatitis in both children and adults (**fig 1**), although there is often a concomitant contact allergic component.² There will often be a personal or family history of eczema or atopy.

Treat the acute rash with regular emollients (**box 2**) and offer a short course of once daily, low potency, topical corticosteroids (**box 3**). Consider topical tacrolimus or pimecrolimus in people

with recurrent symptoms or a protracted clinical course. If there are signs of secondary bacterial infection, swab the skin and consider combination topical antibacterial preparations or oral antibiotics according to severity. An acute vesicular rash around the eye should prompt further assessment for herpes zoster ophthalmicus.⁹

Box 2: Tips for topical treatments of periorcular rash

General advice

- Skin absorbency is high in the periorbital region
- Use the lowest potency treatment for the shortest duration required
- If the rash does not improve, consider whether the treatment has been used optimally (appropriate volume of application and duration)
- If the rash worsens, consider whether the treatment is causing a contact allergic reaction. If it gets worse after a topical corticosteroid has been used, consider whether there may be dermatophyte infection (tinea incognito)
- Ointments (oil based) are preferable to creams (water based) as they penetrate the skin more effectively and contain fewer preservatives that can potentially cause an irritant dermatitis or contact allergy. However, the patient should choose the preparation they are most likely to use

Emollients

These hydrate the skin, reduce water loss, and provide a physical barrier against infection. They are the first line treatment of mild eczema.³ A systematic review of emollients in eczema found they reduce symptom severity, frequency of flares, and the need for topical corticosteroids, although the quality of evidence for this is variable⁴

- Ointments:
 - Ointments are preferable to creams for dry skin
 - Avoid using them on weepy skin
 - Odour and greasiness can limit their practical use: explore the patient's preferences
- Creams, gels, and lotions—These have higher concentrations of water, which make them cosmetically preferable but are less effective at repairing the skin barrier
- How to use emollients:
 - Advise patients to use at least once (ideally twice) daily as a long term treatment
 - If the emollient comes in a tub, use a clean spoon or spatula to extract aliquots to avoid the risk of contamination
 - Patients should consider using more than one emollient to suit their lifestyle
- Soap substitutes:
 - Soaps and face washes can be irritants,⁵ and water alone can be drying
 - Although there is no specific evidence to support their use, soap substitutes are considered to be preferable to normal soaps as they contain fewer potential allergens and are less alkaline than regular soaps⁶
 - Suggest a bath or shower emollient as a soap substitute, although any emollient can be used
 - Consider antibacterial shower emollients if there is recurrent infection

Box 3: Topical corticosteroids for treatment of periorcular rash

Which corticosteroid should be prescribed?

- Choose potency according to the severity of the condition
- In most cases a mild potency topical steroids such as hydrocortisone 1-2% is appropriate. Occasionally, moderate potency topical steroids may be required, but this should be prescribed under secondary care advice or supervision
- Only use combination treatments (antibacterial or antifungal) if there is an indication

How much should be applied?

- Demonstrate the fingertip unit to patients—one adult fingertip unit (500 mg) treats an area the size of two adult palms
- A more practical explanation in this scenario is to apply enough to make the skin shiny

How and when to apply?

- Apply once daily (as effective as twice daily in eczema treatment)⁷
- Current NICE guidelines advise applying topical corticosteroids several minutes after emollient application⁸

How long?

- Use for the shortest amount of time required to treat the condition fully—In practice, 7-10 days should be sufficient if the diagnosis is correct and the treatment is being applied

Site-specific side effects and risks?

- Eyes—Glaucoma and cataracts are rare side effects of prolonged treatment
- Skin—Thinning, fragility, dyspigmentation, telangiectasia, acne, periorificial dermatitis
- Site effects are rare if topical treatments are used appropriately

Seborrhoeic dermatitis

This common condition affects up to 3% of adults.¹⁰ It can be asymptomatic or can cause varying degrees of pruritus (fig 2). The yeast *Malassezia* is associated with the condition, but whether this is the cause remains unknown. It is associated with chronic neurological conditions including Parkinson's disease.¹¹ In recalcitrant or severe cases consider testing for immunodeficiency, including HIV.

