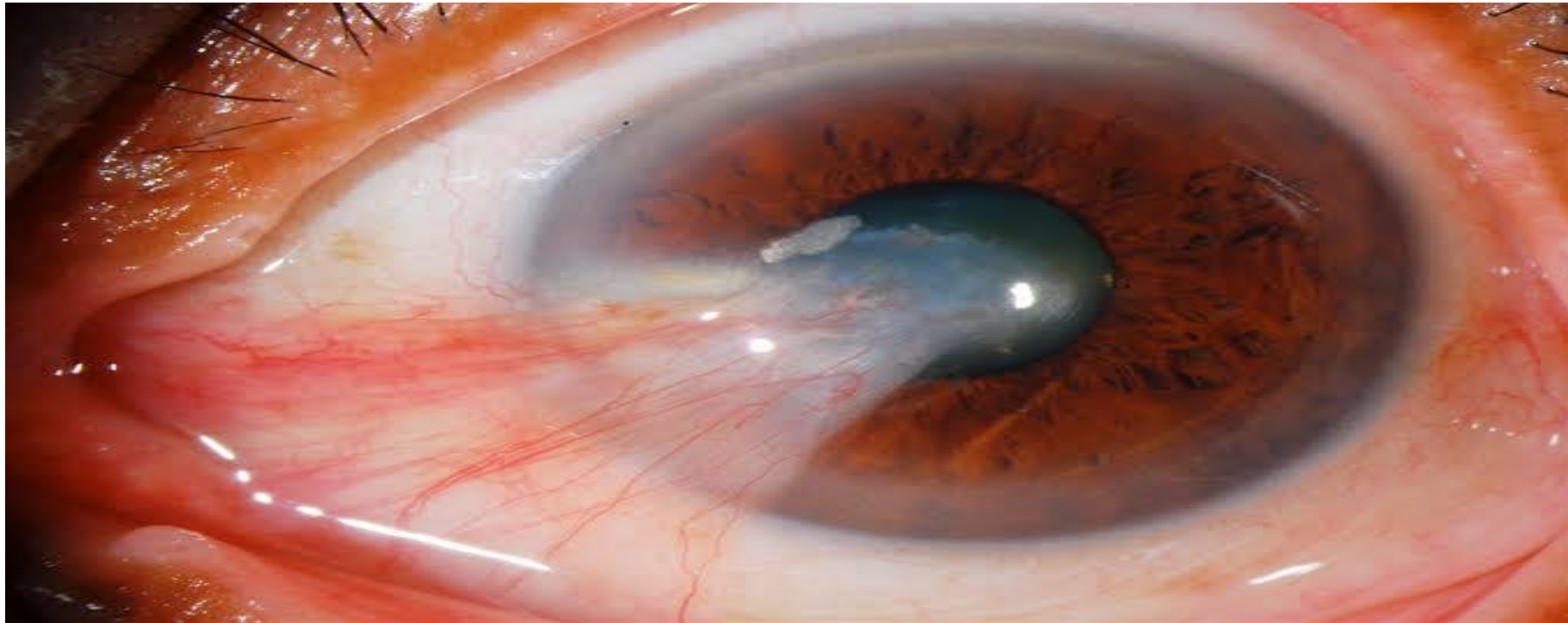


PTERYGIUM

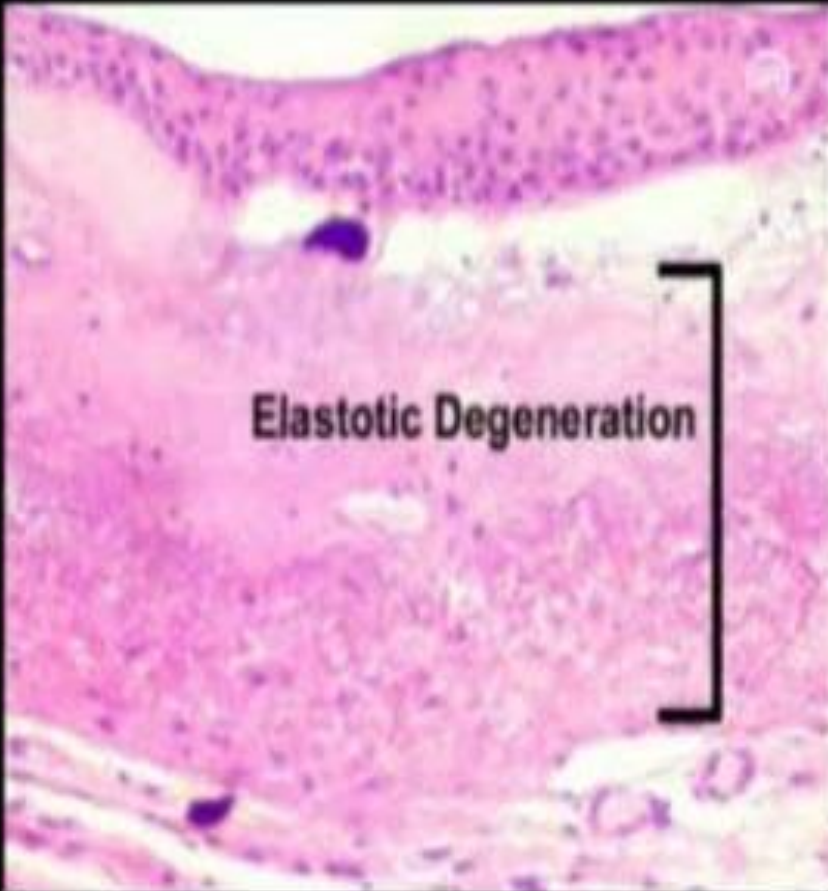


INTRODUCTION

- A pterygium is a triangular fibrovascular subepithelial ingrowth of degenerative bulbar conjunctival tissue over the limbus onto the cornea.
- It typically develops in patients who have been living in hot climates and, may represent a response to ultraviolet exposure and to other factors such as chronic surface dryness.

pathology

- Pathologically pterygium is a degenerative and hyperplastic condition of conjunctiva.
- The subconjunctival tissue undergoes elastotic degeneration and proliferates as vascularised granulation tissue under the epithelium, which ultimately encroaches the cornea.
- The corneal epithelium, Bowman's layer and superficial stroma are destroyed. Clinical



Degenerating collagen results in hyalinization of the subepithelial C.T

It comprises of abnormal elastic fibres.

