

Common Eye Disorders

Dr. Amir Azadi

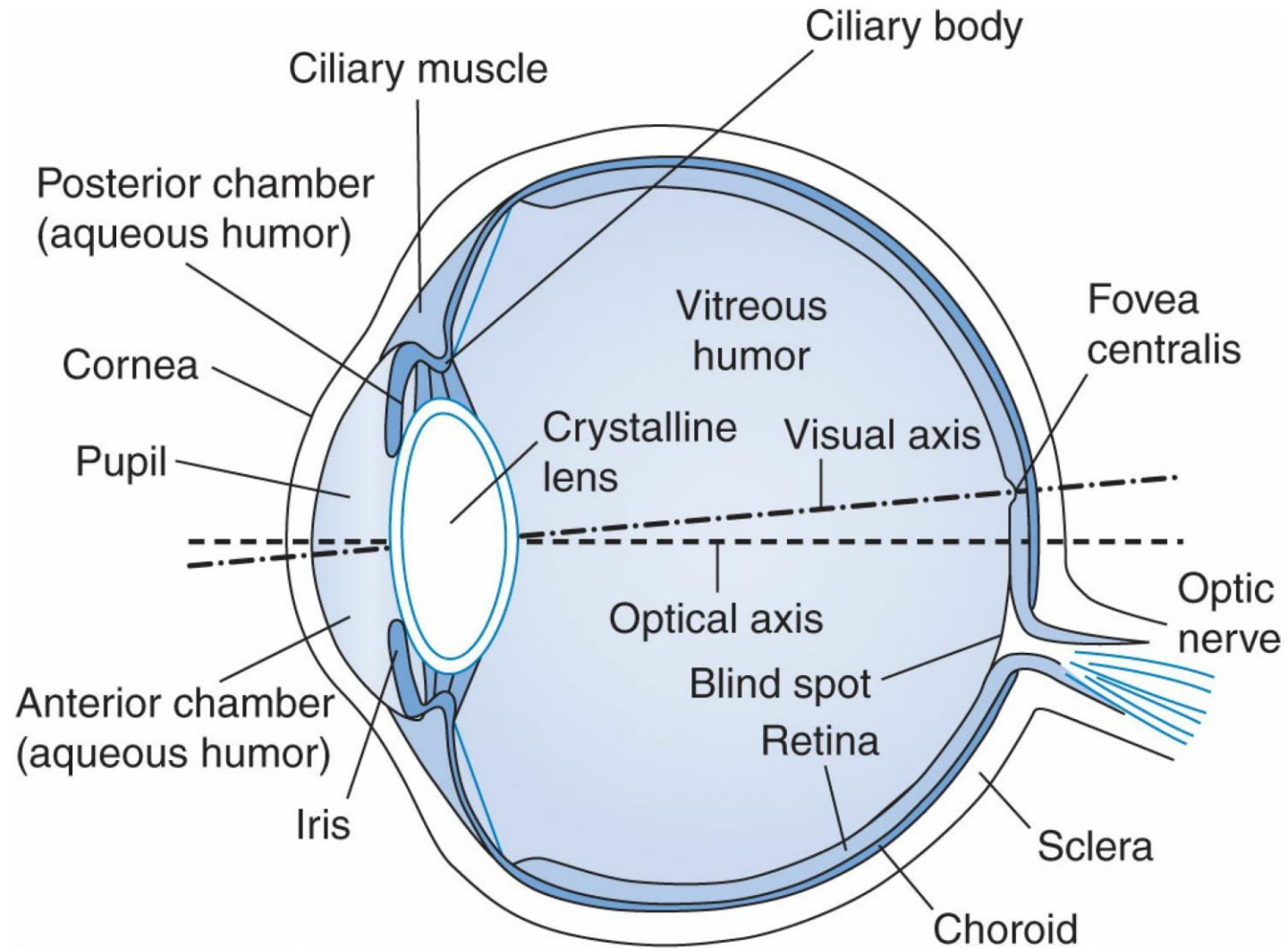
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Department of Pharmaceutics

Shiraz University of Medical Science

Anatomy of the human eye



Glaucoma

- **Intraocular Pressure**

- The inner pressure of the eye (i.e., IOP) is influenced by the **production of aqueous humor** by the ciliary processes and the **outflow of aqueous humor** through the trabecular meshwork.
- Generally, an IOP of **10 to 20 mm Hg** is considered normal.
- An IOP of **22 mm Hg** or greater should arouse suspicion of glaucoma, although a more rare form of glaucoma is associated even with **normal IOP**.

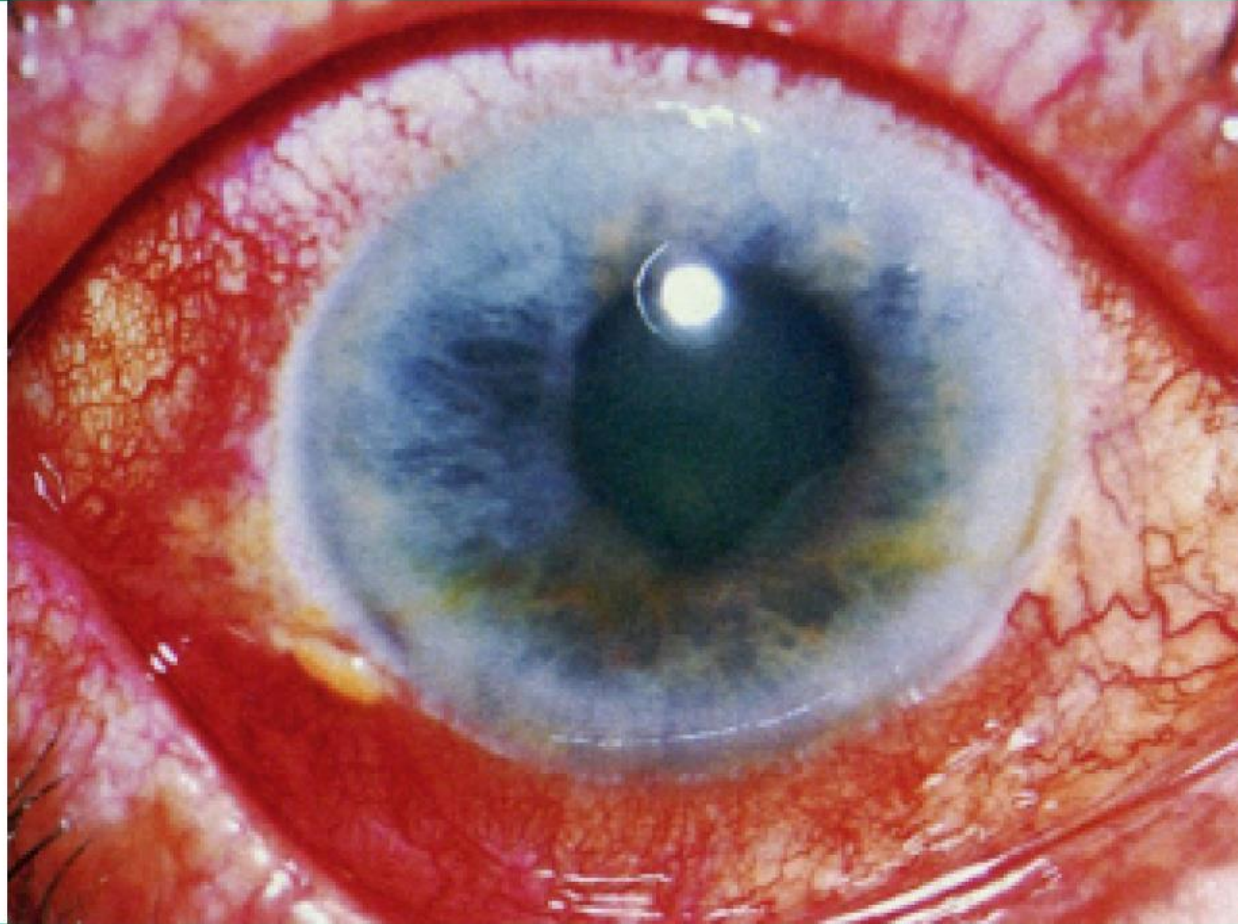
Type of glaucoma

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graph LR; A[Type of glaucoma] --> B[Open-angle glaucoma]; A --> C[Angle-Closure Glaucoma]
```

Open-angle glaucoma

Angle-Closure Glaucoma

Acute angle-closure glaucoma



Treatment of Open- Angle Glaucoma

- Historically, **β -adrenergic blockers** have been the most commonly prescribed **first line agents** for the treatment of OPAG.
- In recent years, **prostaglandin analog (PGA)** use has reached, if not exceeded, **β -adrenergic blocker** use.

Treatment of Open- Angle Glaucoma

- **β -Adrenergic Blockers**
- Ophthalmic **β -adrenergic antagonists** block the **β -adrenergic receptors** in the **ciliary epithelium** of the eye.
- They lower IOP primarily by **decreasing aqueous humor production**.
- On average, **β -blockers** decrease IOP by **20% to 35%** depending on the **strength used** and the **frequency of administration**.

Treatment of Open- Angle Glaucoma

- **Timolol**
 - A **non-selective β_1 - and β_2 -adrenergic antagonist**, is one of the most commonly prescribed glaucoma medications.
 - Concentrations or dosages exceeding **one drop of timolol 0.5% twice daily (BID)** do not produce **further significant** decreases in IOP.
 - An escape phenomenon, or **tachyphylaxis**, can occur with timolol.

Treatment of Open- Angle Glaucoma

- **Levobunolol**
 - It is a **non-selective** β -adrenergic antagonist.
 - It is approved for either **once daily** or **BID** administration.
 - **Levobunolol 0.5% and 1%** are comparable to **timolol** in lowering IOP.
- The **incidence of adverse reactions**, including **decreases in heart rate**, is also comparable to that for timolol.

Treatment of Open- Angle Glaucoma

- **Metipranolol**
 - It is **non-selective** β -adrenergic blocking agent.
 - Metipranolol 0.1% to 0.6%, is comparable to **timolol 0.25% to 0.5%** in **reducing IOP**.
 - Metipranolol produces **corneal anesthesia**, which occurs within **1 minute** of instillation and **returns to baseline** after **10 minutes**.
 - Metipranolol is associated with a **greater incidence** of **stinging** or **burning** on administration

Treatment of Open- Angle Glaucoma

- **Carteolol**

- It is a **non-selective β -adrenergic** blocking agent with **partial β -adrenergic agonist activity**.
- Theoretically, it should minimize the **bronchospastic, bradycardic, and hypotensive effects** associated with other ocular β -adrenergic blockers.
- **Carteolol 1%** and **timolol 0.25%** administered BID are **equally effective** in reducing IOP.

Treatment of Open- Angle Glaucoma

- **Betaxolol**
 - It is a **selective** β_1 -adrenergic blocker.
 - This **cardioselective** property may result in less adverse effects on **pulmonary function** than nonselective β -adrenergic blockers in patients with **reactive airway disorders**.
 - Betaxolol is **slightly less effective** than timolol in **IOP reduction**, and more patients tend to need **adjunctive therapy** with betaxolol.

Treatment of Open- Angle Glaucoma

- **Prostaglandin Analogs**

- They are **selective analogs** of prostaglandin F_{2α}.
- The prostaglandin analogs **increase uveoscleral outflow** of aqueous humor and, thereby, **decrease IOP**.
- These agents often are prescribed as **first-line agents**.

Treatment of Open- Angle Glaucoma

- **Latanoprost**
 - When administered **once daily in the evening**, latanoprost is at least as effective as timolol in decreasing IOP.
 - The **nocturnal control of IOP** with latanoprost was **superior** to that with **timolol**.
 - Latanoprost 0.005% should be dosed **once daily** in the **evening** because the IOP-lowering effects of latanoprost might **actually be inferior** when administered **more frequently**.

Treatment of Open- Angle Glaucoma

- Latanoprost side effects

Iris
pigmentation

Eyelid skin
darkening

Eyelash
lengthening

Thickening
pigmentation

Conjunctival
hyperemia

Ocular
irritation

Latanoprost is a good adjunctive ophthalmic agent for patients who are unable to adequately lower their IOP with single-agent therapy.