Shampoos containing zinc pyrithione or ketoconazole 2% reduce *Malassezia* on the skin.¹² Instruct patients to leave the suds in contact with the scalp for 5-10 minutes and to use the suds to wash the face. Topical antifungal cream, either alone in or in a combined preparation with a mild potency corticosteroid, may be applied twice daily for 7-10 days. Advise patients to wash their eyelids with baby-shampoo applied with cotton buds.

Psoriasis

Eye involvement occurs in up to 58% of people with psoriasis, more commonly in those with psoriatic arthritis.¹³ As well as direct ocular involvement, such as blepharitis and conjunctivitis,¹⁰ the periorcular skin can be involved, with psoriatic plaques occurring around the eyes. Look for psoriasis elsewhere on the body and ask if there is a family history.

Treat with a short course of mild potency topical corticosteroid.¹⁴ Alternatives include twice daily topical tacrolimus or a topical vitamin D analogue such as calcipotriol ointment or cream for 2-4 weeks. Counsel patients that vitamin D analogues can sometimes be irritant initially.

Ocular rosacea

Rosacea is common, affecting approximately 5% of adults.¹⁵ Ocular rosacea is found in up to 30% of cases (fig 3), and may precede cutaneous signs in up to 20% of cases.¹⁶

If there are inflammatory papules, treat with topical treatments such as azelaic acid and ivermectin.¹⁷ Consider prescribing an oral antibiotic such as lymecycline if topical treatments are ineffective,¹⁸ although definitive clinical evidence to support this is lacking.¹⁹

Exogenous inflammatory causes

Allergic contact dermatitis

Allergic contact dermatitis is an immunological reaction to an external agent that the person has been exposed and sensitised to before. It has an estimated prevalence of 21.2%²⁰ and is more common in people with co-existent atopic eczema.²¹ It typically presents 24-48 hours after exposure to the allergen.

The thin skin of the eyelids may be the first area affected from allergens applied to the face (fig 4). Allergens can be found in cosmetics, creams, mascara, and make-up remover—these may also cause an irritant dermatitis. Applicators and eyelash curlers may contain nickel, a common contact allergen. More recently, allergies have been reported to eyelash extensions²² and dyes.²³ P-phenylenediamine (PPD), found in hair dye, is a potent sensitiser that can cause a sometimes dramatic facial rash with periocular erythema and oedema.²⁴ Eye drops, contact lens solution, and acrylates (found in nail varnish and nail extensions)²⁵ are other potential culprits. An occupational history is important as airborne allergens often affect the eyelids.²⁶

Stopping contact with the suspected allergen is the mainstay of treatment.²⁷ Consider a short course of mild potency topical steroid to the periorbital area, or oral steroids in severe cases. Refer to dermatology in severe cases or if patch testing may help to confirm the allergen in cases of diagnostic uncertainty.

Irritant dermatitis

Irritant dermatitis is due to the direct irritant effects of a substance that has been in contact with the skin. Periorbital irritant dermatitis is reported to occur alone in 1-15% of patients with eyelid dermatitis.^{28,29} Cosmetics and skincare products are common causes, and several products applied together have a cumulative effect. Volatile substances through occupational exposure may cause an exposed-site dermatitis, often affecting the eyelids.

As products often contain a number of irritant ingredients, it can be very difficult to pinpoint a specific offending agent. Therefore, stopping all potential irritant products is key. A short course of topical corticosteroid treatment may be required, but often an emollient and soap substitute will suffice.³⁰ Cosmetics can be restarted once the skin has fully healed, but advise the patient to avoid the suspected irritant in the future to minimise risk of recurrence.

Periorificial dermatitis

This condition, also known as perioral dermatitis, mainly affects young adults. It is often seen in those who have been using topical corticosteroids and in about 3% of people who take inhaled corticosteroids.³¹ Periocular involvement has been reported in 25% of cases.³²

Treatment is to stop the offending corticosteroid. Suggest a regular non-greasy emollient and a soap substitute and advise

that the skin may worsen initially. Consider prescribing an oral tetracycline for six weeks to speed up resolution.³³

Periorbital oedema

Non-infectious causes of acute periorbital oedema include angioedema and allergic contact dermatitis. It is important to exclude periorbital cellulitis and erysipelas (fig 5), in which the patient may be systemically unwell, as these conditions require prompt antibiotics.