They take up stain but do not degrade with elastase & thus it is called elastotic.

symptoms

- Most small lesions are asymptomatic.
- Irritation and grittiness are caused by a dellen – localized drying – effect at the advancing edge due to interference with the precorneal tear film
- Patients who wear contact lenses may develop symptoms of irritation at an earlier stage due to edge lift.

- Lesions may interfere with vision by obscuring the visual axis or inducing astigmatism.
- There may be intermittent inflammation similar to pingueculitis. Cosmesis may be a significant problem.
- Extensive lesions, particularly if recurrent, may be associated with subconjunctival fibrosis extending to the fornices that may cause restricted ocular excursion.

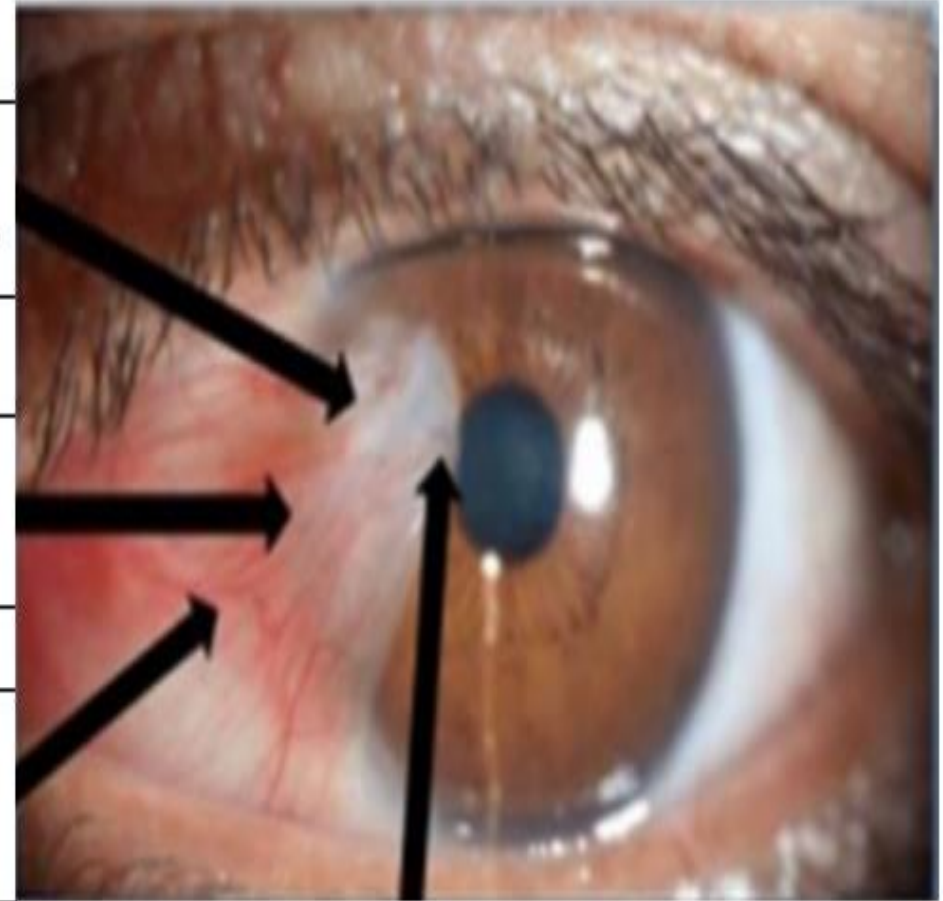
signs

- A pterygium is made up of three parts.
- Head: Apical part present on the cornea,
- Neck: Constricted part present in the limbal area, and
- Body: Sciera! part, extending between limbus and the canthus.
- Cap: Semilunar whitish infiltrate present just in front of the head.

Head-on cornea

Neck-in the limbal area

Body-extended between limbus and canthus



Cap-semilunar whitish infiltrate just in front of head

- Linear epithelial iron deposition (Stocker line) may be seen in the corneal epithelium anterior to the head of the pterygium