Latanoprost has additive effects when administered with β -blockers (e.g., timolol), carbonic anhydrase inhibitors (e.g., dorzolamide), and α 2-adrenergic agonists (e.g., brimonidine, apraclonidine).

Treatment of Open- Angle Glaucoma

- **Travoprost**
 - It is approved for the reduction of **elevated IOP** and **ocular hypertension** in patients who are intolerant or who fail to respond to other agents.
 - **Local irritation** may be less with **travoprost** because it is free of the preservative **benzalkonium chloride**.

Treatment of Open- Angle Glaucoma

- **Bimatoprost**
 - **Once daily** or BID achieved lower target IOPs than did timolol BID.
 - The **side effect profile** of **bimatoprost** appears to be similar to that for **latanoprost** and **travoprost**.

Treatment of Open- Angle Glaucoma

- **Bimatoprost**
- The FDA approved the cosmetic use of bimatoprost solution under the trade name **Latisse®**.
- **Latisse®** solution is applied with an applicator to the base of the upper eyelashes for the **treatment of hypotrichosis** (inadequate eyelashes).
- Eyelash **lengthening, thickening, and darkening** or pigmentation is seen after **8 to 16 weeks** of use.

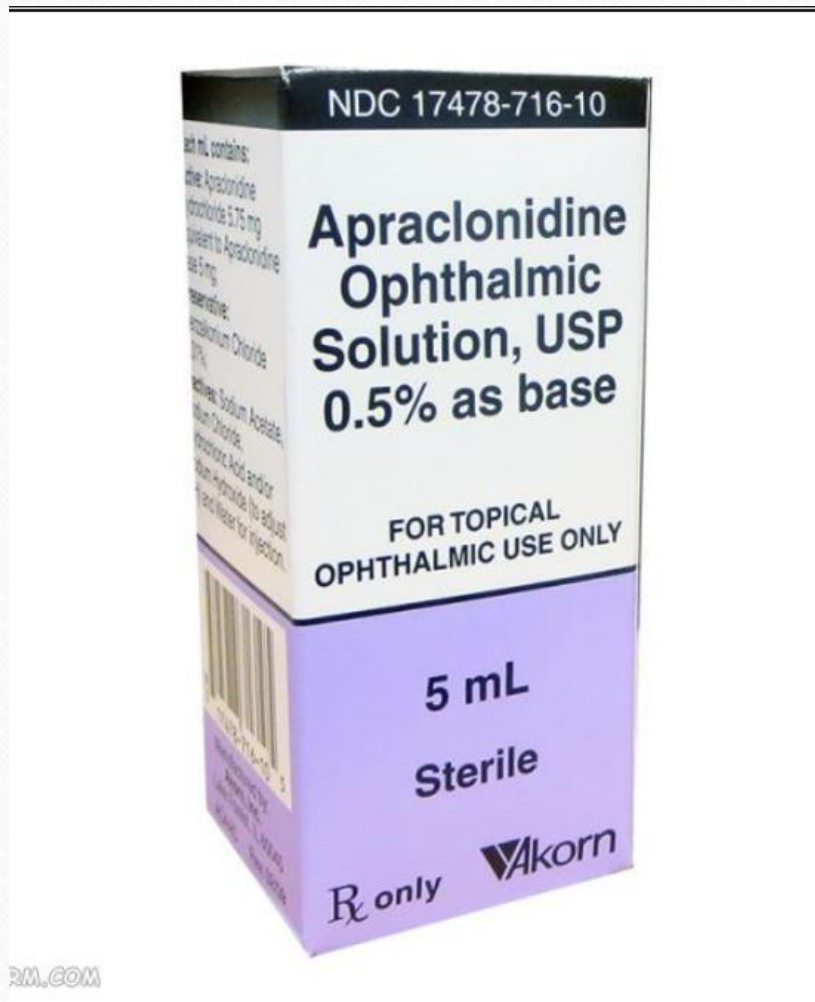


Treatment of Open- Angle Glaucoma

- **α 2-Adrenergic Agonists**
 - **Apraclonidine (Iopidine)** and **brimonidine (Alphagan)** are selective α 2-adrenergic agonists similar to clonidine.
 - **Apraclonidine** is **less lipophilic** than **clonidine** and **brimonidine**, does not cross the blood–brain barrier as readily, and theoretically has **fewer systemic side effects** (e.g., hypotension, decreased pulse, dry mouth).
 - **Brimonidine** is more **highly selective for α 2-adrenergic receptors** than clonidine or apraclonidine and, theoretically, should be associated with **fewer ocular side effects**.

Treatment of Open- Angle Glaucoma

- **α 2-Adrenergic Agonists**
 - α 2-Adrenergic agonists appear to lower IOP by **decreasing the production of aqueous humor** and by **increasing uveoscleral outflow**.
 - Brimonidine is an **alternative first-line agent**.
 - It may also be used as **adjunctive therapy** in patients not responding to other agents.



Management of ptosis:

- Apraclonidine 0.5 percent three times per day as needed.
- Naphazoline can be used every four hours as needed.

Long-term IOP control should be monitored closely in patients taking α 2-adrenergic agonists because tachyphylaxis can occur.

Treatment of Open- Angle Glaucoma

- **Topical Carbonic Anhydrase Inhibitors**
 - **Carbonic anhydrase** occurs in high concentrations in the **ciliary processes** and **retina** of the eye.
 - Carbonic anhydrase inhibitors **lower IOP** by decreasing **bicarbonate production**.
 - It result in a **40% to 60% decrease** in **aqueous humor secretion**.

Treatment of Open- Angle Glaucoma

- **Topical Carbonic Anhydrase Inhibitors**
 - Although CAIs have been used **orally** for many years in the **treatment of elevated IOPs**, they have been replaced by the **topical ophthalmic CAIs, Dorzolamide & Brinzolamide**.
 - Topical CAIs are **excellent alternatives** to **β-blockers** in the initial management of elevated IOPs, and are effective as adjunctive agents.
 - **Brinzolamide** and **dorzolamide** are approved for **TID dosing**; however, **BID** dosing may be adequate.

The combined use of topical dorzolamide and oral acetazolamide does not result in additive effects and might increase the risk of toxicity.

The concomitant use of topical and oral CAIs is not advised.

Treatment of Open- Angle Glaucoma

- **Topical Carbonic Anhydrase Inhibitors**
 - The most common adverse effects reported with dorzolamide are. **ocular burning, stinging, discomfort and allergic reactions, bitter taste.**
 - Brinzolamide causes less **burning** and **stinging of the eyes** than dorzolamide, because its **pH** more closely resembles that of human tears.

Treatment of Open- Angle Glaucoma

- **Anticholinesterase & cholinergic agents**
 - **Pilocarpine** historically was an initial treatment of choice, but with the introduction and widespread use of newer agents, pilocarpine has **fallen out of favor**.
 - Pilocarpine is a **direct-acting cholinergic (parasympathomimetic)** that causes **contraction of ciliary muscle fibers** attached to the trabecular meshwork and scleral spur.
 - This opens the **trabecular meshwork** to enhance **aqueous humor outflow**



Treatment of Open- Angle Glaucoma

- Anticholinesterase & cholinergic agents
 - Echothiophate iodide is an **irreversible cholinesterase inhibitor**.
 - It may be used if **maximal doses of other agents and combination therapy are ineffective**.
- Echothiophate iodide has a **long duration of action** that affords **good control of IOP**.

Generic	Mechanism	Strength	Usual Dosage	Comments
β-Blockers				
Betaxolol (Betoptic [solution], Betoptic S [suspension])	Sympatholytic	0.25% (suspension) 0.5% (solution)	1 drop BID 1 drop BID	Shake suspension well before use. Effective with few associated ocular side effects. BID dosage enhances compliance. Considered β-blocker of choice in patients with preexisting HF or pulmonary disease because of β ₁ -adrenergic specificity. Patient response may be less than that seen with timolol
Carteolol (Ocupress)	Sympatholytic	1%	1 drop BID	Effective with few associated side effects. BID dosage enhances compliance. Use with caution in patients with preexisting HF or pulmonary disease
Levobunolol (Betagan)	Sympatholytic	0.25%, 0.5%	1 drop daily or BID	Effective with few associated ocular side effects. Daily and BID dosage enhances compliance. Use with caution in patients with preexisting HF or pulmonary disease
Metipranolol (OptiPranolol)	Sympatholytic	0.3%	1 drop BID	Effective with few associated side effects. BID dosage enhances compliance. Use with caution in patients with preexisting HF or pulmonary disease
Timolol (Timoptic) (Betimol) (Istalol)	Sympatholytic	0.25%, 0.5% 0.5% (Istalol) 0.25%, 0.5% preservative-free (Timoptic Ocudose)	1 drop BID 1 drop daily in morning (Istalol)	Effective with few associated ocular side effects. Daily and BID dosage enhances compliance. Use with caution in patients with preexisting HF or pulmonary disease. Proven long-term effectiveness, with well-defined side effect profile
Timolol Gel-Forming Solution (Timoptic XE, Timolol GFS)	Sympatholytic	0.25%, 0.5%	1 drop daily	Once-daily timolol formulation. The ophthalmic vehicle, gellan gum (Gelrite), prolongs precorneal residence time and ↑ ocular

				bioavailability, allowing once-daily administration
α₂-Selective Adrenergic Agonists				
Apraclonidine (Iopidine)	Sympathomimetic	0.5%, 1%	1 drop preoperatively and postoperatively or 1 drop BID to TID	May be used preoperatively and postoperatively for the prevention of ↑ IOP after anterior-segment laser procedures. Use of NLO minimizes systemic side effects and allows for BID dosing. Does not penetrate the blood-brain barrier, therefore negligible systemic hypotension. Local adverse effects fairly common. Tachyphylaxis may be observed
Brimonidine (Alphagan)	Sympathomimetic	0.15%, 0.2%	1 drop BID to TID	Effective long-term monotherapy or adjunctive therapy. Use of NLO minimizes systemic side effects and allows for BID dosing. Penetrates the blood-brain barrier, therefore may cause mild systemic hypotension and lethargy. Local adverse effects less common than with apraclonidine
Brimonidine (Alphagan P)	Sympathomimetic	0.1%, 0.15%	1 drop BID to TID	Contains Purite preservative. Purite preservative and lower concentrations may improve tolerability

p. 1155

p. 1156

Topical Carbonic Anhydrase Inhibitors				
Brinzolamide (Azopt)	Decreased aqueous humor production	1%	1 drop TID	Shake suspension well before use. Effective long-term monotherapy or adjunctive therapy. Well tolerated with few systemic side effects. Less burning and stinging compared with dorzolamide
Dorzolamide (Trusopt)	Decreased aqueous humor production	2%	1 drop TID	Effective long-term monotherapy or adjunctive therapy. Well tolerated with few systemic side effects

Prostaglandin Analogs				
Latanoprost (Xalatan)	Prostaglandin F _{2α} agonist	0.005%	1 drop once a day at bedtime	BID dosing may be less effective than once a day at bedtime dosing. May cause increased pigmentation of the iris and eyelid. Systemic side effects are rare, but may cause muscle, joint, back pain, headaches, migraines, and skin rash. Effective monotherapy or adjunctive therapy. Store unopened bottles in refrigerator. Opened bottles may be stored at room temperature up to 6 weeks
Travoprost (Travatan Z)	Prostaglandin F _{2α} agonist	0.004%	1 drop once a day at bedtime	BID dosing may be less effective than once a day at bedtime dosing. May cause increased pigmentation of the iris and eyelid. Systemic side effects are rare, but may include colds and upper respiratory tract infections. Effective monotherapy or adjunctive therapy with timolol. May be more effective than timolol and latanoprost and more effective in African-Americans. Does not contain benzalkonium chloride as a preservative. Contains the preservative SofZia that may be better tolerated
Bimatoprost (Lumigan)	Prostamide	0.01%, 0.03%	1 drop once a day at bedtime	BID dosing may be less effective than QHS dosing. May cause increased pigmentation of the iris and eyelid. Systemic side effects are rare but include colds and upper respiratory tract infections and headache. May be more effective than timolol and latanoprost
Tafluprost (Zioptan)	Prostaglandin F _{2α} agonist	0.0015% preservative-free dropperette	1 drop once a day at bedtime	BID dosing may be less effective than QHS dosing. May cause increased pigmentation of the iris and eyelid. Systemic side effects are rare but include common cold, cough, headache, and urinary tract infections.

