

The management of possibly progressive pterygium

A 43-year-old Sudanese male patient is referred by his GP with a fleshy lesion encroaching the nasal cornea for the last six months.

History

Make note of:

- risk factors, i.e. UV exposure and ocular irritation
- history of living in hot, dry, tropical climates (Sudan in this case)
- patient's occupation and hobbies which may involve irritants and / or outdoor work
- symptoms and past remedies / treatments (if any). Patients may have had surgery in the past or in the country of origin and this presentation may be a recurrence!
- any family history of glaucoma
- refraction.

Examination

A thorough ocular examination should include:

- visual acuity
- corneal topography (record baseline corneal astigmatism)
- anterior segment photograph and / or measurement of the pterygium. Two measurements are noted, i.e. the width of the pterygium at the limbus AND the distance of the tip of the pterygium to the limbus. For the latter measurement, if the limbus is not clearly visible under the pterygium the distance between the tip and opposite limbus may be noted
- looking for signs of ocular surface neoplasia
- eyelid eversion
- intraocular pressure (IOP)
- dilated fundoscopy.

Treatment

Conservative:

All patients would benefit from advice to:

- avoid exposure to UV (UV blocking wraparound sunglasses)
- wear protective eye wear if exposed to dust / airborne particles
- use ocular lubricants (usually sufficient in treating patients with mild to moderate irritation).

Medical:

Intermittent inflammation that does not settle with lubricant use may require:

- topical non-steroidal anti-inflammatory drops, e.g. ketorolac. Preferable as these may be prescribed by their GP if required
- topical steroids if symptoms remain uncontrolled.

Surgical:

Indications include:

- increasing size
- deteriorating vision (due to increased astigmatism or encroachment on to the visual axis)
- uncontrolled inflammation
- cosmesis.

Various techniques and variations of surgical procedure exist. For the above case, my preference would be to perform excision of the pterygium with a conjunctival autograft as outlined below. The use of an adjunct (0.04% MMC) would be reserved for surgery on recurrences.

- Peribulbar block. Preferred over a sub-tenons' as conjunctival integrity is preserved.
- Traction suture. Placed superiorly through the cornea if contemplating use of superior bulbar conjunctiva for the autograft. The superior conjunctiva is avoided in patients at risk of / with glaucoma as this may compromise future drainage surgery.
- Pterygium excision. Avulsed using a pair of curved artery forceps passed the 'neck' of the pterygium or gently dissected from the head towards the body using a crescent blade. The specimen is routinely sent to histopathology. For recurrent pterygia, a quinct hook is used to identify the rectus muscle in order to avoid inadvertent dissection.
- Recipient base preparation. A limited tenectomy is performed beneath the margins of excision and gentle cautery

is applied to achieve haemostasis. The area of conjunctival deficit is measured with calipers.

- Donor preparation. Subconjunctival lidocaine with 1:10000 adrenaline is injected under the marked area to allow easier dissection, reduce bleeding and provide further anaesthesia. The graft is carefully dissected with Wescott or vannus scissors and 'dragged' on to the recipient bed. Care is taken not to lift the graft off the globe as it usually scrolls making subsequent unfolding and orientation difficult.
- Graft attachment. The graft is gently rolled out to fill the defect with non-toothed forceps. The two components of fibrin glue are applied under the excised conjunctival margins first and then under the graft. Applying gentle strokes over the graft with the cannula ensures mixing and even spread of the glue. The edges may be gently 'pinched' together while the glue settles.
- Glue is applied on to the bare corneal surface and the donor site to act as a 'bandage'.
- Postoperative treatment. Antibiotic ointment (one month) and steroid drops (tapered over six months).

Patients are frequently referred with pingueculae (often misdiagnosed as pterygia). No treatment is usually indicated unless symptomatic. The above conservative and medical treatments would normally suffice but surgical excision may be considered in cases of recurrent inflammation or for cosmetic reasons.

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This patient gives an initial history which suggests a pterygium which is progressing.

My approach is to assess the patient with a careful history and examination and then move on to a discussion about the management options with the patient.

History

This patient may complain of varying degrees of discomfort, dryness, soreness and pain. Ascertain how frequent and troublesome these symptoms are.

The patient may also report noticing a mark or lump in the corner of the eye extending to a varying degree towards the centre of the eye. Ask about any change in appearance in terms of size, extent on the cornea, degree of redness and the time course of this change.

Tip: It is worth carefully assessing through the history to what extent the pterygium is actually causing significant symptoms and what these symptoms are. Sometimes patients with pterygium are referred because of the concerns of the referring healthcare worker rather than because of problems that the patient is having.

Also consider, is there anything unusual in the history to suggest an alternative diagnosis such as pseudo-ptyterygium due to some form of inflammatory disease, or ocular surface neoplasia?

