

Demodex, inflammation linked to pterygium recurrence

by Michelle Dalton EyeWorld Contributing Writer

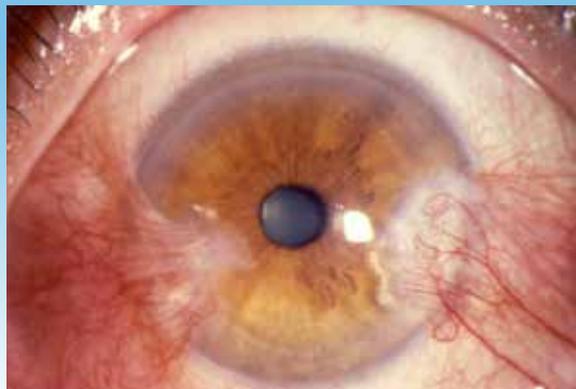


Figure 1: Primary double head pterygium



Figure 2: Recurrent double head pterygium



Figure 3: Surgical outcome of Figure 2

Source (all): Scheffer C.G. Tseng, MD, PhD

Pterygium is a chronic disorder with multifactorial causes for recurrence

Pterygium is a multifactorial disorder that may be caused by environmental, occupational, or climatic situations, said **Scheffer C.G. Tseng, MD**, director of the Ocular Surface Center, Miami; medical director of the Ocular Surface Research & Education Foundation, Miami; and director of research and development for Tissue Tech, Miami. Certain terrains are notorious for increased pterygium occurrences: any place with significant sun, snow, or water—in short, anywhere with high refractive sunlight exposure. Certain workplace environments, such as sawmills, are also common places for increased pterygium. For patients, dry eye and diseases that cause chronic inflammation can exacerbate pterygium. Numerous methods to reduce recurrence rates after simple excision include beta irradiation, radiotherapy, and mitomycin-C (MMC). Of these, beta irradiation reduces the recurrence rate but introduces potential complications, and radiotherapy results in an “unacceptable rate of scleral necrosis if used postoperatively” and has declined in use as a result. MMC can create ocular surface issues such as infective scleritis and scleral necrosis if used postop.

“We know from epidemiologic and histopathologic studies that

pterygium is a chronic disorder,” Dr. Tseng said. Recurrence rates are relatively high, and are influenced by patient age, surgical technique, and preoperative factors relating to the original pterygium itself.

Most surgeons will perform simple excision with a conjunctival autograft, which can reduce the recurrence rate to under 5%, but does not eliminate the recurrence altogether. Dr. Tseng said that if all of the techniques still result in recurrences, “there are reasons we have not yet found that cause these recurrences.”

Risk factors

Ocular demodicosis is a risk factor for pterygium recurrence, especially for conjunctival recurrence, presumably by perpetuating chronic inflammation mediated by T-helper (Th)17 lymphocytes, according to a new paper from Dr. Tseng and colleagues.¹

“Our key take-home message is that when the ocular surface is chronically inflamed with other diseases, the patient presents as a threat for pterygium recurrence,” he said. “Inflammation can be multifactorial,” and if the patient has dry eye issues or *Demodex* infestation, the likelihood of recurrence increases.

In his group’s latest study,¹ “if we include both corneal and conjunctival recurrences, a criterion more stringent than those adopted in the literature, our retrospective correlative analyses disclosed that ocular demodicosis is an overlooked

risk factor for pterygium recurrence.”

Lawrence W. Hirst, MD, The Australian Pterygium Centre, Brisbane, Australia, disagrees. He has cited the operative technique as the cause, as it is either ineffective or that an effective technique for original pterygium removal is being applied imperfectly.

A differing opinion

Dr. Hirst’s patented Pterygium Extended Removal Followed by Extended Conjunctival Transplantation (“P.E.R.F.E.C.T. for pterygium”) procedure “is a distillation of previous techniques into one simple operative technique, albeit requiring considerable and meticulously applied surgical skill.” His technique can be used “equally well” for either primary or recurrent pterygia and does not necessitate the use of amniotic membrane or mitomycin-C.²

In a study of 1,000 consecutive patients with follow-up of more than a year in 99%, there was only one recurrence.

However, Dr. Tseng said, the P.E.R.F.E.C.T. procedure “in a very trained hand is a reasonable surgery. But it’s very difficult in inexperienced hands.” In addition, the technique involves extensive removal of the subconjunctival down to the fornix, Dr. Tseng said. On the other hand, other procedures cannot boast the success rate of the P.E.R.F.E.C.T. procedure.

“We need to understand why recurrence develops in all the other

techniques, where extensive excision is not as thoroughly performed as in P.E.R.F.E.C.T. There may be other unrecognized factors that we need to control to avoid recurrence,” Dr. Tseng said.

Still, increased tear levels of IL-17 were “significantly elevated in patients with ocular demodicosis alone when compared to age- and sex-matched controls,” Dr. Tseng said. IL-17 was also elevated in patients with primary pterygium but no demodicosis.

“Factors other than demodicosis may be responsible for the increased IL-17 levels,” he said. “We need more studies to determine if IL-17 tear levels are a causative factor for pterygium development and recurrence as well.” **EW**

References

- Huang Y, He H, Sheha H, Tseng SCG. Ocular demodicosis as a risk factor of pterygium recurrence. *Ophthalmology*. 2013;120:1341–1347.
- Hirst LW. Pterygium recurs as a result of ineffective operative procedures and not *Demodex*. *Ophthalmology*, in press.

Editors’ note: Dr. Hirst owns the trademark “P.E.R.F.E.C.T. for pterygium.” Dr. Tseng is the inventor and owner of several patents related to pterygium treatment.

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