Stocker's Line

Corneal epithelial iron line at the edge of pterygium

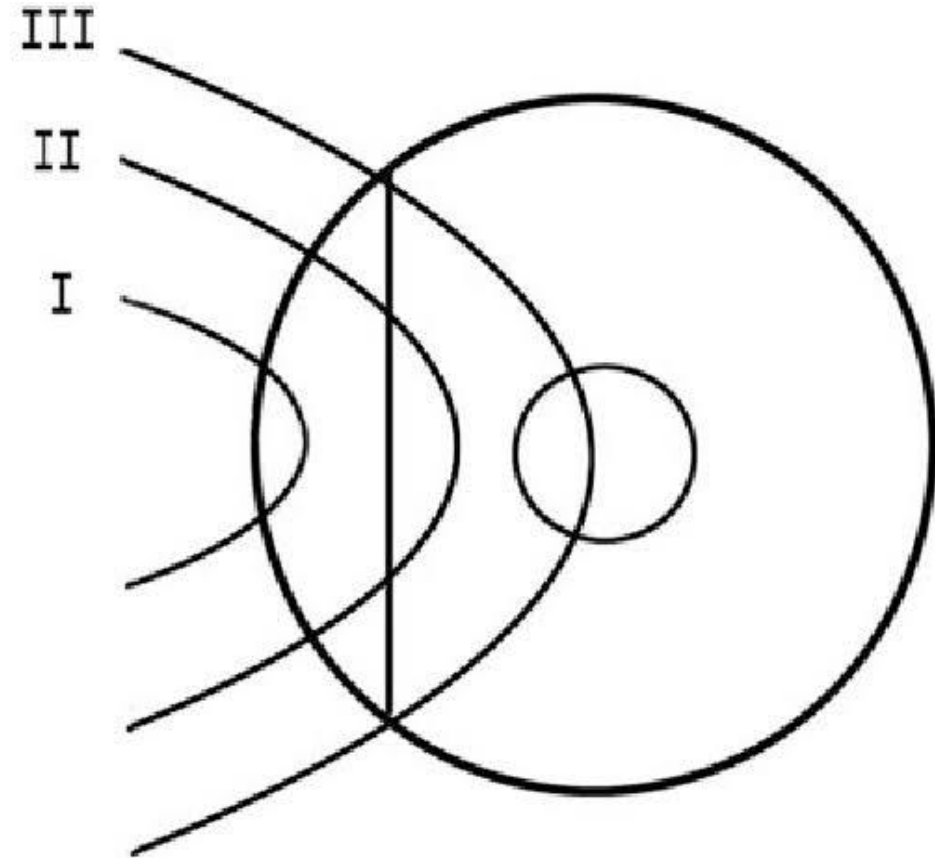
- Fuchs islets are small discrete whitish flecks consisting of clusters of pterygial epithelial cells often present at the advancing edge.



Types

Based on the extent, pterygium has been described of three types:

- Type I pterygium extends less than 2 mm onto the cornea.
- Type 2 pterygium involves upto 4 mm of the cornea.
- Type 3 pterygium encroaches onto more than 4 mm of the cornea and involves the visual axis



Depending upon the progression, it may be progressive or regressive pterygium.

Progressive pterygium is thick,

- fleshy and vascular with a few whitish infiltrates in the cornea,
- in front of the head of the pterygium known as Fuch's spots or islets of Vogt also called cap of pterygium.

Regressive pterygium is thin,

- atrophic, anenuated with very little vascularity.
- There is no cap, but deposition of iron (Stocker's line) may be seen sometimes, just anterior to the head of pterygium.
- Ultimately, it becomes membranous but never disappears.

- Types:-progressive, regressive

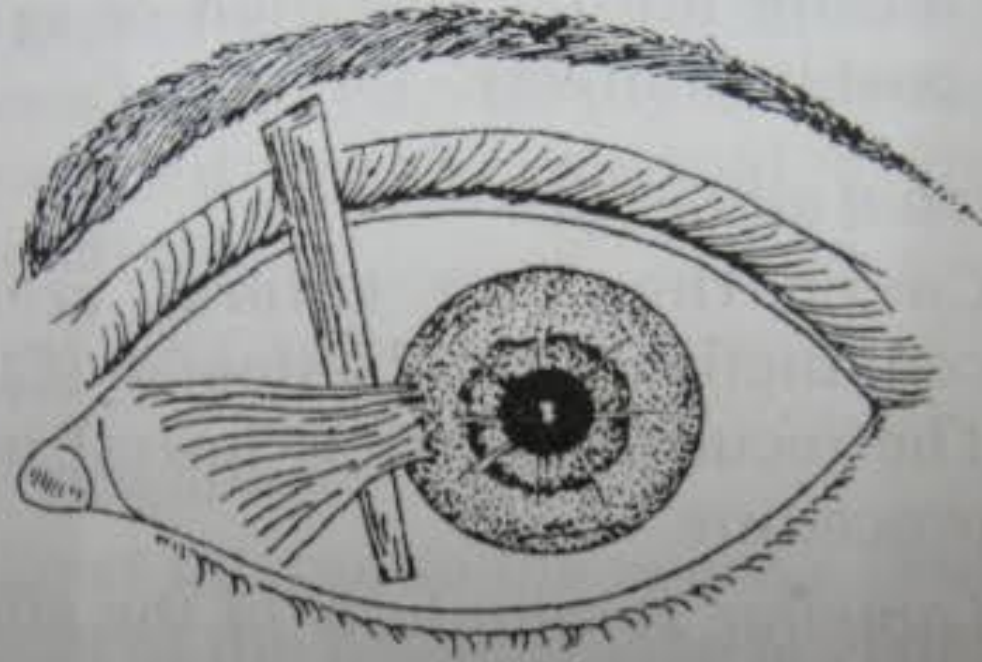


complications

- Cystic degeneration and infection are infrequent.
- Neoplastic changes like epithelioma, fibrosarcoma or malignant melanoma, may occur rarely

D/D

- **Pseudopterygium** is a fold of bulbar conjunctiva attached to the cornea.
- It is formed as a response to an acute inflammatory episode such as chemical burn, marginal corneal ulcer, corneal trauma and cicatrizing conjunctivitis.
- It results due to adhesions of chemosed bulbar conjunctiva with the peripheral de-epithelised corneal surface.



Pseudo-ptyerygium. A probe can be passed beneath the neck of the pseudo-ptyerygium.

