OPTOMETRISTS AND DISPENSING OPTICIANS BOARD
Te Poari o ngā Kaimātai Whatu me ngā Kaiwahakarato Mōhiti

Oral Medication Guidelines – Episcleritis

Description

Episcleritis describes inflammation at the level of the superficial episcleral vessel plexus. The episclera, which lies between the conjunctiva and the sclera, is thin and highly vascularised (Daniel Diaz *et al.,* 2016). It is composed of loose connective tissue and is supplied by the anterior ciliary arteries.

Significance

Acute episcleritis is a relatively common, occasionally bilateral condition and, in many cases, recurrent. It is usually idiopathic and benign but can be associated with systemic disorders. It tends to affect younger adults and middle-aged patients most frequently and is more common in females (Daniel Diaz *et al.*, 2016; Xu *et al*., 2020). The condition is generally self-limiting and can last from a few days to several weeks. Other ocular involvement is rare - it does not affect visual acuity, but may be associated with ocular rosacea (Williams *et al.*, 2005).

The most common systemic disorders associated with episcleritis include (Daniel Diaz *et al.,* 2016; Williams *et al.*, 2005):

- rheumatoid arthritis
- inflammatory bowel disease
- seronegative spondyloarthropathies (e.g., psoriatic arthritis, ankylosing spondylitis)
- the vasculitides
- systemic lupus erythematosus
- relapsing polychondritis, and
- atopy.

Episcleritis is also an uncommon manifestation of conditions of infectious origin, including varicella zoster virus, syphilis and tuberculosis (Daniel Diaz et al., 2016; Generali et al., 2015). In cases that are recurrent or persistent that do not respond to empirical treatment, it is worth considering infectious causes. In general, most patients with episcleritis do not require laboratory or systemic investigations unless they are resistant to treatment, or the course is unusual or prolonged.

Incidence

A study of a Northern Californian population reported an incidence rate of 41.0 per 100,000 person-years and annual prevalence of 52.6 per 100,000 (Honik et al., 2013). This is likely an underestimate of true incidence of the condition, as many patients may not seek treatment if they have mild, self-limiting disease.

Management category

Episcleritis can be safely managed by optometrists once referral-warranting differential diagnoses have been excluded.

Signs and symptoms

Episcleritis may be simple (either diffuse or sectoral) or nodular. Simple episcleritis is more common (Daniel Diaz *et al.*, 2016; Salmon, 2020).

Symptoms

- Can be unilateral or bilateral.
- Discomfort (may be absent to moderate), including grittiness.
- Patient notices a red eye.
- Photophobia may be experienced.
- Watery eye.

Signs

- Diffuse or sectoral redness, commonly in a triangular shape (triangle base at limbus).
- Vascular nodule (generally within the interpalpebral fissure) in cases of nodular disease.
- Very occasionally, IOP may be elevated.
- Anterior chamber reaction is uncommon.
- Visual acuity is preserved.

Topical phenylephrine can be used to differentiate the depth of inflammation. Phenylephrine 2.5% will constrict the conjunctival vessels and phenylephrine 10% will lead to constriction of superficial episcleral vessels but does not cause blanching of the deeper scleral vessels (Miller & Hanumunthadu, 2022; Salmon, 2020).

The condition generally resolves within 2 – 21 days and is mild to moderate in nature (Daniel Diaz et al., 2016). In patients with nodular episcleritis, the attacks may be longer and more painful. Systemic conditions are present in approximately one third of patients (Daniel Diaz *et al.*, 2016).

A thorough history to exclude systemic associations is important, with a particular emphasis on inflammatory and collagen vascular diseases. If patients have recurrent disease, questions regarding systemic inflammation should be repeated at subsequent presentations.