				Store unopened foiled pouches in refrigerator. Single-use container may be stored in the opened foil pouch for 28 days at room temperature
Miotics				
Pilocarpine (Isopto Carpine)	Parasympathomimetic	1%, 2%, 4%	1–2 drops TID or QID	Long-term proven effectiveness. Little rationale for administration more frequently than every 4 hours. Side effects of miosis with decreased vision and brow ache are common sources of patient complaints.
Carbachol (Isopto Carbachol)	Parasympathomimetic	1.5%, 3%	1–2 drops TID or QID	Used in patients allergic to or intolerant of other miotics. May be used as frequently as every 4 hours. Corneal penetration is enhanced by benzalkonium chloride in commercial preparations. Side effects are similar to those of pilocarpine

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p. 1157

Echothiophate iodide (phospholine iodide)	Anticholinesterase	0.125%	1 drop BID	Long duration, although usually dosed BID, which enhances compliance. Available as powder + diluent; after reconstitution, stable 30 days at room temperature, 6 months refrigerated. Side effects similar to those of pilocarpine. Increased cataract formation has been associated with its use
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قیمت:

C.C:

Dx:

Rx:

1 Diastol tab #250

ع, بت قیمت #

30

3 Ketorolac eye #

هوا #

(نسخه داروخانه و پاراکلینیک)

مهر و امضای پزشک

مهر و امضای داروخانه یا پاراکلینیک

جمع:

بیمه شده

سازمان

دکتر منصوره اقتدار
 جراح و متخصص فلوشیپ بیماریهای چشم
 داسیاری تبریز
 وقت داسیاری تبریز
 ن. کاربر نامه

نام	۲۰۰	۱۱۵۰۰
کد ش	۲۰۰	۱۱۵۰۰
سر	۲۰۰	۱۱۵۰۰
کد	۲۰۰	۱۱۵۰۰
تا	۲۰۰	۱۱۵۰۰

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جمع	۱۲۰۰	۱۱۵۰۰
سهام بیمار	۲۰۰	۱۱۵۰۰
سهام سازمان	۲۰۰	۱۱۵۰۰
پرداخت بیمار	۲۰۰	۱۱۵۰۰

مهر و امضاء داروخانه و پاراکلینیک مبلغ ویزیت (ریال):

۳۰۰ Ketorolac

مهر و امضاء پزشک

دکتر معصومه اقتدا
 جراح و متخصص بیماریهای
 دهان و فک و اندام فوقانی
 دانشیار تمام وقت
 بیمارستان

بیمار یا تشخیص احتمالی

۲-۴۹۱

به متخصص
تاریخ
پزشکی خانواده
دکتر محمدعلی جوینی ر.ب ۱۳۹۴

کد ارجاع: ۱۹۰۰۰۰

تجهیزات: ۰۰۰۰۰۰

۱۳۳۰۰۰۰

Zilamali

۶-
فروکار
II

(نسخه داروخانه و پاراکتیک)

مهر و امضای داروخانه یا پاراکتیک

دکتر معصومه افتداری
جراح و متخصص بیماریهای چشم
فلوشیپ پاتولوژی چشم
دانشیار بیمارستان وقت
۶۴۹۹۲
ن.ب
شماره کار برنامه پزشکی

جمع:

سهم
بیمه شده
سهم
سهم
سهم

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۱/ Diemop $2\Delta = 3$
CNP = 2

2/ Brimya
Brimarides

3/ Zilom

4/ Khalatan

دکتر محمود صابری
متخصص و جراح چشم
دانشیار تمام وقت
۲۹۶۹۰
خانواده شاهی
شماره پلاک ۲۲۷۵۵

مهر و امضاء داروخانه و پاراکلینیک مبلغ ویزیت (ریال):

مهر و امضاء پزشک

جمع
سهام بیمار
سهام سارعتن
پرداخت بیمار

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R
Brimonidil

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ARTIL fear e

امضاء داروخانه و پاراکلینیک مبلغ ویزیت (رنال) ...
مهر و امضاء پزشک

جمع
سهم بیمار
سهم سازمان
پرداخت بیمار

۳

۱۵۴۰۱		۳	۲۱۱۲۲	قیمت (ریال)
شمسه R				۸۰۱۰۰
				۱۵۰۰۰
۱) Eye drop	Betametasolone	۲۳۰۰۰		۶۰۰۰
	۳ روز			۱۹۰۱۷۰
2) Eye drop	Beta Xolol			
	۱۱ روز			
مبلغ ویزیت (ریال):	مهر و امضاء پزشک			مبلغ ویزیت (ریال):
				مهر و امضاء پزشک

دکتر محمد حسن پوروززاده
 جراح و متخصص بیماریهای چشم
 نوبت‌دهنده در روزهای شنبه و یکشنبه
 ساعت ۱۰:۰۰ تا ۱۲:۰۰ ظهر و ۱۷:۰۰ تا ۱۹:۰۰ عصر
 آدرس: تهران، خیابان ولیعصر، پلاک ۱۰۸۲۲
 شماره تماس: ۰۲۱-۸۸۲۲۰۰۰۰

سهم سازمان
 پرداخت بیمار

	قیمت (ریال)
۲۰ ۳ ۲۵ Zilomax ۱۰۰ mg #2	۹۶۰۰۰ ۲۰۰۰۰
Brimonidina ۲ mg #2	۱۳۰۰۰ ۲۰۰۰۰ ۹۴۰۰۰
Lataprost ۱۰۰ mg #1	
ART مهر و امضاء پزشک	۱۰۰ سهم سازمان پرداخت بیمار

مبلغ ویزیت (ریال):

دکتر شهرام فیضی
 استادیار تخصص فوق تخصص
 کلینیک و متخصص
 چشم پزشکی
 مهر و امضاء پزشک
 مهر و امضاء پزشک

بیمار با تشخیص احتمالی: V.O

معرفی میشود: تاریخ مهر و امضاء پزشک خانواده

به متخصص: پزشک خانواده

دکتر معرفی عابدی ن. پ. ۳۶۸۶۷ C.G. قیمت: درجانی

۴

- Syedup Co Biosopt Q8h ۳۱۷

- Syedup Brungom Q8b #3

- Syedup Cataract QN #3

Syedup Befen ethve #1
(نسخه داروخانه و پاراکلینیک) Q4h

جمع:	
سهم بیمه شده	
سهم سازمان	

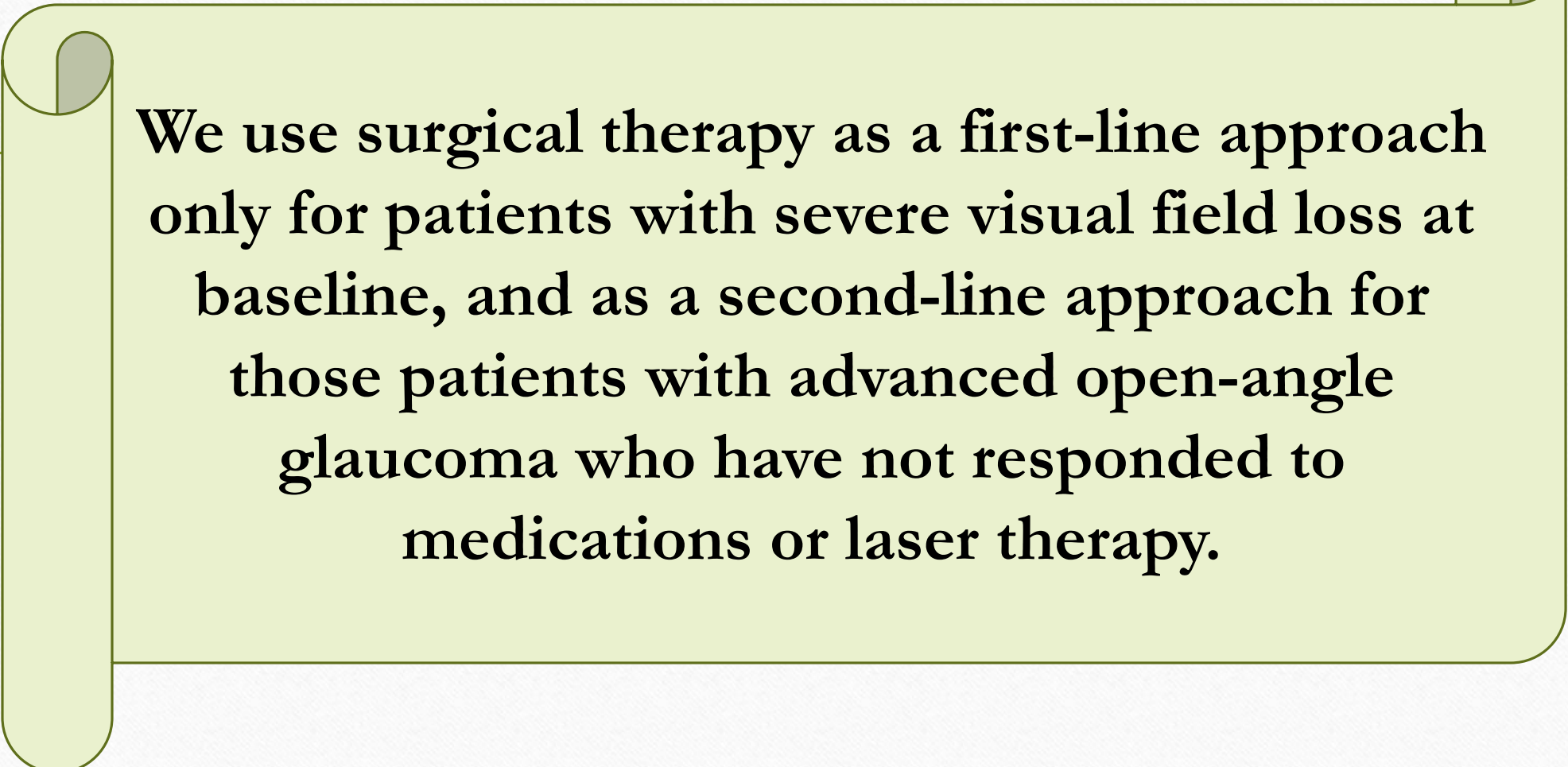
مهر امضا داروخانه یا پاراکلینیک: مهر امضای پزشک

دکتر محمدرضا رادکی ن. پ. ۴۸۵۵۰

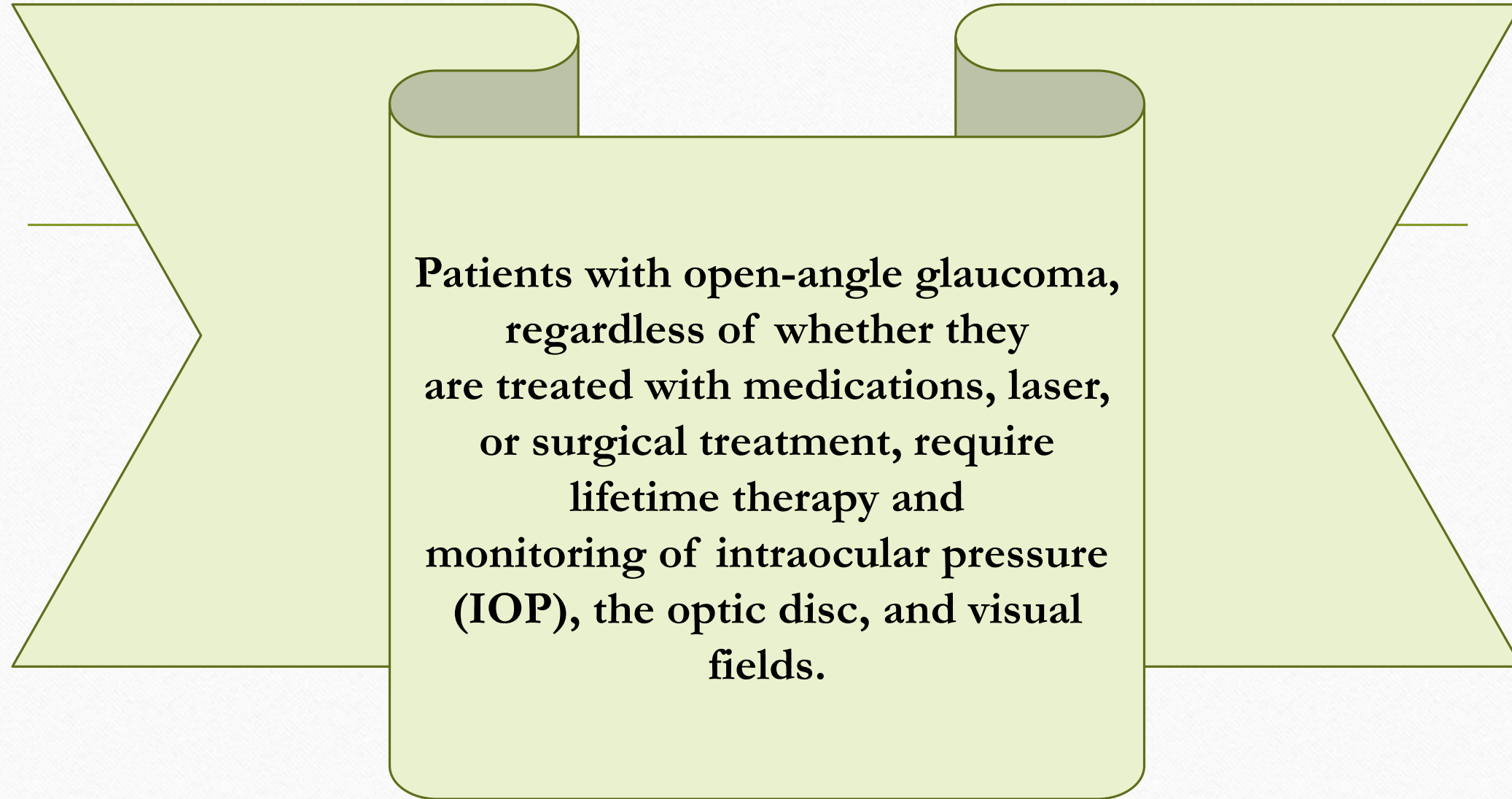
جراح چشم - فلوشیپ گلوکوم

استاد تمام وقت

همکار برنامه پزشکی خانواده شهری



We use surgical therapy as a first-line approach only for patients with severe visual field loss at baseline, and as a second-line approach for those patients with advanced open-angle glaucoma who have not responded to medications or laser therapy.



