

Standard Treatment Guideline For Ophthalmology

COMMON GUIDELINE FOR MEDICAL OFFICERS

- ❖ THESE ARE TO HELP MEDICAL OFFICER IN PROVIDING FIRST AID TREATMENT OF COMMON EYE DISEASE.
- ❖ OPHTHALMIC ASSISTANT WILL ASSIST IN EXAMINATION AND TREATMENT OF EYE PATIENT.
- ❖ IF NON RESPONDING AS PER TREATMENT SHOULD REFER NEXT DAY.
- ❖ IF PATIENT IS NOT RELIEF WITHIN 3 DAYS, SHOULD REFER TO OPHTHALMOLOGIST.
- ❖ SUDDEN LOSS OF VISION IMMEDIATELY REFER TO OPHTHALMOLOGIST.
- ❖ IF BLURRING OF VISION REFER TO OPHTHALMOLOGIST.
- ❖ ANY EYE INJURY WITH VISUAL IMPAIRMENT IMMEDIATELY REFER TO OPHTHALMOLOGIST.

EYE DISEASES

STYE (HORDEOLUM EXTERNUM)

Treatment

Pharmacological

1. Topical antibiotics:
Gentamicin 0.3% eyedrops 1 drop 6 hourly.
Or
Ciprofloxacin 0.3% eyedrops 6 hourly.
Or
In children Ciprofloxacin eye ointment 2 times a day.
2. Systemic antibiotics, if excessive oedema or cellulitis or diabetes or immunocompromized.
Tab. Azithromycin 500mg once a day.
Or
Cap. Amoxicillin 250-500 mg every 8 hours for 5 days.
Or
Tab. Ciprofloxacin 500 mg BD/5 days.
3. Tab. Paracetamol 500 mg or Tab. Ibuprofen 400 mg 3 times a day after meals.
Exclude refractive error and diabetes mellitus and chronic blepharitis in recurrent cases.

Nonpharmacological

Hot fomentation

Patient education

- Avoid rubbing of eyelids with dirty hands.
- Use glasses for refractive errors.
- Maintain proper ocular hygiene to prevent recurrence.

CHALAZION

Treatment

Pharmacological

Topical antibiotic as above.

Nonpharmacological

Warm compresses for 4 weeks may relieve small chalazion of short duration.

If not responded in 4 week then refer to ophthalmologist.

Patient education

- The condition may recur at the same site or different site, involving any eyelid.
- Some of the common causes of recurrences are uncorrected refractive error, blepharitis and diabetes. Recurrence of chalazia at the same site may be harbouring malignant disease.
- Intralesional triamcinolone can cause steroid-induced glaucoma and hypopigmentation of skin.

VITAMIN A DEFICIENCY (XEROPHTHALMIA)

Treatment

Pharmacological

1. (a) Cap of Vitamin A (Vitamin A) should be administered immediately on diagnosis as mentioned below:
 - <6 months of age: Three doses of oral Vitamin A 50,000 IU each immediately on diagnosis, the next day and at least 2 weeks later.
 - 6-12 months of age: Three doses of oral Vitamin A 100,000 IU immediately on diagnosis, the next day and at least two weeks later.
 - >12 months of age: Three doses of oral Vitamin A 200,000 IU each immediately on diagnosis, the next day and at least 2 weeks later.(b) Water miscible Vitamin A preparation (dose is half of oral dose) is given IM for children suffering from persistent vomiting, severe diarrhoea and intestinal parasites. keratomalacia is gross purulent discharge due to bacterial super infection.
2. Gentamicin 0.3% eyedrops hourly.
Or
3. Cefazolin 50 mg/ml eyedrops 1 hourly till infection resolves. If corneal ulcer present (see section on Corneal Ulcer).
4. Lubricating eye drops (HPMC) 4-6 time.

Patient education

- Regular consumption of Vitamin A rich foods particularly fresh dark green leafy vegetables and yellow fruits, milk, fish, egg, which constitute very rich sources of Vitamin A.
- Pregnant women and lactating mother should also consume Vitamin A rich diet regularly.
- Breastfeeding including feeding of newborn with rich colostrums.
- Excessive consumption of Vitamin A can cause hypervitaminosis A.

RED EYE

This is a common condition. It is divided into non-painful and painful red eye.

NON-PAINFUL RED EYE

Conjunctivitis may be classified into:

- I. Infective conjunctivitis caused by bacterial, chlamydial or viral microorganisms.
- II. Allergic conjunctivitis.