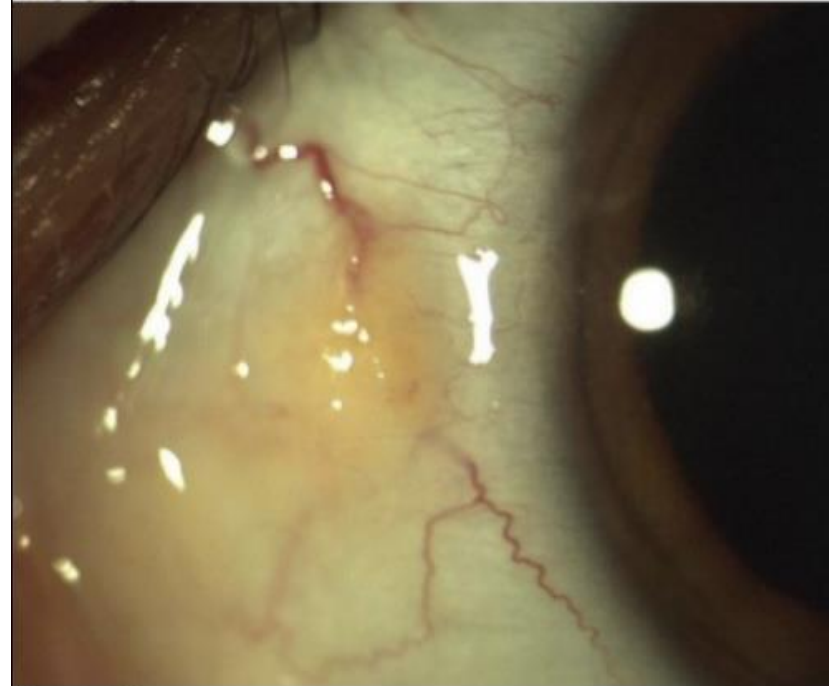
	Pterygium	Pseudopterygium
<u>Etiology</u>	<ul style="list-style-type: none">• Degenerative process• May occur due to chronic exposure to sunlight and dust	<ul style="list-style-type: none">• Inflammatory process• May be secondary to chemical burns, trauma or surgery
<u>Age</u>	More commonly seen in the older age group	May be seen in any age group

	Pterygium	Pseudopterygium
<u>Site</u>	Usually found at the 3o'clock or 9o'clock meridians	May appear anywhere on the cornea
<u>Laterality</u>	Usually bilateral	Will mostly be unilateral
<u>Stages</u>	Either progressive, regressive or stationary	Always stationary
<u>Adherence to Limbus</u>	Adherent to limbus	Does not adhere to the limbus, so a glass rod or muscle hook can be passed beneath it

pinguecula

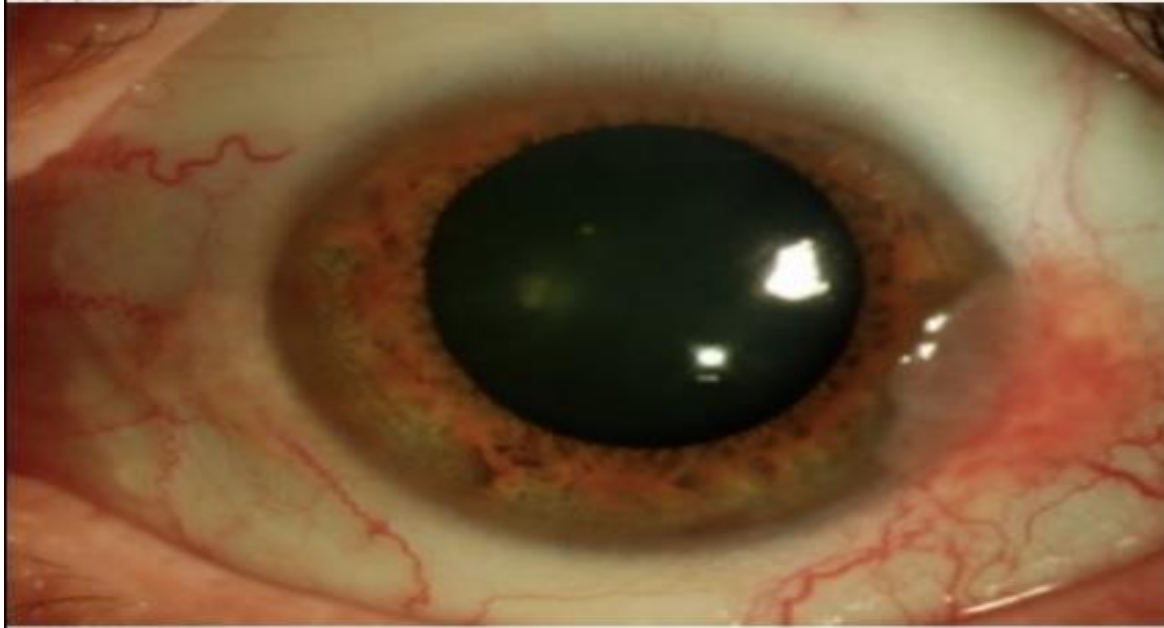
- A pterygium is histologically similar to a pinguecula and shows elastotic degenerative changes in vascularized subepithelial stromal collagen
- In contrast to pingueculae, pterygia encroach onto the cornea, invading the Bowman layer.

PINGUECULA



A pingueculum is limited to limbus and conjunctiva and does not encroach onto the cornea.

Ocular surface squamous neoplasia



Rare. Does not have typical pterygium shape. Not restricted to the 3 and 9 o'clock (interpalpebral) positions and can occur at any position on the cornea.

Nodular Episcleritis



- It would be painful while a pterygium, unless inflammed is not painful

TREATMENT

Medical treatment of not much use.