Differential diagnosis

- **Anterior scleritis**
  - Scleritis is uncommon (much less frequently encountered than episcleritis) and often associated with underlying systemic inflammatory disease. The entire thickness of the sclera is involved. Recurrent disease can lead to scleral translucency (with visibility of the underlying uvea giving a blue/grey appearance).
  - Patients present with a red eye and tender globe (dull ache), often accompanied by reduced visual acuity
  - Patients with scleritis may also present with chemosis, lid swelling, anterior uveitis and elevated IOP
  - As with episcleritis, a nodule (or multiple nodules) may be present (in cases of nodular scleritis).
  - If phenylephrine 10% is instilled, only the conjunctival and superficial episcleral vessels will constrict, and there will not be blanching of the deep, inflamed scleral vessels
  - Scleritis may be unilateral or bilateral and age at onset tends to be in the fifth decade onwards
  - Patients with scleritis require laboratory investigations including inflammatory markers, full blood count, rheumatoid factor, anti-CCP and infectious disease screening. Radiological imaging may be required in some cases, depending on the suspected underlying aetiology
  - There are several potentially sight threatening complications of anterior scleritis, including infiltrative stromal keratitis, peripheral ulcerative keratitis, uveitis, glaucoma and perforation of the globe
  - Patients require treatment with systemic NSAIDs, systemic corticosteroids and/or immunosuppressive agents
  - All patients with suspected scleritis should be referred promptly for ophthalmological assessment and a systemic work-up

  Please note:
  It is essential to differentiate between episcleritis and scleritis as the latter requires systemic treatment (with possible immune suppression) and can be sight threatening and associated with life-threatening conditions.

- **Acute anterior uveitis**
  - Hyperaemia is typically circumlimbal.

- Patients present with acute onset pain, redness, photophobia and may have reduced visual acuity.
- Keratic precipitates and anterior chamber inflammatory cells are signs of acute anterior uveitis and are not features of episcleritis.

- **Subconjunctival haemorrhage**
  - Distinctive appearance with sharply circumscribed redness.
  - Underlying sclera is not visible.
  - Painless.
  - May be associated with trauma, bleeding disorders and hypertension.

- **Allergic conjunctivitis**
  - See ODOB Guidelines on Allergic Eye Disease[1].

- **Blepharitis and dry eye**
  - See ODOB Guidelines on Blepharitis[2].

- **Infective conjunctivitis (including bacterial or viral)**
  - Involvement is more commonly bilateral
  - In bacterial conjunctivitis, there is mucopurulent discharge, crusting or matting of the lashes, and lids may be stuck together upon waking. There may be accompanying eyelid oedema and erythema
  - Viral conjunctivitis is highly contagious and ranges in presentation from mild to severe. Conjunctival follicles are present, and the cornea can become involved. There may be accompanying lymphadenopathy and the disease may accompany an upper respiratory viral illness.

- **Phlyctenulosis**
  - The nodule is within the conjunctiva, not beneath it as occurs in episcleritis.
  - Associated with intense localised hyperaemia.
  - Phlyctenulosis is caused by delayed hypersensitivity to staphylococcal antigen or may be associated with tuberculosis or parasitic worms (more likely in developing countries).

Management

The aims of treating episcleritis are to improve patient comfort and reduce inflammation.

Topical treatment

[1] Available at: https://www.odob.health.nz/i-am-registered/therapeutic-prescribing/
[2] Available at: https://www.odob.health.nz/i-am-registered/therapeutic-prescribing/

Treatment for both simple and nodular episcleritis is similar. In mild cases, no pharmacological treatment is required. The patient may experience relief with cool compresses or lubricant drops that have been kept in the fridge (Salmon, 2020).

Topical surface-acting steroids (eg. Fluorometholone 0.1%) may be used four times per day for one to two weeks. Note: In articles detailing episcleritis treatment, fluorometholone 1% four times a day is often used, but in New Zealand, there is no access to the 1% formulation of fluorometholone, so 0.1% should therefore be used in its place. Prednisolone acetate 1% can also be used, up to four times per day (Daniel Diaz et al., 2016), although generally, the least penetrating steroid should be used wherever possible, to reduce the risk of complications including an IOP response.

It has been reported that topical NSAIDs do not provide additional benefit over artificial tears, and therefore their benefits do not outweigh their potential risks. A randomized, double-blind trial of topical ketorolac 0.5% (Acular) vs placebo (artificial tears) found that the topical NSAID three times a day was not significantly better at treating the signs or symptoms of nodular or diffuse episcleritis (Williams *et al.*, 2005).