Patients with open-angle glaucoma, regardless of whether they are treated with medications, laser, or surgical treatment, require lifetime therapy and monitoring of intraocular pressure (IOP), the optic disc, and visual fields.

Hyperosmotic Agents

Generic	Mode of Administration	Strength	Onset	Peak	Duration	Dose	Ocular Penetration	Distribution
Mannitol	IV	5%, 10%, 15%, 20%	30–60 minutes	1 hour	6–8 hours	1–2 g/kg	Very poor	E
Glycerin	PO	50%	10–30 minutes	30 minutes	4–5 hours	1–1.5 g/kg	Poor	E
Isosorbide	PO	45%	10–30 minutes	1 hour	5 hours	1.5–2 g/kg	Good	TBW

ریج ویریت

کدنچ

نسخه اصلی

۰۷۲۵۹۸
یزدک خانوادہ
دکتر افشین ملک پور
۷۲۱۹۱
C.C:

بہ مقصص
تاریخ، مهر و امضاء
یزدک خانوادہ

۱۹۹۰-۱۰
کمار جاع
۲۰۱۹
۵ قیمت

Dx:

۱. ۵۱۹۵۱
۲. ۵۰-۲۷۷

۱. NaCl (NaCl) ۵۱۹۵۱
۲. ۵۰-۲۷۷

(نسخه داروخانه و پاراکلینیک)

دکتر منصور رحیمی
مهر و امضاء یزدک
جراح و متخصص چشم، فوق تخصص جراحات شبکیه و پتره و لیزر
دانشیار تمام وقت
ن. پ
همکار بر نامه یزدک خانوادہ
۵۹۴۵۹

جمع	
سهم بیمه شده	
سهم بیمه گر	

Hordeolum (stye)

- It is an **abscess of the eyelid** that presents as a **localized painful** and **erythematous swelling**.
- *Staphylococcus aureus* is the pathogen implicated in most cases, but hordeola can also be **sterile**.
- Patients with **underlying skin conditions** that affect the eyelids (eg, **rosacea** and **seborrheic dermatitis**) are prone to having frequent episodes of hordeolum.
- **Eye makeup**, particularly eye makeup contaminated by bacteria, can cause hordeola by **clogging and inflaming gland pores**.



Hordeolum (stye)

- Hordeola can be managed with:

1

- Warm, moist compresses placed on the affected areas frequently (eg, for 5 to 10 minutes three to five times per day)

2

- Massage and gentle wiping of the affected eyelid after the warm compress can also aid in drainage.

3

- Patients should discontinue eye makeup to support healing.

Hordeolum (stye)

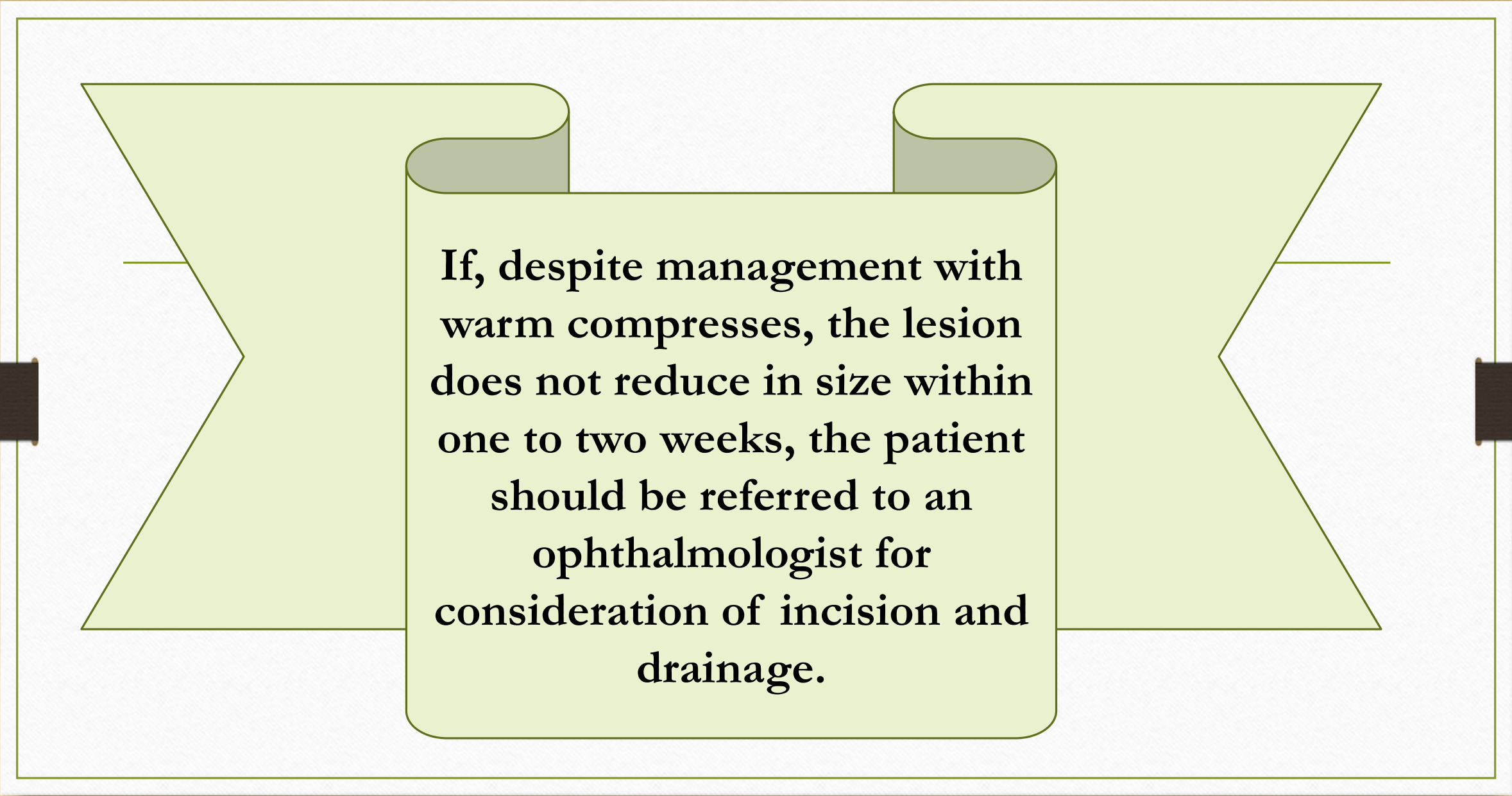
- Hordeola can be managed with:

4

- There is **little evidence** that treatment with **topical antibiotics and/or glucocorticoids** promotes healing

5

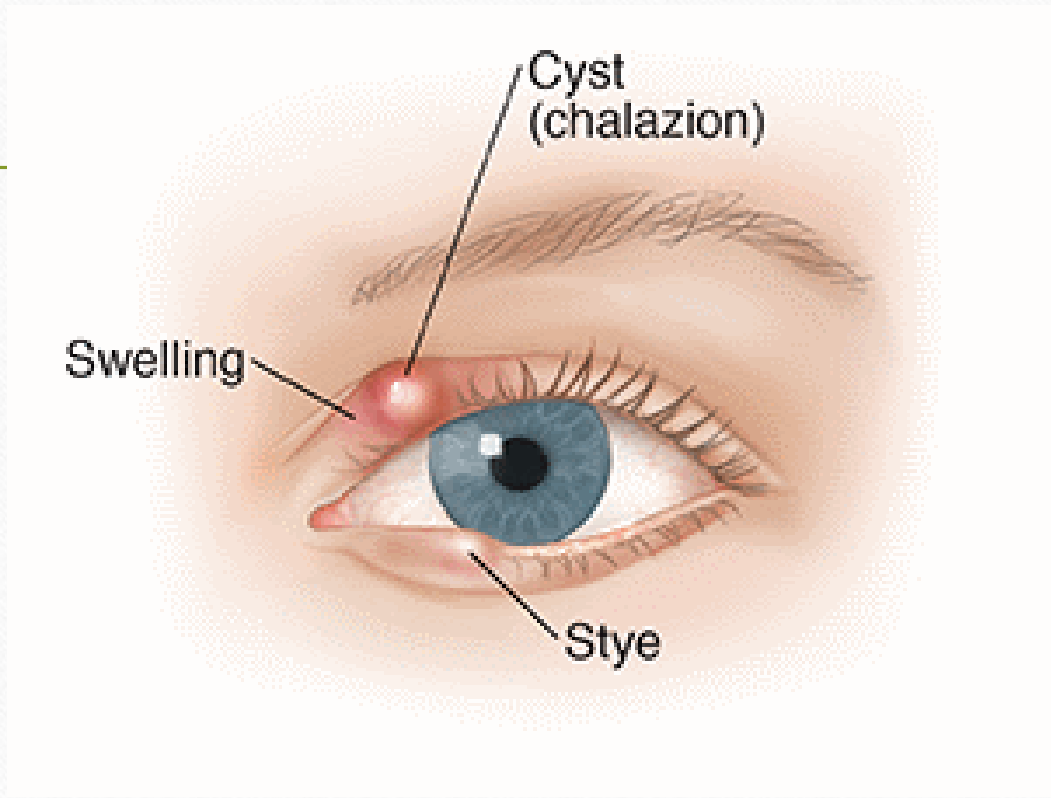
- Patients who have frequent hordeola in the setting of rosacea-associated blepharitis and who do not achieve adequate improvement with warm compresses and mechanical removal of lid margin debris may respond to a topical antibiotic/corticosteroid ointment combination.



If, despite management with warm compresses, the lesion does not reduce in size within one to two weeks, the patient should be referred to an ophthalmologist for consideration of incision and drainage.

Chalazion

- It typically presents as a **painless localized eyelid swelling**.
- Examination of the inner eyelid reveals a **non-tender rubbery nodule**.
- **Chalazia and hordeola** can have as similar appearance; however, chalazia tend to be **painless** and are **less erythematous** and **angry-appearing**.



Chalazion

- **Small chalazia** often resolve without intervention over **days to weeks**.