Angioedema

The cause is often idiopathic. Consider viral triggers, drugs such as angiotensin converting enzyme (ACE) inhibitors, allergic causes, and rarer causes such as C1-esterase inhibitor deficiency and autoinflammatory conditions. If there is respiratory compromise, manage it as a medical emergency as per anaphylaxis guidelines.

Treat uncomplicated angioedema with a high dose non-sedative antihistamine, up to four times the standard dose. Consider adding an H₂ antagonist and montelukast if no improvement is seen.³⁴

Dyspigmentation

Dyspigmentation is an abnormality in the formation or distribution of pigment in the skin, and can be congenital or acquired. The differential diagnosis is wide. The commonly encountered causes are described below.

Congenital dyspigmentation

Congenital conditions should be considered in people with longstanding lesions present since birth or early infancy.

Congenital naevi

Congenital melanocytic naevi are benign brown or black naevi and are often palpable. They are often single but can be multiple. The risk of melanoma is very low in small single lesions, at approximately 0.1%.³⁵

Naevus of Ota

This is a longstanding unilateral pigmented lesion affecting the eyelid, sclera, and conjunctiva, or may be confined just to the eye. Ophthalmological referral should be made because of the risk of ocular melanoma and glaucoma.^{36,37}

Vascular malformations

Port-wine stains are due to capillary malformations. There seems to be a higher incidence of Sturge-Weber syndrome (skin features with cerebral and ocular complications including glaucoma) in port-wine stains affecting any part of the forehead and upper eyelids.³⁸ Consider referral to ophthalmology and neurology for first presentations.

Acquired dyspigmentation

Facial hypermelanosis is relatively common and can be a diagnostic and therapeutic challenge. Altered pigmentation is generally more prominent in darker skin types, particularly in those of Asian and Middle Eastern origin.

Melasma

This common cause of hyperpigmentation may present anywhere on the face. It is frequently seen in women aged 20–40 years, and is more common in light brown skin types.

Key clinical features:

- Macular brown dyspigmentation
- Usually symmetrical
- Often a history of taking oral contraceptive or of pregnancy
- Worsened by sun exposure.

Sun protection with regular application of high factor sunscreen is recommended as a long term treatment.³⁹ As oestrogen and progesterone have been linked to the development of melasma,⁴⁰ changing the oral contraceptive to an alternative contraception is often suggested, although the results are variable and evidence is based on small case-series.⁴¹

Skin lightening formulations can be tried, including triple-combination therapy comprising hydroquinone, a retinoid, and a corticosteroid. In one open-label study of 173 patients, there was complete clearance in over 90% of cases, and, although 57% experienced at least one adverse effect, only 1% withdrew as a result.⁴² This should not be used for more than six months due to the risk of developing paradoxical blue-black pigmentation in the long term, otherwise known as ochronosis. Azelaic acid is another treatment option.^{43,44} It should be applied twice daily for two to three months.

Vitiligo

This is localised pigment loss that can affect any part of the body, including the periocular region. Most cases occur between the ages of 20 and 30 years.

Key clinical features:

- Areas of macular complete or partial pigment loss
- Follicular openings may be spared but may depigment with time
- Patient may have co-existent autoimmune conditions.

Treatment response is variable. Topical calcineurin inhibitors such as tacrolimus 0.1% or pimecrolimus can be applied twice daily to the affected area for up to six months.⁴⁵ Topical corticosteroids are not generally advised because of their potential side effects and the evidence suggesting that calcineurin inhibitors achieve similar outcomes.⁴⁶

Melanocytic lesions

These should always be considered in the differential diagnosis of pigmented (and rarely non-pigmented) skin lesions, and if there is a suspicion of skin malignancy an urgent referral for specialist advice should be sought.