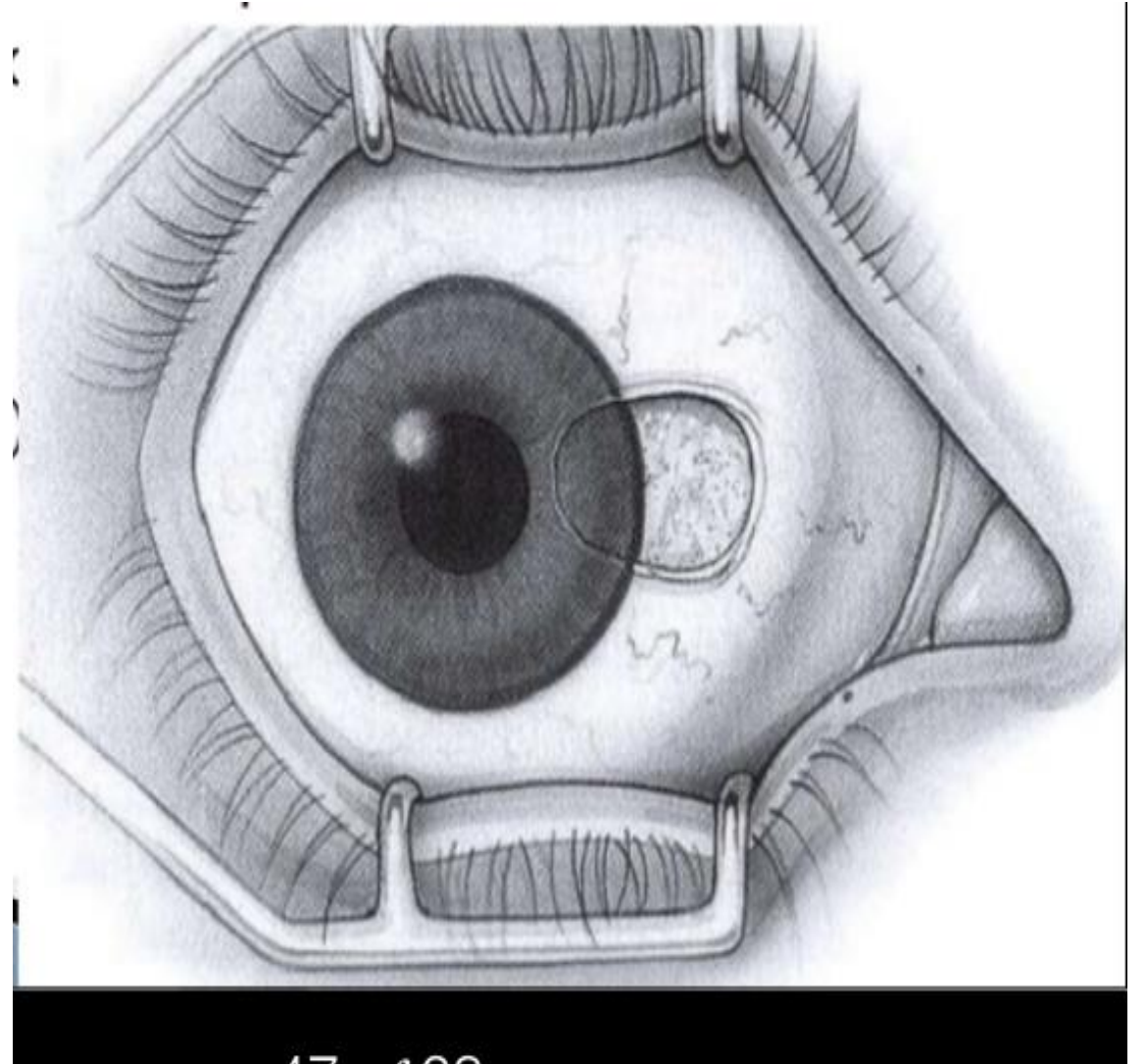
- Tear substitutes may be used in patients with small regressive pterygium for dry eye symptom.
- Topical steroids may be required for associated inflammation.
- Protection from ultraviolet rays with sunglasses decreases the growth stimulus.

Surgical excision is the only satisfactory treatment

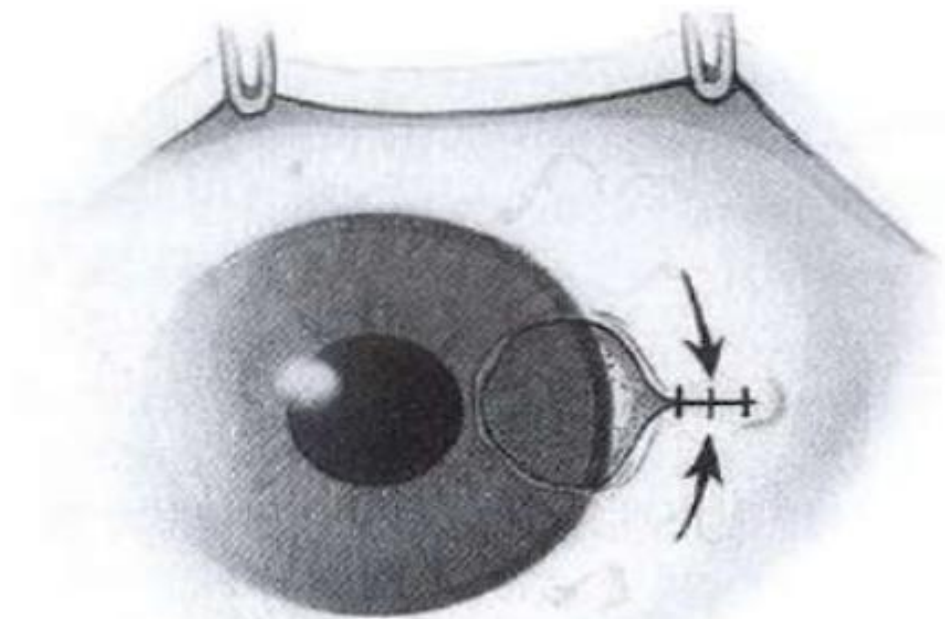
INDICATIONS

- Cosmetic disfigurement.
- Visual impairment due to significant regular or irregular astigmatism.
- Continued progression threatening to encroach onto the pupillary area.
- Diplopia due to interference in ocular movements.