- For **larger lesions**, draining can be facilitated by using **warm compresses** placed on the face for about **15 minutes four times per day**.
- **Antibiotics** are **not indicated** since chalazion is a **granulomatous condition**.
- Patients with **persistent lesions** should be referred to an **ophthalmologist** for consideration of **incision and curettage** or **glucocorticoid injection**.

Pterygium

- Triangular wedge of **fibrovascular conjunctival tissue** that typically starts medially on the **nasal conjunctiva** and extends laterally onto the **cornea**.
- Although benign in the sense that pterygium is **not cancerous**, it can have **important adverse effects on vision** if proliferation approaches or reaches the **visual axis**.
- **Worldwide prevalence** of pterygium varies from **1 to 25 percent**.

Pterygium

- **Risk factors**

Older age

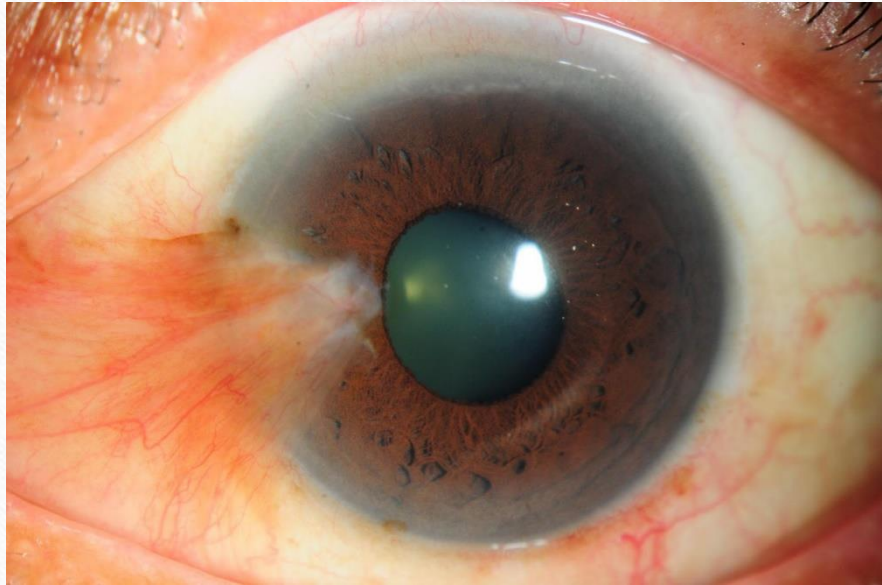
Male sex

Fewer years
of education

Outdoor job
location

Black race

Rural area



Pterygium

- Patients with a small pterygium can be **treated symptomatically** for **redness and irritation** with **artificial tears** or other **ocular lubricants**.
- They can be given **1 to 2 drops** to affected area **three to four times daily**.
- **Preservative-free preparations** should be used in patients who have irritative symptoms with preservatives or who need to use lubrication **more than four times per day**.
- The management of patients with **larger lesions** that impair visual acuity or eye movement usually involves **surgical excision of the pterygium**.

شماره پرونده: ۰۰۰۰۰۰۰۰۰۰۰۰۰۰

نام بیمار: خانم خانزاده

پزشک: دکتر معصومه اقتداری

قیمت: _____

C.C: _____ Dx: _____

Prescription:

۱ - PVA ۶ - ۱

۲ - ۱ - ۱

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۷ - ۱ - ۱

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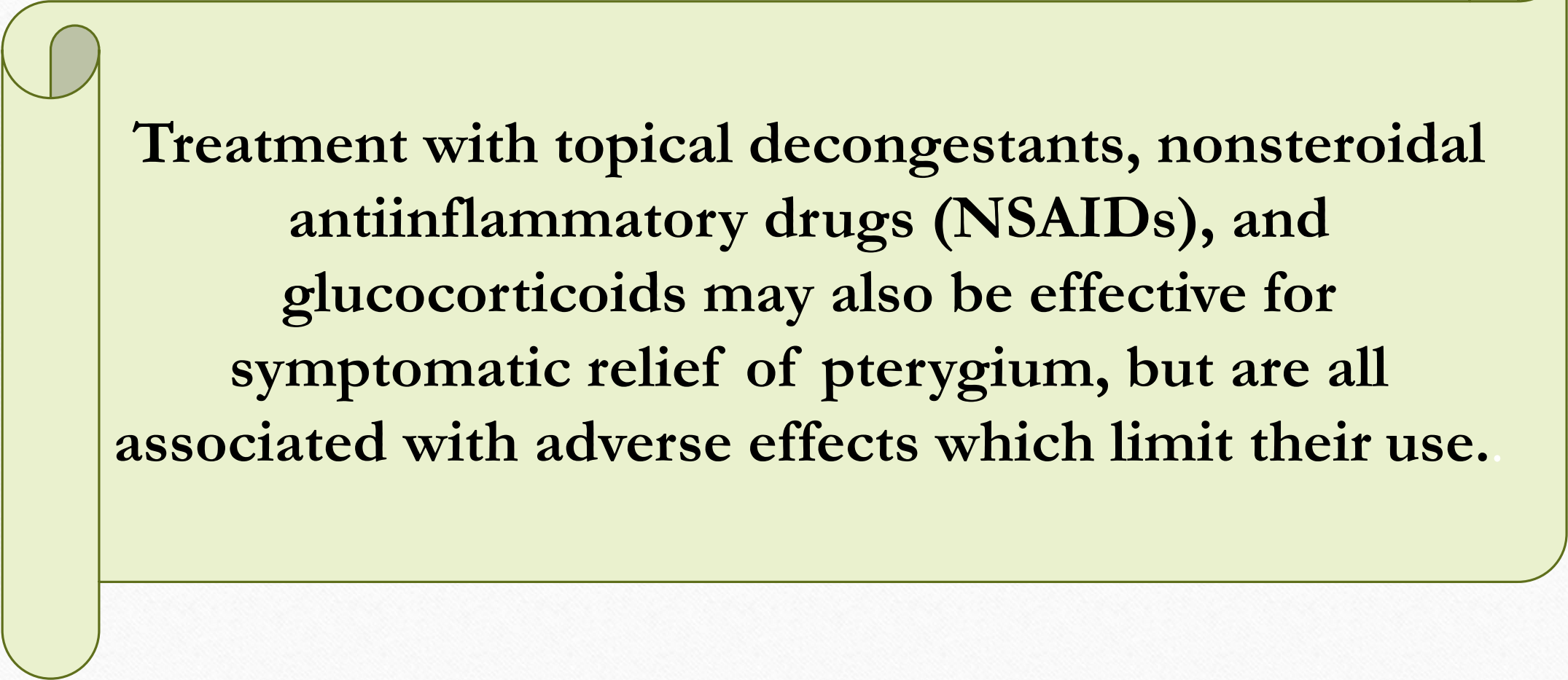
۱۰ - ۱ - ۱

جمع: _____

مهر و امضای داروخانه یا بیمارستان: _____

مهر امضای پزشک: _____

دکتر معصومه اقتداری
جراح و متخصص بیماریهای چشم
فلوشیپ پاتولوژی چشم
 نوبت: _____
 شماره تماس: ۶۴۹۹۲
 همکار برنامه: پزشک جراح و متخصص بیماریهای چشم

A decorative scroll graphic with a light green background and a dark green border. The scroll is unrolled in the center, with the text inside. The scroll has a small circular tab at the top right and a larger circular tab at the bottom left. The text is centered within the scroll.

Treatment with topical decongestants, nonsteroidal antiinflammatory drugs (NSAIDs), and glucocorticoids may also be effective for symptomatic relief of pterygium, but are all associated with adverse effects which limit their use.

Vascular endothelial growth factor (VEGF) inhibitors have been proposed to **block angiogenesis** responsible for pterygium formation.

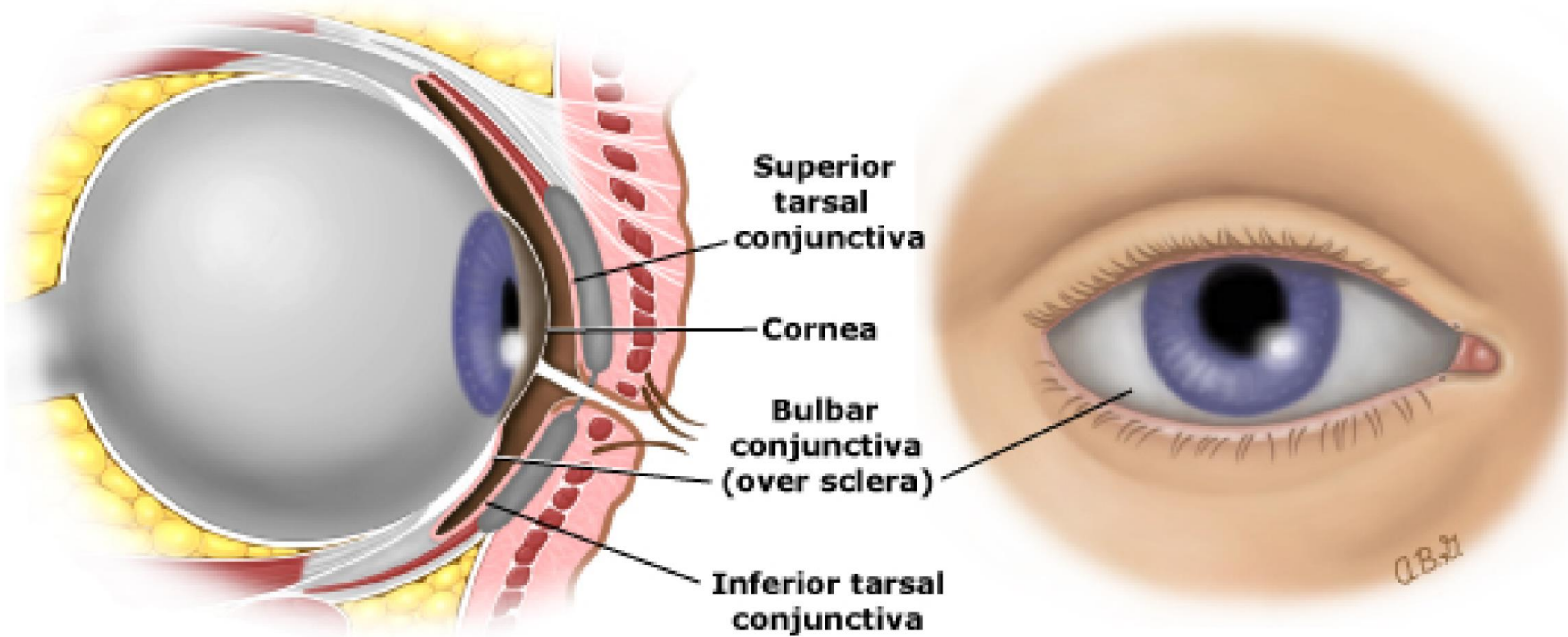
Small cases series found that **intralesional bevacizumab, but not ranibizumab**, injections help to decrease size of primary pterygium.

بیمار با تشخیص احتمالی		کد ارجاع:	574
به متخصص:		تاریخ مهر و امضاء پزشک خانواده:	
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مهر و امضای پزشک	مهر و امضای داروخانه یا پاراکلینیک	جمع	174
دکتر معصومه اقتداری جراح و متخصص بیماریهای چشم فلوشیپ فلورزی چشم شماره: 52992 نمایندگی تمام وقت همکار برنامه‌ریزی پزشکی خانواده نلسون		تعداد	2
		تعداد	2
		سازمان	174

Conjunctivitis

- Conjunctivitis literally means "**inflammation of the conjunctiva**."
- The conjunctiva is the **mucous membrane** that lines the inside surface of the lids and covers the surface of the globe up to the limbus (the junction of the sclera and the cornea).
- The conjunctiva is generally **transparent**.
- When it is inflamed, as in **conjunctivitis**, it appears **pink or red on general inspection**.

Anatomy of the conjunctiva



Acute conjunctivitis

```
graph LR; A[Acute conjunctivitis] --- B[Infectious  
(bacterial or viral)]; A --- C[Non-infectious  
(allergic, toxic, or nonspecific)];
```

The diagram is a flowchart with a central vertical box containing the text 'Acute conjunctivitis'. A horizontal line extends from the right side of this box. From this horizontal line, two vertical lines branch downwards to two separate rectangular boxes. The top box contains the text 'Infectious (bacterial or viral)' and the bottom box contains the text 'Non-infectious (allergic, toxic, or nonspecific)'. The entire diagram is enclosed in a thin green border.