Systemic conditions

The differential diagnoses for localised periocular dyspigmentation due to underlying systemic conditions can be wide. Dermatomyositis and systemic amyloidosis are described here, but there are many other rare associations, and causes of diffuse pigmentation should also be considered. These include endocrinopathies, metabolic and nutritional conditions, progressive systemic sclerosis, neoplastic conditions, and toxin or drug induced dermatoses.⁴⁷

Dermatomyositis

Consider this diagnosis if you see a purplish or lilac “heliotrope” rash on the upper eyelids associated with oedema. Other diagnostic features include Gottren’s papules (erythematous plaques on the knuckles), dilation of the nail fold capillaries, and the “shawl sign” (rash around upper back and neck). The patient may report symptoms of muscle weakness signifying myositis. Consider underlying malignancy, found in up to 30% patients.

Systemic amyloidosis

This condition may present with a myriad of cutaneous manifestations.⁴⁸ Purpura, petechiae, and ecchymoses around the eyes may be seen. Other presentations include smooth, waxy yellowish subcutaneous nodules and plaques. The differential diagnosis includes necrobiotic xanthogranuloma, which is often associated with paraproteinaemias.

Exogenous

Various chemicals can result in skin dyspigmentation. These include metals such as gold, silver, mercury and bismuth which can be encountered through the patient’s occupation or due to iatrogenic causes. Drugs such as the antimalarials, phenothiazines and minocycline are also well recognised culprits.

Photosensitive causes

The differential diagnosis of photosensitive rashes on the face is broad but includes cutaneous manifestations of lupus and other connective tissue disorders such as dermatomyositis. It is always important to exclude drugs as a common and easily treated cause of photosensitive rash. Examination typically reveals more extensive facial involvement, with affected sites including the prominences of the face (cheeks, nasal bridge, and ears) and other sun-exposed sites on the body. Helpful clues indicating a photosensitive facial rash include sparing shaded sites on the face, such as the upper eyelids and behind the ears.

Treatment includes sun-protection measures, and assessment at a specialist centre to determine the underlying cause.

Follow-up and referral

What to do after you have made the diagnosis

- Explain in detail how to use the treatments prescribed—dose or volumes, frequency, and duration
- Consider when to follow up—Typically there should be some improvement within 7–10 days of treatment (longer in cases of rosacea requiring systemic antibiotics)

What to do if the treatment doesn’t work

- Inquire specifically which treatments have been used and how—If they were not used as prescribed, then ask why, as patient preference in regimens and formulation is key to successful treatment
- Reconsider the diagnosis if the treatments prescribed have not been effective
- Consider whether there may be more than one cause

When to refer

- A rash that doesn’t respond to standard therapy
- Severe cases for which specialist advice is felt to be needed
- Systemically unwell patients
- Diagnostic uncertainty
- To consider patch testing in cases of suspected contact allergy

How this article was made

We conducted a literature review of articles and guidelines describing causes and treatment of periorcular rash, reviewed dermatology textbooks, and sought expert advice from consultant dermatologists.

Education into practice

- How much of the skin do you examine when a patient presents with a seemingly localised rash? What information could be missed or gained?
- Think about the last time that you saw a patient with a rash that failed to resolve. How did or could you explore how the patient used previous treatments?

How patients were involved in the creation of this article

No patients were involved in the creation of this article.

Competing interests: The BMJ has judged that there are no relevant disqualifying commercial financial ties to commercial companies. The authors have read and understood BMJ policy on declaration of interests, and have no relevant interests to declare.

Provenance and peer review: Commissioned; externally peer reviewed.

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Figures



Fig 1 Eyelid eczema: erythema and scaling affecting the upper and lower eyelids with evidence of excoriations suggesting pruritus



Fig 2 Seborrhoeic dermatitis: bilateral orange-red diffuse scaly erythema affecting eyelids with accentuation around the hair-bearing sites, including the eyebrows

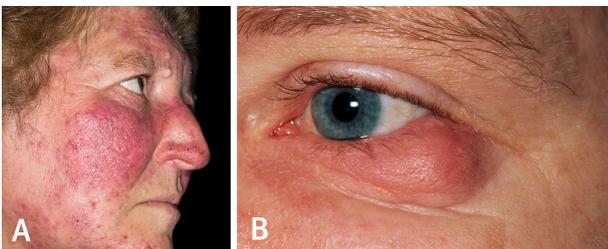


Fig 3 Rosacea (left): diffuse telangiectasia and erythema affecting periocular region, cheeks, and the bridge of the nose, with associated inflamed papules and pustules. Chalazion (right): localised erythematous swelling of the lower eyelid, which can be a feature of rosacea and rosaceal blepharitis