- Simple excision ('bare sclera' technique) is associated with a high rate of recurrence (around 80%).
- often with more aggressive behaviour than the original lesion.



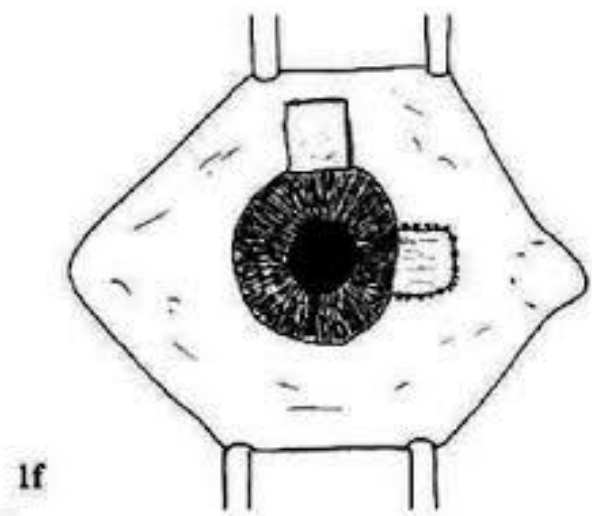
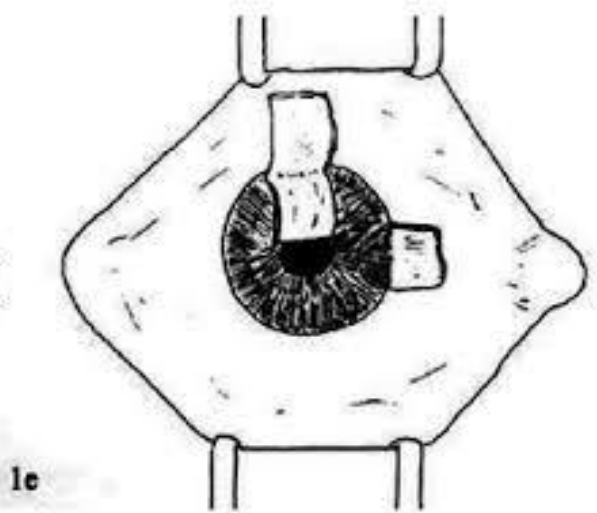
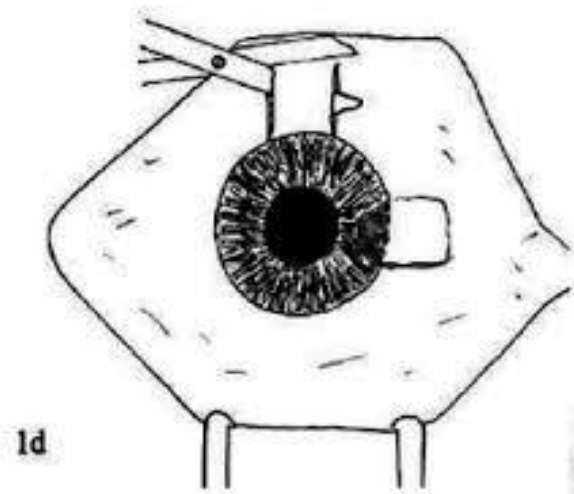
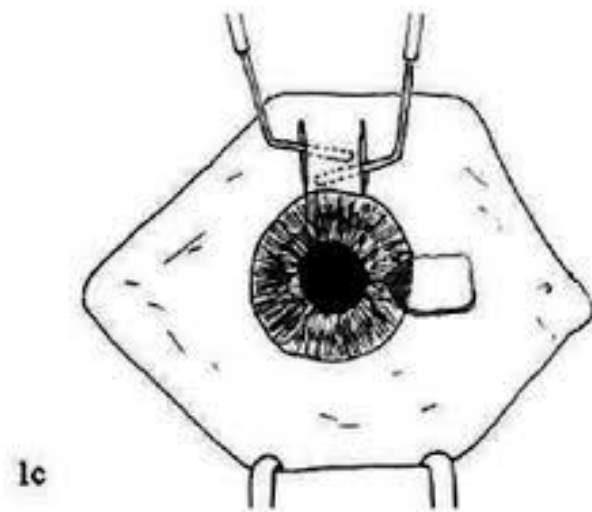
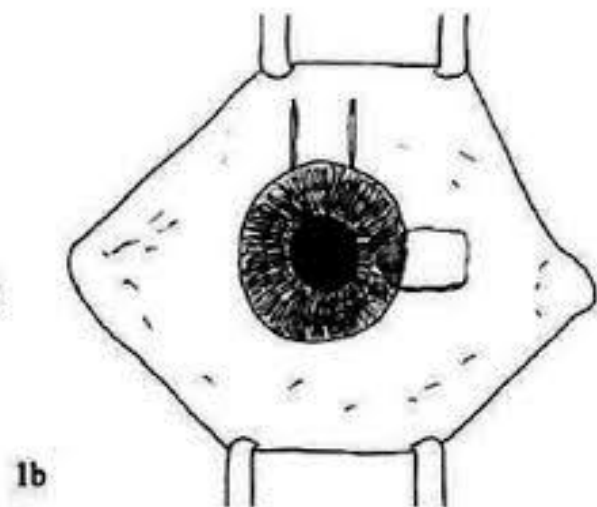
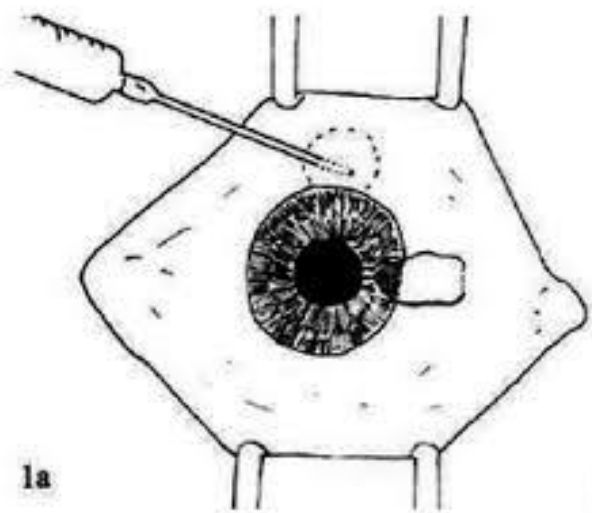
Simple closure: recurrence 45–69%