Infectious
(bacterial or viral)

Non-infectious
(allergic, toxic, or nonspecific)

Conjunctivitis

- **Bacterial**

- Patients with bacterial conjunctivitis typically complain of **redness** and **discharge** in **one eye**, although it can also be **bilateral**.
- The **purulent discharge** continues **throughout the day** and is **thick** and globular; it may be **yellow, white, or green**.

Conjunctivitis

- **Bacterial**

- On examination, patients with bacterial conjunctivitis typically have **purulent discharge** at the **lid margins** and in the **corners of the eye** which **reappears** within minutes of wiping the lids.
- Bacterial conjunctivitis is commonly caused by *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Moraxella catarrhalis*

Conjunctivitis

- **Viral**

- It is typically caused by **adenovirus**, with many serotypes implicated.

- Viral conjunctivitis is **highly contagious**.

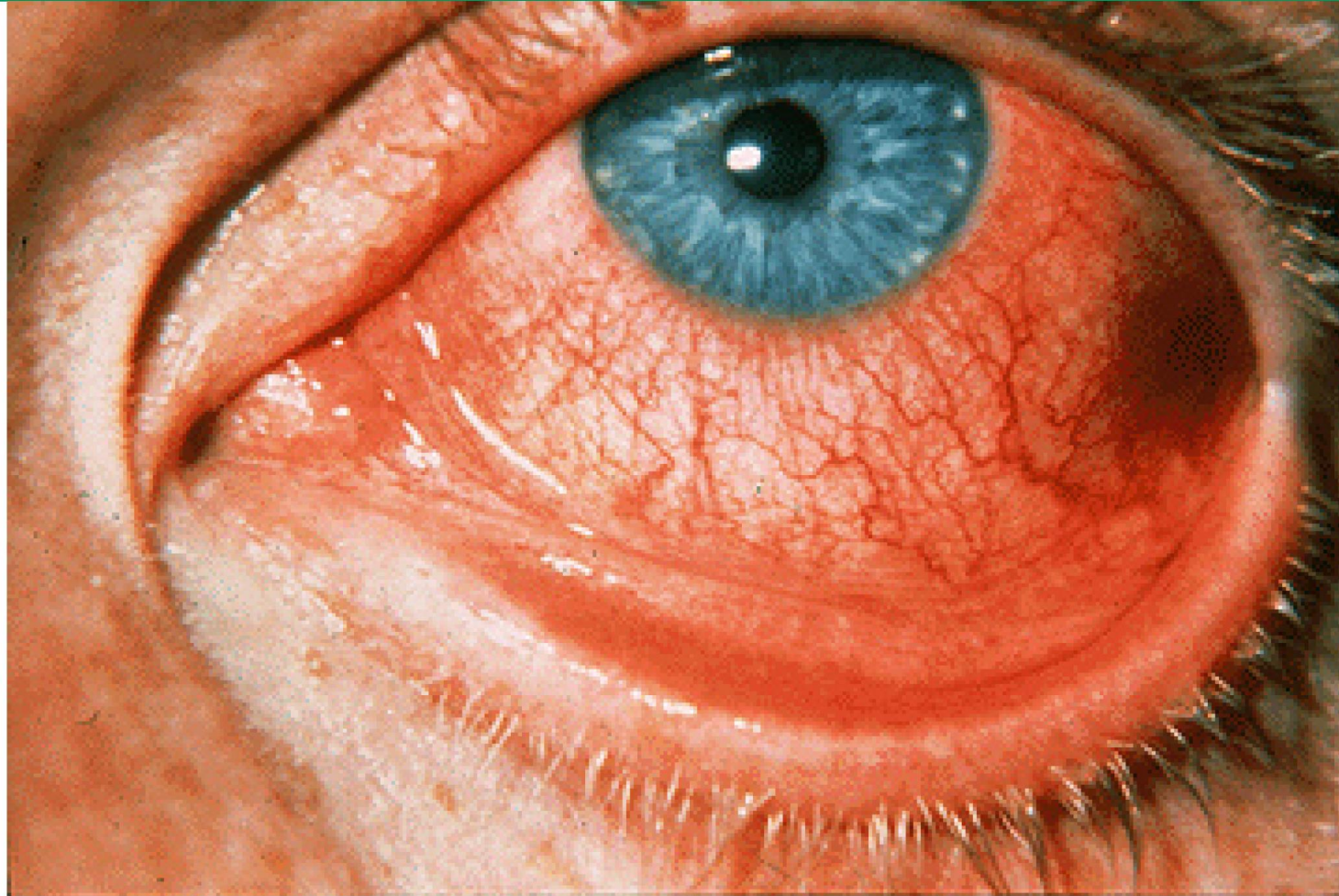
Conjunctivitis

- **Viral**
 - Viral conjunctivitis typically presents as conjunctival injection with **watery or mucoserous discharge** and a **burning, sandy, or gritty feeling** in one eye.
 - The **second eye** usually becomes involved **within 24 to 48 hours**, although **unilateral signs and symptoms** do not rule out a viral process.
 - Viral conjunctivitis is a **self-limited process**.

Conjunctivitis

- **Viral**
 - Ocular herpes is common and can be caused by **herpes simplex virus** or, less commonly, by the **varicella-zoster virus** (herpes zoster ophthalmicus).
 - In addition to **pain, tearing, eye redness, sensitivity to light**, the patient develops a **foreign body sensation** and multiple corneal infiltrates sometimes visible.

Viral conjunctivitis

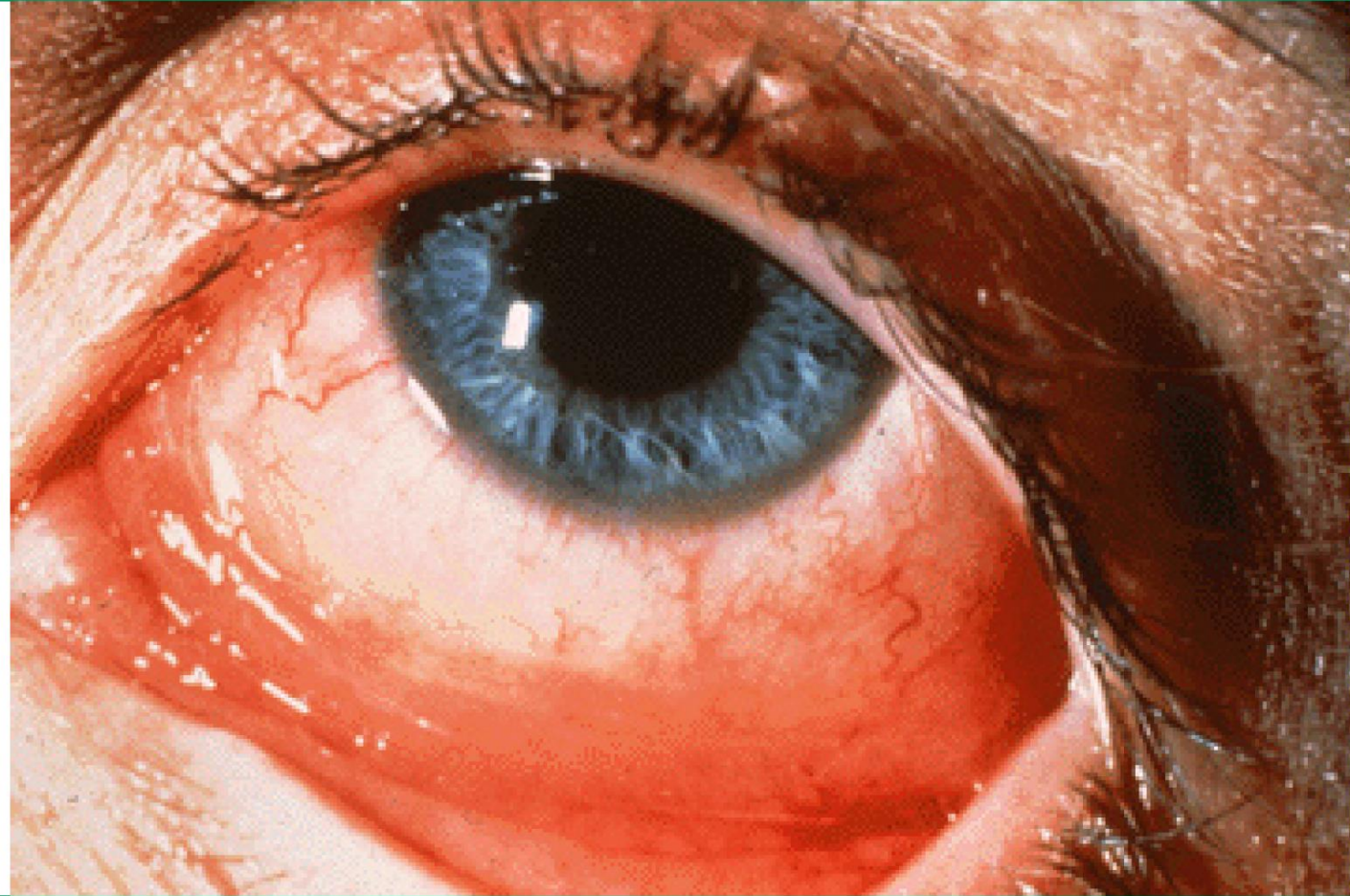


Conjunctivitis

- **Allergic**

- It is caused by **airborne allergens** contacting the eye that trigger a classic **type I immunoglobulin E (IgE)**-mediated hypersensitivity response specific to that allergen.
- It typically presents as **bilateral redness, watery discharge, and itching.**
- **Itching** is the **cardinal symptom** of allergy, distinguishing it from a **viral etiology**, which is more typically described as **grittiness, burning, or irritation.**

Allergic conjunctivitis



Distinguishing types of acute conjunctivitis

	Bacterial	Viral	Allergic
Systemic symptoms.	Usually none.	May be part of a viral prodrome followed by adenopathy, fever, pharyngitis, and upper respiratory tract infection. There may be an enlarged and tender preauricular node.	Nasal congestion, sneezing, wheezing.
Itching.	Limited to none.	Limited to none. Primary complaint is grittiness, burning or irritation.	Primary complaint. May also report grittiness, burning, or irritation.
Ocular discharge.	Purulent, may be yellow, white, or green. Recurs at lid margins and corners of the eye within minutes of wiping lids.	Watery with strands of mucus.	Watery.
Conjunctival appearance.	Pink or red.	Pink or red. Very rarely hemorrhagic. Tarsal conjunctiva may have a follicular or "bumpy" appearance.	Pink. Bulbar conjunctiva may be chemotic (puffy). Tarsal conjunctiva may have a follicular or "bumpy" appearance.