I. Infective Conjunctivitis

A. Bacterial conjunctivitis

Bacterial conjunctivitis manifests as acute mucopurulent, purulent, angular and membranous conjunctivitis.

Acute mucopurulent conjunctivitis

Common etiological microorganisms are *Staphylococcus aureus*, *Haemophilus aegyptius* (Koch-Week's bacillus), *Streptococcus pneumoniae*, *Streptococcus viridans* and *pyogenes*.

SALIENT FEATURES

- Unilateral or bilateral red eye, conjunctival congestion, mucopurulent or purulent discharge, stickiness of eyelids, matting of cilia; no photophobia in uncomplicated cases.
- Cornea, pupil and visual acuity are normal, however, in case of corneal involvement-pain photophobia and circumcorneal congestion.

Pharmacological

1. Eyedrops Gentamicin 0.3% eyedrops or Ciprofloxacin 0.3% or Chloramphenicol 0.5 to 2% or moxifloxacin 0.5% eyedrops 1 drop every 2 hourly during day time and Gentamicin or Ciprofloxacin eye ointment instilled in inferior fornix at bedtime for 5 days.
2. If there is evidence of cellulitis or fever, treat accordingly (see section on Cellulitis and Orbital Cellulitis).
(Caution: Corticosteroid drops are contraindicated.)
If there is no response to empirical therapy after 3 days than refer to ophthalmologist.

Nonpharmacological treatment

Do not patch or bandage the eye; use dark glasses to prevent photophobia; maintain good personal and ocular hygiene. Clean the eye with plane water 4 times a day. Patient's towel, handkerchief or other fomites should not be shared.

Acute purulent bacterial conjunctivitis

Acute purulent conjunctivitis can affect newborn babies, adolescents and adults. The most fulminant form of purulent conjunctivitis occurs due to *N. gonorrhoeae*. It is characterized by severe lid oedema, erythema, chemosis, thick purulent discharge, preauricular lymphadenopathy and frequent corneal involvement.

Ophthalmia Neonatorum

It is also called conjunctivitis of the newborn, neonatal conjunctivitis and occurs during the first 28 days of life. It may be due to gonococcal or other bacteria. In the later type, Herpes simplex II. The infection is acquired from the maternal birth canal.

SALIENT FEATURES

- Complications like corneal blindness, cataract, nystagmus, endophthalmitis or panophthalmitis and metastatic stomatitis and arthritis can occur.

Treatment

Pharmacological (gonococcal ophthalmia neonatorum)

1. Crystalline Benzyl penicillin aqueous solution 10,000 to 20,000 U/ml (mix 5-10 ml of distilled water in a vial containing 5 lacs units of Penicillin G) instilled 1 drop every hour for 6 days and than 1 drop every 2-3 hours till the infection is resolved.
Or
Tobramycin 0.3% eyedrops every two hourly for 10 days + Tobramycin 0.3% eye ointment.
Or
Gentamicin 0.3% eyedrops at every one hour interval.
Or
Ciprofloxacin 0.3% eyedrops every hour and 0.3% eye ointment at night.
2. If corneal involvement (see section on Corneal Ulcer).
3. Systemic treatment in full term babies with normal birth weight after sensitivity testing.
Inj. Procaine Penicillin G 4.8 million units in 2 divided doses IM for 7 days. In preterm low birth weight babies,
Inj. Procaine Penicillin G 20,000 units/kg/day 2-3 divided doses IM or IV for 3 days.
Or
Inj. Cefotaxime 100 mg/kg IM as a single injection.
4. Also treat mother with systemic therapy.
5. Treat chlamydial infection simultaneously as it may also coexist.

Pharmacological (non-gonococcal Neonatorum)

This is a milder disease occurring within 5-14 days after birth. It is caused by chlamydial, bacterial or herpetic infection.

1. Ciprofloxacin 0.3% eyedrops 1 drop every 2-4 hours and 0.3% eye ointment at night for 2 weeks.
Or
Gentamicin 0.3% eyedrops 1 drop every 2-4 hours and eye ointment at night for 2 weeks.

Antenatal care

Prophylaxis. Screening of high-risk pregnant women (pregnant women with vaginal discharge, dysuria, STI such as syphilis, genital herpes, etc.; multiple sexual partners, sexual contact with a partner with an unspecified STI) and treatment of maternal urogenital infections during pregnancy and sexual partner.