CONJUNCTIVAL AUTOGRAFT

- The initial incision is made at the distal end of the lesion, being careful not to take too much tissue.
- Both the head and the body are excised en toto.
- Minimal corneal dissection and lightly applied cautery is used to minimize tissue damage.
- Harvesting of the free graft is done in the superior quadrant and the graft slid into place to realign the limbus to its new position

- The graft is fixed in place to the conjunctiva with nonabsorbable suture or to the sclera with fibrin tissue glue applied to both surfaces and positioned to cover the vacant area up to the limbus.
- The donor wound site is closed with nonabsorbable suture to minimize postoperative inflammation.
- Adjunctive therapy is then applied to the subconjunctival surface and an antibiotic-steroid combination instilled topically.



AMNIOTIC MEMBRANE GRAFTING

- The initial incision is made at the distal end and the head and body are removed together.
- Adequate hemostasis is desired in the area of the recipient bed in order to facilitate a smooth, even graft fixation.
- Some residual heme may act as additional fibrin glue.
- The amniotic membrane graft is positioned with basement membrane side up and fixed in place with tissue glue or nonabsorbable sutures.

- Re-epithelialization will occur the surface of the graft, which acts as a basement membrane
- A stable graft is essential for a successful outcome.

Amniotic membrane application after pterygium excision

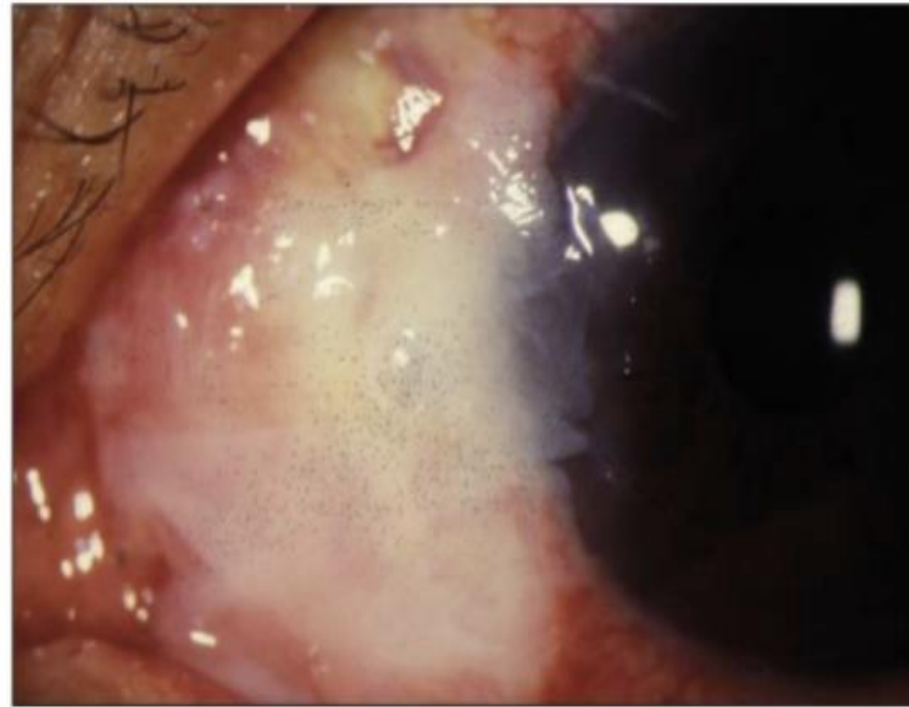


Fig. 4-31-1 Amniotic membrane application after pterygium excision.

- Adjunctive therapy with MMC is applied subconjunctivally and an antibioticsteroid combination instilled and used throughout the postoperative period.
- Cryopreserved human amniotic membrane tissue from donor placentas from a cornea tissue bank or freeze-dried amniotic tissue can be used.
- Amniotic tissue contains growth factors and anti-inflammatory proteins which promote adhesion of basal epithelial cells and suppress inflammation.