Oral treatment

In cases of refractory episcleritis, where topical corticosteorids are ineffective, oral NSAIDs may be used (Daniel Diaz *et al.*, 2016).

There is limited literature on the specific dose of oral NSAIDs to be used in the treatment of episcleritis. In New Zealand, optometrists can prescribe ibuprofen 200 – 400 mg, three to four times per day for up to two weeks. Naproxen (250 – 500 mg twice a day) can also be prescribed (Schonberg & Stokkermans, 2022).

Studies reporting treatment options for episcleritis in the United States of America, often specify indomethacin as a preferred oral NSAID, at a dose of 25 mg four times per day (Jabs et al., 2000). However, this medication is no longer approved in New Zealand, so must be prescribed as a section 29 therapeutic agent, which must be prescribed by a medical practitioner. Another medication mentioned in overseas literature is flurbiprofen 100 mg three times per day. However, in New Zealand, flurbiprofen is only available as a lozenge (8.75 mg) for the treatment of sore throat and is therefore not a viable oral treatment option for episcleritis.

Warnings and precautions

Topical treatment

Topical corticosteroids are contraindicated in active epithelial herpes simplex keratitis and in patients with untreated bacterial, fungal and some viral infections affecting the cornea and conjunctiva. Topical corticosteroids should be used in pregnancy only if the benefits outweigh the risk.

Oral treatment

Ibuprofen and naproxen are both oral NSAIDs. This class of medication inhibits cyco-oxygenase and thus reduces prostaglandin production, with analgesic, anti-inflammatory and anti-pyretic effects. These medications are contraindicated in patients with known hypersensitivity to other NSAIDs, in severe heart failure, patients with active gastrointestinal ulcers or bleeding, history of recurrent gastrointestinal bleeding or ulcers, or in patients who have previously had gastrointestinal bleeding or ulceration caused by NSAID treatment.

If a patient has liver or kidney dysfunction, the optometrist should discuss treatment with the patient's doctor, as oral NSAIDs can have adverse hepatic or renal effects. Oral NSAIDs should be used with caution if the patient is already taking other medications that may increase the risk of bleeding or renal impairment.

Based on Medsafe recommendations, NSAIDs should be avoided in pregnancy. Use in early pregnancy has been associated with an increased risk of miscarriage and congenital defects. NSAIDs are also contraindicated in the third trimester.

Adverse effects

Topical treatment

It is well-established that topical ophthalmic corticosteroids are associated with ocular complications, including raised IOP (and the development of glaucoma), reactivation of viral infections and posterior subcapsular cataract formation (McGhee et al., 2002). IOP increase and posterior subcapsular cataract are rarer with surface-acting corticosteroids (e.g. fluorometholone) than those with better intraocular penetration (e.g. prednisolone acetate). Adverse effects are also less likely if using the corticosteroid for a short period, as would be the case in the treatment of episcleritis.

Oral treatment

Common adverse effects of oral NSAIDs include (but are not limited to) gastrointestinal discomfort, nausea, diarrhoea, increased blood pressure, headache, dizziness, and fluid retention. Less frequently or rarely reported adverse effects are bronchospasm (or exacerbation of asthma), renal and hepatic impairment, pancreatitis, heart failure, blood dyscrasias and Stevens-Johnson syndrome.

Patients should always be advised to take oral NSAIDs with or just after food to reduce the risk of gastrointestinal upset.

Review

Follow-up will vary depending on the severity of the condition. In cases of episcleritis treated with lubricant eye drops, no follow-up will be required if the patient notices a resolution of symptoms. For patients requiring topical corticosteroids, follow-up will be based on the potential risk of adverse

events. If prednisolone acetate is used, the patient should be assessed after one to two weeks, for monitoring changes in intraocular pressure. If there is no resolution of the episcleritis after two to three weeks on topical or oral treatment, alternate diagnoses or referral should be considered.