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قیمت (ریال)

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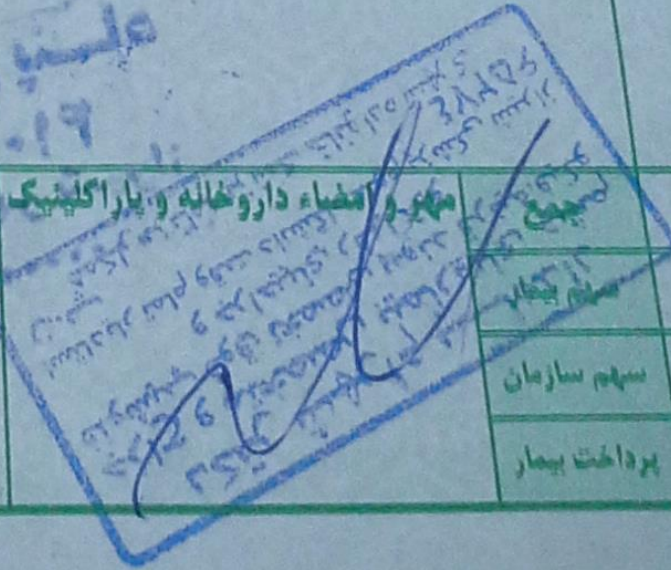
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کال

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مهر و امضاء داروخانه و پاراکلینیک مبلغ ویزیت (ریال):

مهر و امضاء پزشک



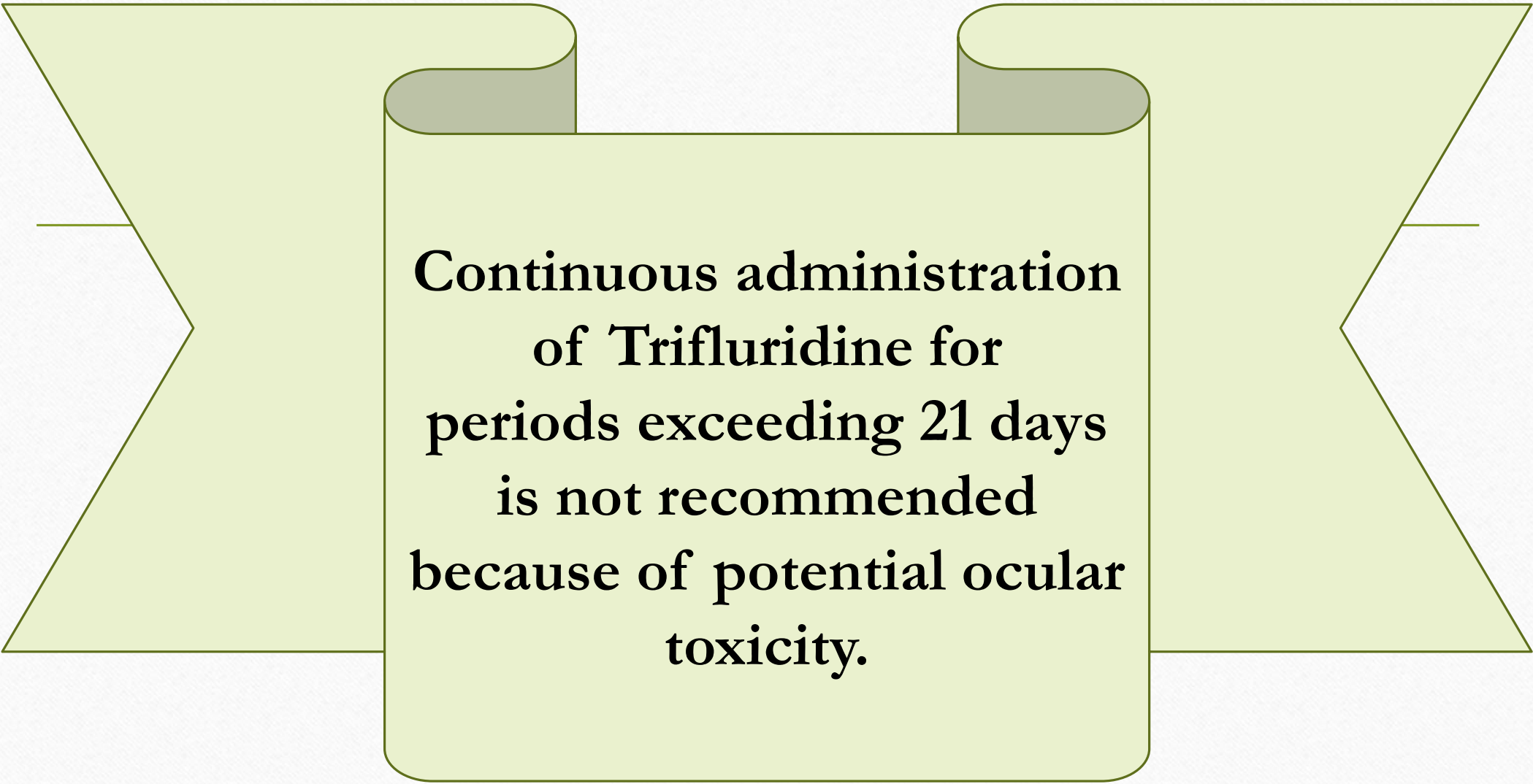
سهم سازمان

پرداخت بیمار

Trifluridine (TFT) is the drug of choice for ocular herpes.

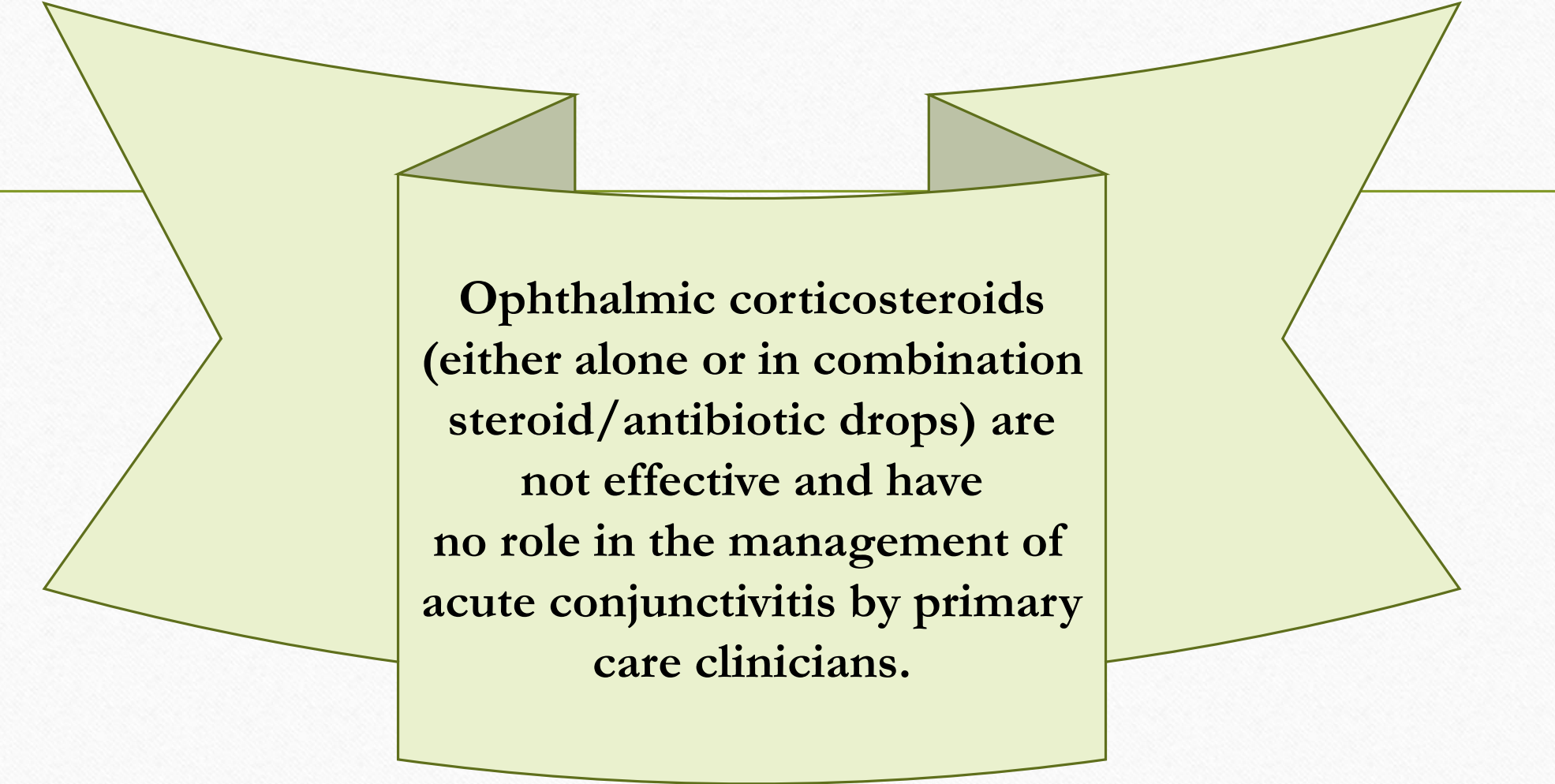
One drop of trifluridine 1% ophthalmic solution should be instilled into the affected eye every 2 hours while awake with a maximal daily dose of nine drops.

After re-epithelialization, application of trifluridine should be continued for an additional 7 days at a reduced dosage of one drop every 4 hours while awake with a minimum of five drops daily.



**Continuous administration
of Trifluridine for
periods exceeding 21 days
is not recommended
because of potential ocular
toxicity.**

The acyclovir 3% ointment dose usually is a 1-cm ribbon of ointment instilled 5 times a day at 4-hour intervals for 14 days or for at least 3 days after healing is completed, whichever is shorter.



**Ophthalmic corticosteroids
(either alone or in combination
steroid/antibiotic drops) are
not effective and have
no role in the management of
acute conjunctivitis by primary
care clinicians.**

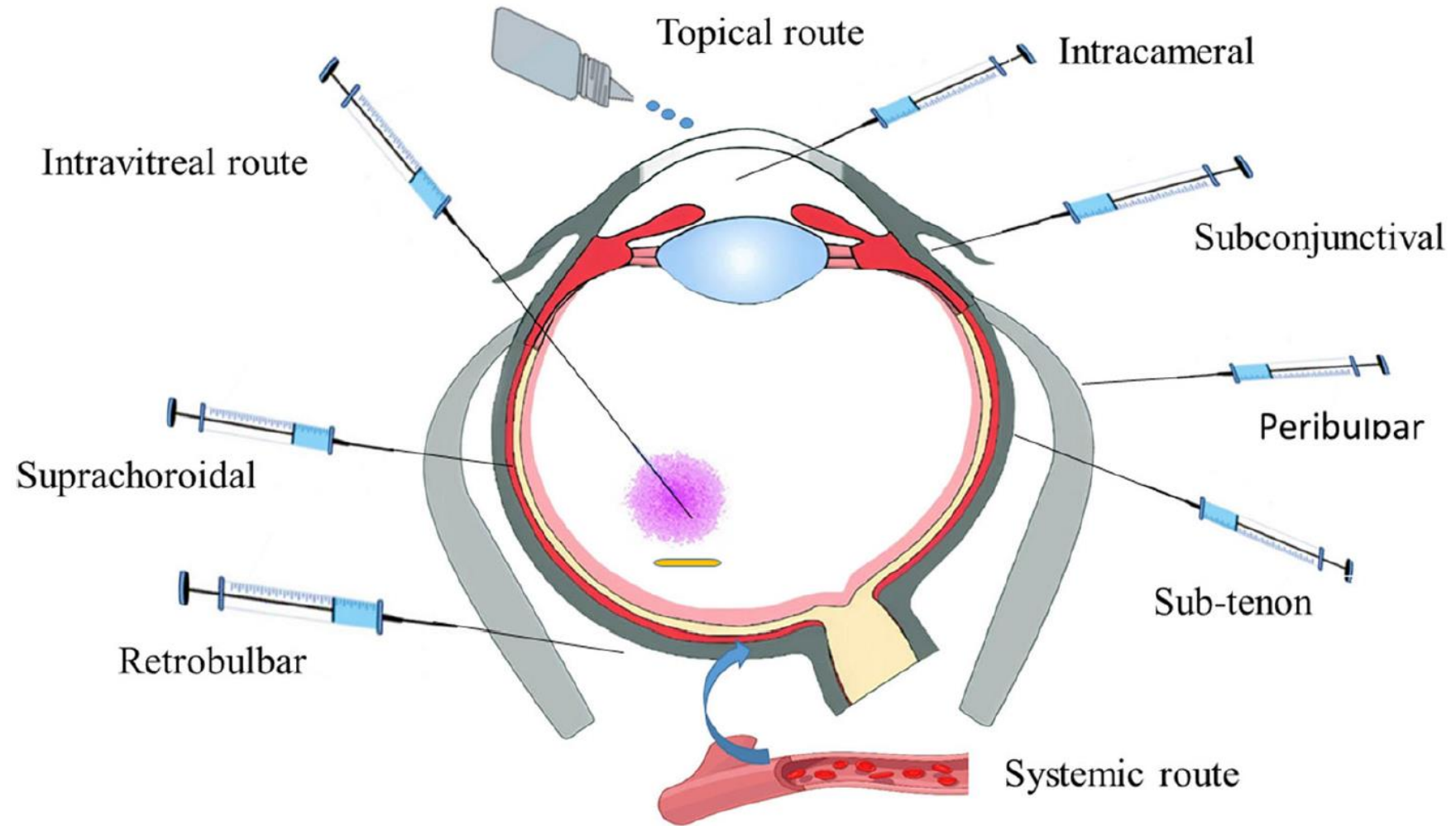
Topical Ophthalmic Medications Commonly Used for Allergic Conjunctivitis

Generic Name (Example Brand Product)	Available Dosage Forms/Strength	Dose
Antihistamines		
Azelastine (Optivar)	Ophthalmic solution: 0.05%	Adults and children ≥ 3 years: 1 drop in the affected eye(s) every 12 hours
Emedastine (Emadine)	Ophthalmic solution: 0.05%	Adults and children ≥ 3 years: 1 drop in the affected eye(s) up to 4 times daily
Antihistamine/Decongestant Combinations		
Pheniramine + Naphazoline (Naphcon-A) ^a	Ophthalmic solution: naphazoline HCl 0.025% + pheniramine maleate 0.3%	Adults and children ≥ 6 years: 1–2 drops in the affected eye(s) every 6 hours for up to 3 days
Antihistamine/Mast-Cell Stabilizers		
Ketotifen (Zaditor) ^a	Ophthalmic solution: 0.025%	Adults and children ≥ 3 years: 1 drop in the affected eye(s) every 8–12 hours
Olopatadine (Pataday)	Ophthalmic solution: 0.2%	Adults and children ≥ 3 years: 1 drop in the affected eye(s) daily
Mast-Cell Stabilizers		
Cromolyn Sodium (Crolom)	Ophthalmic solution: 4%	Adults and children ≥ 4 years: 1–2 drops in the affected eye(s) 4–6 times daily
Lodoxamide (Alomide)	Ophthalmic solution: 0.1%	Adults and children ≥ 2 years: 1–2 drops in affected eye(s) 4 times daily for up to 3 mos
Nedocromil (Alocril)	Ophthalmic solution: 2%	Adults and children ≥ 3 years: 1–2 drops in the affected eye(s) every 12 hours
Pemirolast (Alamast)	Ophthalmic solution: 0.1%	Adults and children ≥ 3 years: 1–2 drops in the affected eye(s) 4 times daily
Nonsteroidal Anti-Inflammatory Drugs^b		
Ketorolac (Acular)	Ophthalmic solution: 0.5%	Adults and children ≥ 3 years: 1 drop in the affected eye(s) 4 times daily
Corticosteroids		
Loteprednol (Alrex)	Ophthalmic suspension 0.2%	Adults: 1 drop in the affected eye(s) 4 times daily

^aAvailable without a prescription.