Pharmacological treatment (gonorrhoea in pregnant women)

1. Inj. Procaine penicillin 4.8 million IV/IM with 1 g oral probenecid.

2. In Penicillin-resistant cases, Inj. Spectinomycin 4 g in 2 divided doses IM single infection in gluteal region.

Pharmacological treatment (chlamydial urogenital infection in pregnant women)

Cap. Amoxicillin 500 mg orally 3 times a day for 7 days (in late pregnancy Erythromycin is preferred).

Intranatal care- Meticulous aseptic precautions during delivery.

Postnatal care- Careful cleaning of closed eyelids immediately after birth.

Povidone- Iodine 2.5% in both eyes 1 drop within 20 minutes of birth.

Or

Tetracycline hydrochloride 1% eye ointment or Gentamicin 0.3% eyedrops and ointment after cleaning the eye.

Suspect ophthalmia neonatorum, if there is any mucopurulent discharge from the eyes during first week.

Nonpharmacological

Irrigate conjunctival sac with warm normal saline before antibiotic instillation, wipe away the discharge with moistened cotton wool.

B. Chlamydial Conjunctivitis – Trachoma

Trachoma is a chronic bilateral cicatrizing follicular keratoconjunctivitis caused by *Chlamydia trachomatis* and is the leading cause of preventable blindness worldwide.

SALIENT FEATURES

- Presence of at least two of the following signs: superior tarsal follicles, limbal follicles (Herbert's pits), typical conjunctival scarring and vascular pannus.
Diagnosis is confirmed by conjunctival cytology.

Treatment

Pharmacological

Key to treatment is SAFE (Surgery for entropion/trichiasis, antibiotics, facial cleanliness, and environment change such as control of disease-spreading flies and access to clean water) strategy developed by the WHO.

1. Cap. Azithromycin 1 g single dose in adults
In children: 20 mg/kg single dose.
Or
Cap. Doxycycline 100 mg 2 times a day for two weeks.
(Caution: Contraindicated in children, pregnant women and nursing mothers).
Or
Tab. Sulfamethoxazole 400 mg + Trimethoprim 800 mg 2 table twice daily for 3 weeks.
In children 6-12 years: half the above dosage for 3 weeks.
And/Or
Tetracycline 1% eye ointment at night for 6 weeks.
Or
Sulfacetamide 10-20% eyedrops 3-4 times for 6 weeks.
Or
Ciprofloxacin 0.3% ophthalmic solution 4 times a day and Ciprofloxacin 0.3% eye ointment at night for 8 weeks.
and
CMC/HPMC 0.5% eyedrops 3-4 times to reduce foreign body sensation.

Surgical treatment

Eyelid surgery for correction of trichiasis and entropion to prevent corneal blindness.

Patient education

- Treat the whole family even if only one child has active trachoma.
- Improve ocular hygiene-facial cleanliness in children.
- Environment improvement-eliminate flies, provision of adequate running water and latrines, etc.

C. Viral Conjunctivitis

Viral conjunctivitis often occurs in epidemics. It includes following entities: epidemic keratoconjunctivitis, pharyngoconjunctival fever, acute haemorrhagic conjunctivitis and Newcastle conjunctivitis.

SALIENT FEATURES

- Conjunctival congestion, chemosis, watery discharge, conjunctival haemorrhages, preauricular lymphadenopathy and swollen lids; vision is unaffected; photophobia is uncommon.

Treatment

Pharmacological

It is usually a self-limiting illness. Antiviral agents are not effective. **Corticosteroids are contraindicated;** however, these are used, if vision is threatened.

1. Antibiotic eyedrops (as in mucopurulent conjunctivitis) to prevent secondary infection.
2. Naphazoline 0.05% eyedrops 1 drop 4 times a day or Zinc sulphate 0.125% eye, drops 1 drop 4 times a day. Patient should be referred to an ophthalmologist, if there is no response in 3 days, Lubricating drops 4 times / day.

Nonpharmacological

Avoid patching, use dark goggles; avoid close contact with other persons and swimming for 2 weeks. The doctor must wash his hands after examination of such patient and tonometer should be disinfected after each use.

Patient education

- Not to share towels, handkerchief and other objects with other persons.

II. Conjunctival Allergic Disorder

Conjunctival allergic disorders include acute allergic conjunctivitis (Hay fever conjunctivitis – seasonal allergic conjunctivitis, perennial allergic conjunctivitis), atopic keratoconjunctivitis, vernal keratoconjunctivitis, giant pupillary conjunctivitis, Phlyctenular keratoconjunctivitis, conjunctivitis medicamentosa, etc.