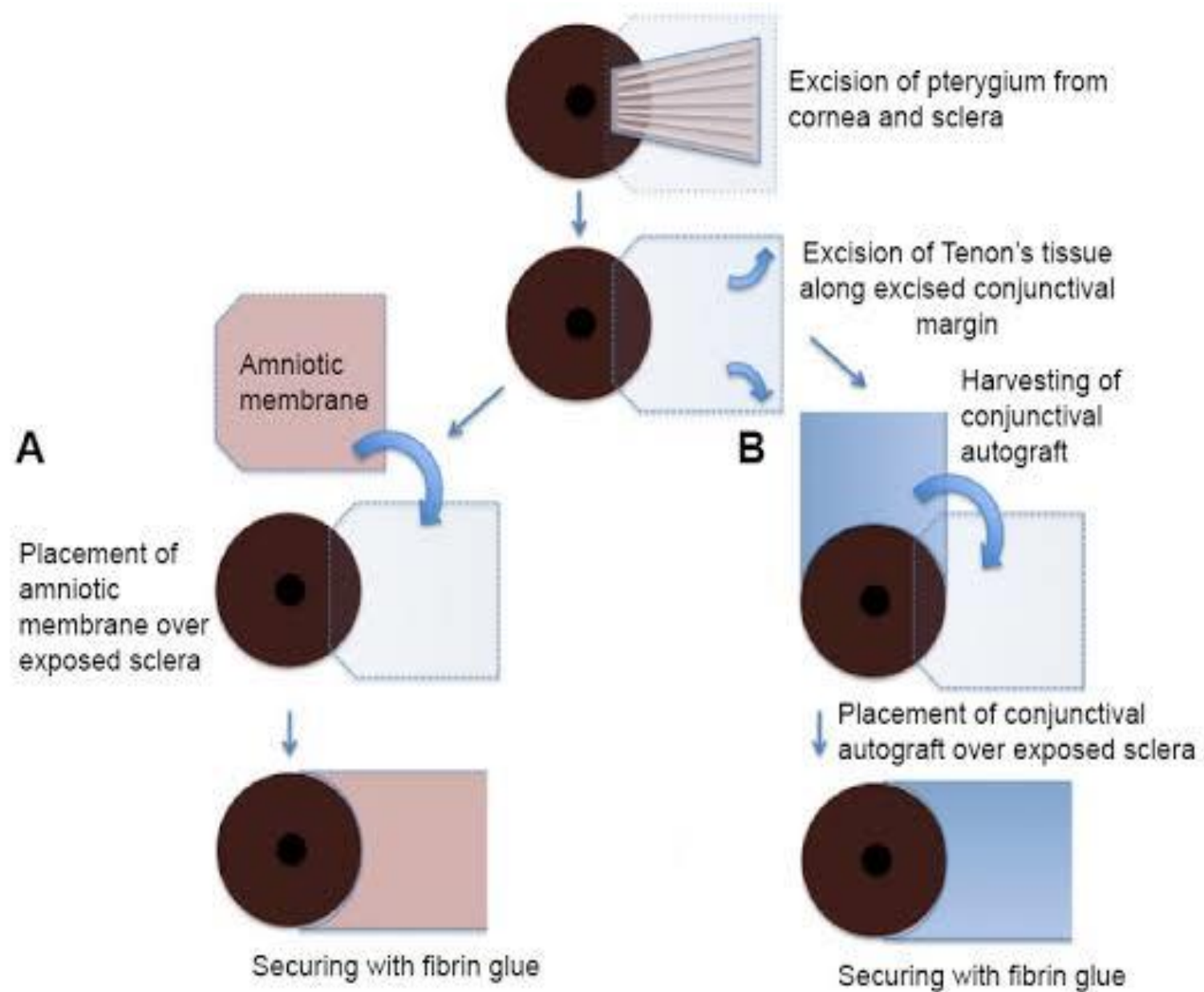


Figure 2 Schematic drawing of pterygium excision with amniotic membrane transplantation (A) and conjunctival autografting (B).

Amniotic membrane grafts can be used for

- primary pterygium,
- all recurrences,
- double-headed pterygia and
- is especially indicated for large lesions with complications such as symblepharon, multiple surgeries, viral and chemical components.

- To obtain the best outcome and reduce the risk of recurrence, both the conjunctival flaps and autograft should include corneolimbal stem cells in the tissue covering the sclera that is juxtaposed to the limbus.
- minimal surgical cautery is used and adjunctive therapy with MMC, 0.05–0.1 cc of 0.02–0.04% is preferred and administered in a single subconjunctival dose.

MITOMYCIN C

- MMC is an antibiotic and antineoplastic agent that was first isolated from the bacterium *Streptomyces caespitosus*.
- It undergoes reductive activation to become a potent alkylating agent.
- Under hypoxic conditions, it interferes with DNA replication by crosslinking DNA, usually at the N2 position of guanine; as such it is most effective in cells
- that are actively dividing.

- Under aerobic conditions, it generates toxic oxygen radicals capable of nonspecific interference with RNA and protein synthesis.
- It has been used intravenously as an antineoplastic agent against tumors of the gastrointestinal tract, pancreas, lung, and breast, among others.



5 FLUOROURACIL

- 5-FU is a fluorinated pyrimidine
- Its primary antimetabolic effect is believed to be inhibition of thymidylate synthetase; this leads to a lack of intracellular thymidine, component that is necessary for DNA production.
- Exposure to 5-FU poses a significant impediment to the proliferation of conjunctival and Tenon's capsule fibroblasts and that of corneal epithelial cells.
- Its theoretical effect in preventing the recurrence of pterygia derives from this inhibitory action on fibroblast proliferation.

ANTI-VEGF

- Bevacizumab is a full length ,humanised,monoclonal antibody against all types of VEGF.
- It binds to and neutralises the biologic activity of all types of human VEGF,so it prevents interaction with its on the surface of the cell.
- It is used to treat CNV in ARMD.
- Few studies have recently undertaken to determine the clinical effect and safety of subconjunctival inj of bevacizumab for pterygium.

- Local application of bevacizumab ,however showed promise in inducing regression in pterygium vascularity and thickness.
- More research is still required in this area.



POST OP COMPLICATIONS

- INTRA OP COMPLICATIONS

Bleeding

medial rectus muscle injury

damage to canalicular system

corneal/scleral following extensive dissection

- POST OP COMPLICATIONS

Recurrence

Endophthalmitis

Scleritis

Pyogenic granuloma

Dellen

Persistent epithelial defect



**Thank
You!**