

## Pterygium in Young Children

**P**terygium is a benign, wedge-shaped, progressive fibrovascular overgrowth of the degenerated bulbar conjunctiva, seen most commonly on the nasal limbus (Fig. 1). The condition is often asymptomatic, especially early in its development. As a pterygium gradually encroaches toward the visual axis, it can cause astigmatism, which may be the main visual complaint.<sup>1</sup> In addition, the lesion may become inflamed, leading to ocular surface irritation.

Although pterygium is rare in young children, we have treated several of these patients at our medical college.

### Epidemiology

Among the general population, the prevalence of pterygium varies widely, with estimates ranging from 0.3% to 29% worldwide. A meta-analysis of pooled data from 20 studies, encompassing more than 900,000 cases in 12 countries, found an overall prevalence of 10.2%, with a slightly higher rate among men than women.<sup>2</sup>

Pterygium occurs most frequently among people who live in tropical areas near the equator. Ultraviolet light exposure is thought to be the most likely cause, and dust, dryness, and wind are also risk factors.

The peak incidence of primary pterygium lies between the ages of 20 and 40 years; outside of that range, the

condition is rarely seen in children and more commonly in persons over the age of 40 years.<sup>3</sup> However, the risk factors noted above can particularly affect children who play outdoors.

### Pathophysiology

Numerous studies suggest a genetic predisposition to the development of pterygium. During embryological development, there may be cellular migration of keratoblasts prompted by vimentin, a type III intermediate filament protein.

Another theory suggests that increased P53 expression, along with a paucity of tumor suppressor gene, facilitates the abnormal proliferation of limbal epithelium. Type 1 hypersensitivity is also known to play a role in the pathogenesis of pterygium.

### Histology

Histopathologic examination demonstrates conjunctival mucosa lined by stratified squamous nonkeratinized epithelium with interspersed goblet cells. Compared with adults, children have an increased number of mast cells. The underlying stroma shows fibrocollagenous tissue, with areas of hyalinization and superficial congested vessels.

### Clinical Presentation

The classic presentation of pterygium is a fibrovascular lesion in the palpe-



**CLINICAL APPEARANCE.** Pterygium in a young child seen at our clinic.

bral fissure, originating in the nasal aspect of the conjunctiva. Typically, the growth progresses gradually and horizontally toward the limbus, cornea, and visual axis. The condition is usually bilateral.

The affected eye may be red, with no discharge. There may be an irritated, gritty sensation, leading to constant eye rubbing.

**Refractive effects.** A small pterygium has few symptoms and no harmful effects. However, as it grows, the child may complain of blurred vision due to development of refractive astigmatism, generally of the with-the-rule type. Frequent headaches may occur as a consequence of the astigmatism.

### Differential Diagnosis

**Pinguecula.** This condition appears as a yellow-white mound or aggregation of smaller mounds on the bulbar conjunctiva adjacent to the limbus, remaining localized to the conjunctiva without involving the cornea. The histology is

BY SUSAN DSOUZA, MBBS, DOMS, AND M. GURUDUTT KAMATH, MBBS, DOMS, MS. EDITED BY SHARON FEKRAT, MD, AND INGRID U. SCOTT, MD, MPH.

very similar to pterygium, and pingueculae often precede the development of pterygium.

**Pseudopterygium.** This term describes a band of conjunctiva adhering to an area of compromised cornea at its apex as a result of chemical or thermal burns, trauma, or marginal corneal disease. The lesion is not confined to the palpebral fissure. As an important point of distinction, a probe can be passed beneath a pseudopterygium near the limbus, while this is impossible in true pterygium.

## Workup

The clinical diagnosis of pterygium is based on history, anterior segment slit-lamp examination, and refraction to assess for astigmatism.