^bOther ophthalmic nonsteroidal anti-inflammatory drugs (diclofenac, flurbiprofen, suprofen) indicated for intraoperative miosis and for postcataract surgery, but not approved for allergic conjunctivitis.

Routes of administration for ocular delivery of corticosteroids



ALLERGAN

Ozurdex®

0.7 mg
Intravitreal Implant

Steril

Farmoloji: Her bir implant, iki desicade PLGA dan (50:50 PLGA ester ve 50:50 PLGA asit) oluşan 50:50 polilaktid-ko-glikolid polimer matrisinde 0.7 mg doksizimazon iyonik formda içerir.
Yardımcı maddeler: Ester ve 50:50 polilaktid-ko-glikolid, asit ve 50:50 polilaktid-ko-glikolid.
Uygulama: Aplikatör içinde bir implant, intravitreal kullanılmaya uygundur.
Tak kullanımı: Polyo aptektan sonra aplikatörü hemen kullanınız. Kullanmadan önce kullanma talimatına okuyunuz. Beklemeyen bir ekle gövdeğinizde doktorunuza danışınız.
Çocukların erişilemeyeceği yerlerde ve ambalajında saklayınız.

Keskinliği veya açılmıy ambalajın salın almıyınız. 20°C'nin altında oda sıcaklığında saklayınız. Reçete ile satılır.

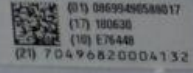
Ruhsat Sahibi:
Allergan İlaçları Tic. A.Ş.
Maslak Mah., Eski Büyükdere Cad.,
Iz Plaza Gir. Kat: 12,
Maslak-Sişli, 34399 İstanbul

Üretim Yeri:
Allergan Pharmaceuticals Ireland
Westport Co. Mayo, İrlanda

Ruhsat No:
21.02.2012 - 132/75



Part No: E76448



(01) 0695496588017
(17) 180636
(18) E76448
(21) 70496820004132

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سازمان غذا و دارو



IFDA

<http://irc.fda.gov.ir/nfi>



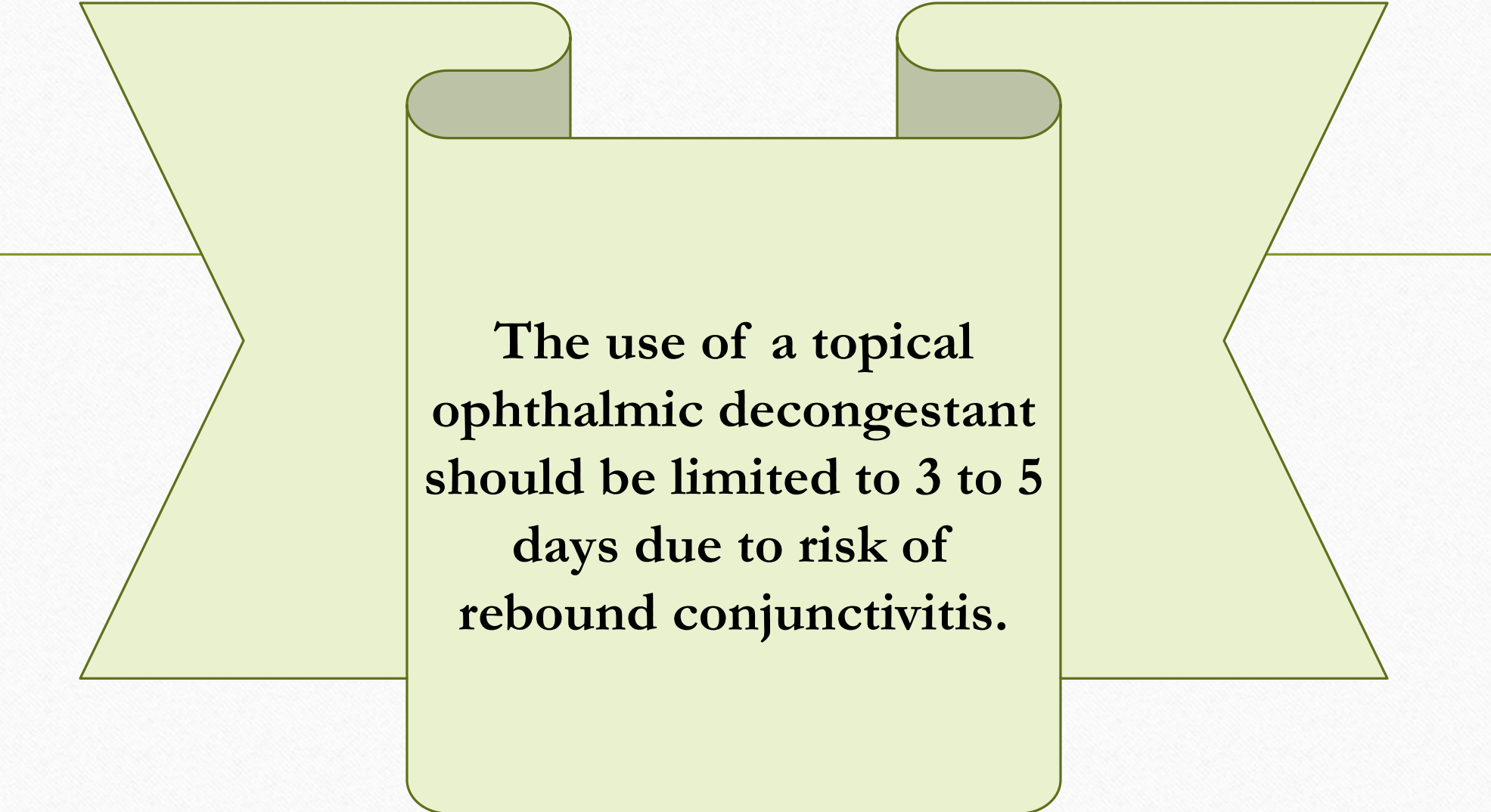
8 699490 588017 >

Ozurdex®

0.7 mg
Intravitreal Implant

Relative anti-inflammatory properties of certain ocular corticosteroids

Corticosteroid agent	Relative anti-inflammatory potency
Hydrocortisone	1
Prednisolone/prednisone	4
Methyl prednisone	5
Triamcinolone	5
Fluocinolone acetonide	25
Betamethasone	25
Dexamethasone sodium phosphate	25
Dexamethasone	25–30

A light green folder with two tabs and a central text box. The folder is centered on a white background. The text box is a rounded rectangle with a dark green border, containing the text:

**The use of a topical
ophthalmic decongestant
should be limited to 3 to 5
days due to risk of
rebound conjunctivitis.**

**The use of a topical
ophthalmic decongestant
should be limited to 3 to 5
days due to risk of
rebound conjunctivitis.**

شماره: ۹۲۶

۲۲۷۶۸

قیمت (ریال)

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مهر و امضاء داروخانه و پاراکلینیک : مبلغ ویزیت (ریال):

مهر و امضاء پزشک

3/ Snc ۱

متخصص و جراح چشم
دانشیار تمام وقت
محمود نجابت
فلوشیپ قوی
۱۳۹۶
سهم بیمار

سهم سازمان

پرداخت بیمار



**1 spray into each nostril
twice or three times daily**



**1 drop into each affected
eye twice daily**

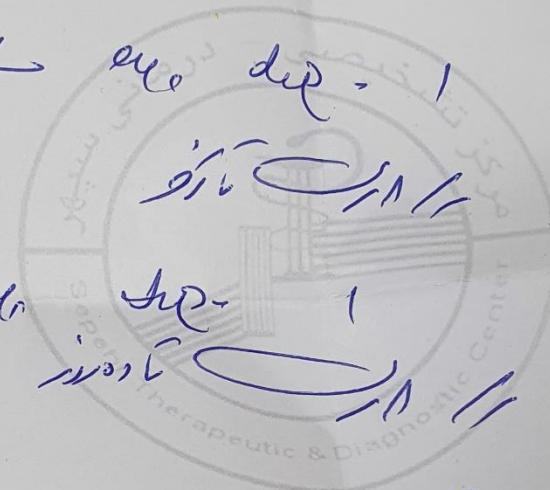
Rx

1/ esomeprazole 20mg bid

۱/۱۸۱۸۱۸۱۸

2/ ketotifen 1mg bid

۱/۱۸۱۸۱۸۱۸



دکتر نیما محروانیان
تخصص چشم
نظام پزشکی
۷۵۴۹۲

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قیمت (ریال)

۱۵۰۰۰

مهر و

دکتر

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Fluoromil

(FML)

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۸۰۰۰ ریال

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مهر و معضاء دار و دکتر **منصور رحیمی**
 جراح و متخصص چشم، فوق تخصص جراحی کتنبه، وینر و لیزر
 دانشیار همکار و نیت پزشکی
 ۵۹۴۵۹
 ن. پ همکار برنامه پزشکی خانواده شهری

جمع

سهام بیمار

سهام سازمان

پرداخت بیمار



- **Seasonal allergic conjunctivitis:** 1 drop into affected eye(s) 4 times daily.
- **Postoperative inflammation/pain:** 1 to 2 drops into the conjunctival sac of the affected eye(s) 4 times daily beginning 24 hours after surgery and continuing throughout the first 2 weeks of the postoperative period.



- **Seasonal allergic conjunctivitis (ocular itching):** 1 drop into affected eye(s) 4 times daily
- **Postoperative ocular inflammation following cataract extraction:** 1 drop into affected eye(s) 4 times daily beginning 24 hours after surgery; continue for 2 weeks





۲۱ ویال یکبار مصرف ۰.۵ میلی لیتری

آرتیپیک ادونسد

۱۵٪ درصد

اشک مصنوعی

- سازگار با لنزهای تماسی
- برای مصرف داخل چشمی
- قطره استریل چشمی در ویال یکبار مصرف

شرکت فراورده‌های تزریقی و دارویی ایران (سپاهی عام)
تهران - ایران