Fig 4 Allergic contact dermatitis: well demarcated erythema affecting right lower periorcular region with sharp cut-off at right nasal ala



Fig 5 Erysipelas: unilateral, segmental, erythema and oedema affecting the skin of the right middle and lower face, often associated with systemic symptoms of infection



Periocular rash: diagnosis guide

Skin problems around the eyes can be challenging to diagnose because of a wide differential. It can be useful to combine information from a focused history of the rash with a detailed examination

HISTORY Start by taking a focused history of the rash, including time course and symptoms	MORPHOLOGY Presence or absence of inflammation can be important, as can the appearance of any erythema	DISTRIBUTION Consider examining the whole skin surface, not just the periocular site
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Acute onset conditions				
Oedema with no erythema	Lymphoedema	Swelling is usually permanently present but is often worse in mornings	Periocular swelling without significant erythema	Swelling of the face and neck is common
	Angioedema	Acute, often dramatic onset	Periocular swelling without significant erythema. Wheals may be present	Often associated with oedema of lips, tongue, and larynx
Presence of erythema	Contact allergic dermatitis	Typically presents 24 to 48 hours after exposure to an allergen	Scaly rash. Papules may also be present	Localised or generalised, with rash starting at the point of contact
	Irritant dermatitis	Caused by direct irritant effects of a substance that has been in contact with the skin	Scaly rash. Papules may also be present	Tends to be localised to affected site; the eyelids are particularly susceptible
Systemically unwell	Erysipelas	Acute spreading infection	Erythema with visually indistinct borders, oedema, warmth, and tenderness	Principally involves the dermis and subcutaneous tissue
	Periorbital cellulitis	Infection may be due to superficial tissue injury (such as insect bite or chalazion)	Erythema with visually indistinct borders, oedema, warmth, and tenderness	Occurs in the eyelid tissues superficial to the orbital septum

Chronic conditions				
		HISTORY	MORPHOLOGY	DISTRIBUTION
Relevant personal or family history	Atopic eczema	May be personal or family history of atopy	Itchy erythema with papules, plaques, and associated epidermal scale	Often affects the upper eyelids. Flexural involvement common
	Psoriasis	Can be triggered by illness, stress, or drugs	Erythematous scaly plaques, sometimes associated with blepharitis	Usually around the eyes, but can also Koebnerise into areas of trauma or dermatitis
Scaly erythema	Seborrhoeic dermatitis	Associated with chronic neurological conditions including Parkinson's disease	Scaly erythematous rash. Papules may also be present	Affects highly sebaceous areas. On head: eyebrows, forehead, nasolabial folds, ears, and scalp
Papules, pustules, or telangiectasia	Rosacea	Characterised by episodes of remission and recurrence	Combinations of erythema, telangiectasia, papules, and pustules	Mainly around the central face. May also feature eyelash 'dandruff', gritty feeling eyes
History of steroid use	Periorificial dermatitis	Often seen in those who have been using topical or inhaled corticosteroids	Erythematous papules and pustules	Often around the mouth, with sparing of the vermillion border
Dyspigmentation the predominant feature	Congenital dyspigmentation	Longstanding conditions such as vascular malformation and congenital naevus	Vascular malformation: port-wine stains; Congenital naevus: benign brown or black naevi	Congenital naevus may affect the eyelid, sclera, and conjunctiva, or just the eye
	Acquired dyspigmentation	Vitiligo, facial melanosis, systemic conditions, melanocytic lesions, and exogenous causes	Altered pigmentation. Generally more prominent in darker skin types	Various, depending on underlying cause
Photodistributed	Photosensitive rash	Differential includes cutaneous lupus, dermatomyositis, and other connective tissue disorders	Erythema on prominences of the face (cheeks, nasal bridge, and ears)	Sparing of shaded parts of the face, such as upper eyelids and behind ears

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BMJ: first published as 10.1136/bmj.k5098 on 21 December 2018. Downloaded from <http://www.bmj.com/> on 11 January 2019 by Richard Alan Pearson. Protected by copyright.