A. Acute allergic conjunctivitis (hay fever conjunctivitis)

It is recurrent, bilateral type I, IgE mediated hypersensitivity to a variety of exogenous air-borne allergens such as pollens, animal dander, dust mould, etc. and may be seasonal, perennial, (chronic) or acute type.

Pharmacological

1. Topical combination of antihistamine (Antazoline 0.5% or chlorpheniramine) and vasoconstrictor (Naphazoline hydrochloride 0.05%) eyedrops 4 times a day till the resolution of symptoms.

2. Olopatadine 0.1% eyedrop twice a day.

(Caution: **topical corticosteroids are contraindicated.**)

3. If severe, systemic antihistaminic should be administered. Tab. Cetirizine hydrochloride 10 mg once a day for duration of acute symptom. In children, 5 mg once a day.

Nonpharmacological

Avoid allergen or minimize exposure to allergen, if possible dilution of allergen and washing away by instillation of tear substitutes and cold compresses to the eye.

B . Phlyctenular keratoconjunctivitis

It is characterized by presence of red nodule at bulbar conjunctiva, most often at nasal limbus of one eye. It is a cell mediated type (type IV) conjunctival hypersensitivity to tubercular protein, the commonest endogenous allergen and other include staphylococcal antigens, worm infestation, fungal antigens and idiopathic.

Topical treatment

1. Fluometholone acetate 0.1%. or Loteprednol 4 time a day for 7 days.
2. If cornea is involved (see section on Corneal Ulcer).
3. Rule out any systemic cause and treat accordingly, especially if recurrent or bilateral keratoconjunctivitis.

Spring catarrh (vernal keratoconjunctivitis)

It is a bilateral, recurrent pupillary conjunctivitis occurring in a warm climate due to hypersensitivity to exogenous allergens.

SALIENT FEATURES

- Itching, ropy discharge, gelatinous thickening at limbus and papillae (cobblestone) in upper palpebral conjunctiva.

Pharmacological

In mild cases;

1. Topical antihistamine + vasoconstrictor combinations. Boric acid 1.25%; Naphazoline 0.05% Zinc sulphate 0.12%; Antazoline hydrochloride 0.5%, Chlorpheniramine 0.01% 4 times a day.

2. Olopatadine eyedrops 0.1% twice a day, or 0.2% once daily

In acute attacks and severe cases not resolving with above treatment, refer to an ophthalmologist.

Nonpharmacological treatment

Avoidance of allergen, wind, and rubbing of eye; tear substitutes (barrier function, dilute allergen, wash away allergen); wear glasses or goggles; air conditioning with appropriate filters.

Patient education

- Long-term use of a steroid may cause glaucoma and cataract.

PAINFUL RED EYE

All painful red eye or visual loss should be referred immediately to Ophthalmologist

Glaucoma

SALIENT FEATURES

- The classical triads of increased IOP, optic nerve head cupping and visual field change are always present and are sign of progress of the disease and are the bench mark for assessing the response to therapy.
- The width of the angle of anterior chamber further differentiates the glaucoma into open and closed angle varieties.
- Treatment modalities differ according to the type of glaucoma.

Congenital glaucoma/Buphthalmos

SALIENT FEATURES

- IOP is usually normal as sclera in children distends leading to increased corneal diameter.
- Excessive tearing and photophobia.

Pharmacological treatment

Aim is to control IOP till definitive treatment, i.e. surgery is performed.

1. Timolol drops 0.5% eyedrops; one drop instilled at 12 hourly intervals.

Or

Betaxolol 0.5% eyedrops one drop instilled at 12 hourly interval.

2. Tab. Acetazolamide 12 mg/kg in twice.

Secondary childhood glaucoma

It is secondary to certain developmental anomalies, which need to be treated along with the glaucoma.

Patient education

- It is a slowly progressive disease, usually amenable to surgery. Regular follow-up lifelong is must for early detection of any failure/complications.
- Eye is vulnerable to trauma and thus contact sports may be restricted in these children.
- Screening of any child particularly the siblings who have a large cornea, photophobia or excessive watering of the eyes should be done.

Angle closure glaucoma – acute

Pharmacological treatment

1. Inj. Mannitol 20%, 1.5-2 g/kg, IV infusion over half an hour.

(Caution: take precautions in hypertensive patients. Do not drink water for 1 hour after injection, contraindications include dehydration or cardiac decompensation).

2. Pilocarpine 2% eyedrops every 15 min for 1 hour and thereafter 6 hourly started after IOP has been lowered by hyperosmotics as above.