**Staging.** Pterygium is graded according to the extent of corneal involvement.

*Grade I:* at the limbus

*Grade II:* between the limbus and the pupil

*Grade III:* extending to the pupillary margin

*Grade IV:* crossing the pupillary margin

## Treatment

Management of pterygium in children is generally the same as in adults. Definitive resolution may be more difficult to achieve than it is in adults, however, because pterygium recurs more aggressively and at a reportedly higher rate of 36.1% in children.<sup>4</sup>

**Conservative management.** Medical treatment for symptomatic children with small pterygia includes use of artificial tears and weak topical steroids to reduce inflammation and improve comfort.

The child may be advised to wear sunglasses while outdoors; reducing ultraviolet light exposure may decrease the growth stimulus.

**Surgery.** Surgical therapy may be appropriate for larger pterygia encroaching on the limbus and progressing toward the visual axis.

Indications for surgery include the following:

- Intractable irritation
- Opacity in the visual axis



**AFTER TREATMENT.** Rotational conjunctival autograft was used after excision of pterygium.

- Astigmatism leading to visual impairment
- Cosmetic concerns

**Primary pterygium.** In children with a primary pterygium, conjunctival autograft is the treatment of choice.<sup>5</sup> Conjunctival rotational autograft (Fig. 2) can be considered, with the caveat that in some active children, constant eye movement may displace the graft.

**Recurrent pterygium.** In cases of recurrence, a conjunctival autograft technique may be attempted again. As an alternative, we have had good results with the older technique of conventional bare sclera pterygium excision. It is important to note that this surgery must be performed with use of adjunctive therapies, such as mitomycin C, to reduce the otherwise unacceptable risk of recurrence. However, antifibrotic agents are associated with complications, including corneal melting, corneal perforation, prolonged punctate keratopathy, scleral necrosis, secondary glaucoma, and cataract.

Another option is amniotic membrane transplantation, but it is costly, requires preservation, and is not widely available.

**Postsurgical care.** In our clinic, we advise the following postsurgical regimen: tobramycin sulfate 0.3% drops 6 times per day for 15 days; 1% prednisolone acetate drops 4 times per day for a week, then tapered over 3 weeks; and 0.5% carboxymethylcellulose sodium drops 6 times a day for a month.

For pain, oral nonsteroidal anti-inflammatory drugs are given in pediatric doses according to body weight.

We also instruct the patient not to rub the eye and not to move the eyes excessively.

## Follow-up

In our experience, recurrence is more aggressive and occurs earlier—at 4 to 6 months—in children than in adults. Children who have had pterygium excision should be examined every month for 6 months and, subsequently, once every 6 months. Long-term follow-up may yield better understanding of childhood pterygium and its outcome.

1 Liu L et al. *BMJ Open*. 2013;3:e003787. doi:10.1136/bmjopen-2013-003787.

2 Noor RA. *Malays J Med Sci*. 2003;10(2):91-92. [www.ncbi.nlm.nih.gov/pmc/articles/PMC3561894/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3561894/). Accessed Aug. 24, 2017.

3 Monga S et al. *Am J Ophthalmol*. 2012;154(5):859-864.

4 Ibechukwu BI. *East Afr Med J*. 1992;69(9):490-493.

5 Yadav AR et al. *Indian J Ophthalmol*. 2015; 63(6):491-495.

Dr. Dsouza is a senior resident and Dr. Kamath is a professor; both are in the Department of Ophthalmology, Kasturba Medical College, Mangalore, Karnataka, India. *Relevant financial disclosures: None.*

## Write an Ophthalmic Pearls Article

Pearls articles typically offer step-by-step summaries of etiology, diagnosis, treatment, and follow-up.

To get started, you need only a few things:

- a great topic
- a faculty advisor to review your manuscript and add his/her pearls from clinical experience
- a copy of the Writers Guidelines and the Pearls Checklist to ensure that all key requirements have been met. Find them at [aao.org/eyenet/write-for-us](http://aao.org/eyenet/write-for-us).

**Are you a resident?** A resident article published in the Ophthalmic Pearls section will satisfy the RRC requirements for resident scholarly activity.