Referral criteria

Patients with episcleritis that does not respond to conventional treatment with either topical corticosteroids or oral NSAIDs, should be referred for ophthalmological assessment. If disease is recurrent or if there is suspicion of an underlying undiagnosed systemic disorder, then patients should also be referred for appropriate investigation and treatment.

Informed consent

The optometrist is responsible for ensuring that the patient has been advised of the possible risks and benefits associated with any proposed medication(s), for the patient to be able to make an informed decision and provide consent to the treatment plan.

Telemedicine

Please refer to the ODOB's *Telehealth Standards*[3] for the standards expected of optometrists providing care via telehealth. It is essential that the optometrist considers the limitations of telehealth in the context of diagnosing episcleritis and related disorders, including the lack of access to diagnostic medications (such as topical local anaesthetics and mydriatics) and an inability to examine the eye under high magnification. If the service provided via telehealth is likely to be inadequate, and a physical examination will provide essential information, then provision should be made for an in-person examination of the patient.

These guideline documents are not exhaustive and should be considered 'living' documents that will be revised over time. Conditions outside those described in these guidelines may be deemed out of scope for independent optometric management and may require referral to a medical practitioner. If in doubt, please check with the Board for advice.

NZ formulary and Medsafe information is accurate as of 24 October 2022. It should be noted that the contraindications, precautions, interactions, and potential adverse effects listed for topical and oral medications in this document are not exhaustive. If required, the optometrist should seek further clarification from reputable online sources (for example: Medsafe, NZ Formulary) or the patient's other healthcare provider(s) prior to initiating treatment.

[3] https://www.odob.health.nz/i-am-registered/practice-standards/statements-and-guidelines/

References

Daniel Diaz, J., Sobol, E. K., & Gritz, D. C. (2016). Treatment and management of scleral disorders [Review]. *Survey of Ophthalmology*, *61*(6), 702-717.

Generali, E., Cantarini, L., & Selmi, C. (2015). Ocular Involvement in Systemic Autoimmune Diseases [Review]. *Clinical Reviews in Allergy & Immunology*, *49*(3), 263-270.

Honik, G., Wong, I. G., & Gritz, D. C. (2013). Incidence and prevalence of episcleritis and scleritis in Northern California [Research Support, Non-U.S. Gov't]. *Cornea*, *32*(12), 1562-1566.

Jabs, D. A., Mudun, A., Dunn, J. P., & Marsh, M. J. (2000). Episcleritis and scleritis: clinical features and treatment results. *American Journal of Ophthalmology*, *130*(4), 469-476.
McGhee, C. N., Dean, S., & Danesh-Meyer, H. (2002). Locally administered ocular corticosteroids: benefits and risks [Research Support, Non-U.S. Gov't Review]. *Drug Safety*, *25*(1), 33-55.

Miller, J. R., & Hanumunthadu, D. (2022). Inflammatory eye disease: An overview of clinical presentation and management [Review]. *Clinical Medicine*, *22*(2), 100-103.
Salmon, J. F. (2020). *Kanski's clinical ophthalmology : a systematic approach* (Ninth edition ed.). Elsevier. Edinburgh. 2020.

Schonberg, S., & Stokkermans, T. (2022). *Episcleritis*. https://www.ncbi.nlm.nih.gov/books/NBK534796/

Williams, C. P., Browning, A. C., Sleep, T. J., Webber, S. K., & McGill, J. I. (2005). A randomised, double-blind trial of topical ketorolac vs artificial tears for the treatment of episcleritis [Clinical Trial Randomized Controlled Trial]. *Eye*, *19*(7), 739-742.

Xu, T. T., Reynolds, M. M., Hodge, D. O., & Smith, W. M. (2020). Epidemiology and Clinical Characteristics of Episcleritis and Scleritis in Olmsted County, Minnesota [Multicenter Study Research Support, N.I.H., Extramural]. *American Journal of Ophthalmology*, *217*, 317-324.

Acknowledgements:

The Board thanks the following people for their contributions to developing the Board's oral medicines guidelines: Dr Hannah Kersten, Dr Phil Turnbull, Professor Jennifer Craig, Mr Ross Tayler and Ravi Dass.

Approved by the Board: November 2022 (V1)
To be reviewed: 2025