Examination

Assess visual acuity, then corneal irregularity with refraction, keratometry and corneal topography.

Assess size and extent of corneal element of pterygium using the measurement graticule on the slit-lamp and consider a photographic record.

Assess for signs of dryness over the surface of the pterygium and over the ocular surface generally.

Is there an iron line at the tip of the pterygium (Stocker line) – this is thought to be a sign of inactivity in terms of growth.

Assess the extent of the conjunctival element – this may be broad based, narrow and sometimes may be eccentric and the precise shape may influence any planned surgery.

Are there other signs of inflammatory eye disease such as marginal keratitis, ocular pemphigoid?

Signs of extensive abnormal stain or ulceration on the surface of the pterygium should raise a suspicion of possible ocular surface neoplasia.

Management

Reassurance with no active intervention, discharge back to GP: if the patient is asymptomatic and there is no suggestion of progression, plus ocular lubricants if discomfort is main symptom.

Consider surgical removal if lesion extending towards centre of cornea, giving significant astigmatism and causing a reduction in acuity / visual symptoms or is elevated, lumpy or cystic and is causing a lot of soreness, irritation which is not relieved by frequent lubricants.

Also consider surgical removal if there are any features which raise a concern about possible neoplasia.

Surgical technique

My approach is to:

- Excise part of the conjunctival element of the pterygium first, going back about 4 to 5mm from the limbus, and with a circumferential extent of excision which is just greater than the width of the corneal part of the pterygium – it is not necessary to try and excise the whole of the conjunctival element. Then dissect the corneal part by blunt dissection as much as possible combined with traction on the reflected conjunctival portion. Finish by using a hockey stick blade or crescent blade to smooth the limbal area and the corneal bed.
- Measure out an area of healthy conjunctiva with the same width as the width of limbal excision, and about 4 to 5mm in depth. It is best to start the dissection edge of the donor tissue about 2 to 3mm back from the limbus. Mark with a marking pen.
- May use traction sutures on limbus to facilitate exposure and ease of dissection.
- Keep orientation of graft the same when moving it from the donor bed to the new site.
- Use tissue glue to fix the graft into position ensuring the graft is aligned with the edge of the limbus.
- Finish by placing a large bandage contact lens on the eye ideally 16 to 18mm diameter.

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TAKE HOME MESSAGE

Progressive pterygium requires surgical management but patient counselling about recurrence is essential.

My approach to a possibly progressive pterygium is to characterise the pterygium measuring the width as it crosses the limbus and the maximum distance into the cornea from the limbus using a narrow slit-lamp beam. Look at the bulk or elevation of tissue above the ocular surface, class this as mild, moderate or severe if this is fairly flat, with substantial bulk to the tissue or if bulky or markedly elevated (even if localised) respectively. Similarly for vascularity of the tissue as mild moderate or severe. Photographic documentation is useful.

Look at fluorescein staining over the head of the pterygium and in advance of it on the normal corneal surface. Pterygium may not be particularly progressive in the UK and may calm down and remain fairly quiescent with little progression even if it appeared to be progressing from the history. In cases of mild to moderate changes I would try six weeks of fluorometholone (FML) to suppress any inflammation and bulk due to inflammation and swelling, use long-term lubricants as drying over the surface and a dellen like effect in advance of the pterygium, I believe, contribute to inflammation and progression. If this gives symptomatic relief and the pterygium is 2mm or less into the cornea and there isn't a major cosmetic issue then I would observe for progression with time. Advise patients to limit UV exposure.

With more bulky, vascular pterygium and in those further into the cornea -these would benefit more from surgery, but there again where there is significant vascularity, FML prior to surgery is useful to suppress inflammation and reactivity of pterygium tissue.

Particularly vascular or raised pterygium have a major impact on an individual's life in interpersonal communications which should not be underestimated. Therefore those with marked bulk or vascularity particularly benefit from surgery.

I take the graft from the inferior conjunctiva.

The aim of excision should be to preserve normal conjunctiva above and below. The circumferential cut is 2-3 mm from limbus as conjunctiva will retract two to three times the size of the initial cut from the limbus. A 5-6 mm autograft is marked and removed. This size gives good cosmesis

and contributes to low recurrence.

It is not necessary to excessively clean the tenons off either the graft or the excised bed of the pterygium.

Postoperatively preservative free dexamethasone should continue for three months as excess inflammation increases the likelihood of recurrence and the most troublesome are those where treatment has stopped (often inadvertently) in the earlier postoperative period. If quiescent at three months with no sign of recurrence the results are usually good in the long-term. If there are signs of recurrence

particularly with bulky vascular tissue then a sub-conjunctival 5 Fluorouracil injection may be effective at arresting further progression. I expect a significant recurrence rate of less than 5%.

There is no place for a bare sclera technique as recurrence rates are too high and I feel use of mitomycin is best avoided to avoid complications.

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