3. Tab. Acetazolamide 500 mg stat followed by 250 mg every 6 hourly and maintained till the definitive treatment of laser peripheral iridotomy relieves the pupillary block.
4. Timolol 0.5% eyedrops 2 times a day (if pressure is still high) to be continued till surgery.

Or

Betaxolol 0.5% eyedrops 2 times a day (Preferred in asthmatics and patients with cardiac conduction defects).

(Caution: All mydriatics/cycloplegic drugs which dilate pupils are contraindicated)

Once the IOP falls to below 20mmHg by the treatment listed above-usually in a day or so, evaluated by gonioscopy, disc cupping and visual field charting. Definitive treatment is iridotomy by laser or surgery depending on the facilities available. Prophylactic laser peripheral iridotomy should be performed on the fellow eyes as soon as possible.

IOP is the most significant and titrable response. The disease can recur after a successful iridotomy so that patient should be under follow-up at 6 monthly intervals at least.

Patient education

- Do not ignore headache and chronic ache in the eyes and report to the eye specialist, if coloured halos appear around light.
- Pilocarpine can induce myopia, increase inflammation and cause accommodative spasm in the young patient and miosis in the older patient who has concomitant cataract leading to diminished vision.
- Topical beta-blockers need to be used with caution in chronic obstructive pulmonary disease, myasthenia gravis, cardiac arrhythmias, diabetes mellitus, etc.

Angle closure glaucoma – chronic

Pharmacological treatment

1. Timolol 0.5% or Betaxolol 0.5% eyedrops 2 times a day usually required lifelong.
2. Pilocarpine 2-4 eyedrops 4 times a day usually required for life. Laser or surgical iridotomy is done to eliminate any element of pupillary block in affected as well as fellow eye. If the glaucoma is still uncontrolled on maximal tolerable medical therapy (i.e. 2 topical antiglaucoma medications), then glaucoma filtering surgery or trabeculectomy should be performed.

Patient education

- Since the disease is asymptomatic, patients who complain of nonspecific headache or eye ache should not be ignored.

Primary open angle glaucoma

SALIENT FEATURES

- The IOP is usually above 20 mmHg with associated nerve head cupping and visual fields defects.
- Usually asymptomatic, however, some complain of frequent increase in spectacles for near and mild ache of the eyes.
- Gonioscopically the angle of anterior chamber (AC) is widely open

Pharmacological treatment

1. Timolol 0.5% or Betaxolol 0.5% eyedrops 1 drop 12 hourly and the morning dose should be as early upon waking as possible.

If patient is not controlled on 2 topical drugs, then consider alternative treatment with either laser trabeculectomy or glaucoma filtering surgery.

Ideally all parameters – IOP, optic nerve head and visual field assessment should be checked at 3 monthly intervals.

Patient education

- Pilocarpine can cause accommodative spasm and induce myopia leading to brow ache and a need to readjust reading spectacles of patient.
- Avoid instillation of more than one drop of the drug or double doses in case morning dose is missed.
- Most drugs especially beta-blockers cause burning and stinging sensation on instillation. Chronic use can lead to dry eyes and tear supplements may be required.
- Punctal occlusion, i.e. pressing medial end of lower lid to increase drug and cornea contact time should be explained to patients.
- In diabetics, use of timolol eyedrops can mask the warning symptoms of hypoglycemia.
- Avoid sedentary lifestyle.
- High-risk individuals, i.e. high myopia, large cups more than 0.5:1 or asymmetry in cups of more than 0.2 or any person with a positive family history of glaucoma, or aged >40 years or hypertension should routinely get his intraocular pressures and fundus evaluated on an annual basis.

Lens-induced glaucoma

Lens-induced glaucoma occurs secondary to the cataractous lens either by leakage of lens protein or by lens intumescence. In addition to medically lowering the IOP, the cataractous lens needs to be removed, under steroid cover to suppress the inflammatory element.

Symptom

Pain, redness, diminished vision in eye with cataract.

Health Education

If cataract operation is delayed than lens induced glaucoma may cause irreversible loss of vision.

Corneal ulcer (ulcerative keratitis)

Corneal ulcer may be classified as: (i) bacterial corneal ulcer, (ii) fungal corneal ulcer (mycotic keratitis), (iii) viral corneal ulcer (herpetic keratitis), (iv) acanthamoeba keratitis. Corneal ulcer frequently occur **with** some predisposing factors.

SALIENT FEATURES

- Pain, redness, excessive tearing, photophobia, sticky discharge, swollen lids and blurred vision, blepharospasm, ciliary congestion, corneal haziness, infiltration of cornea, ulcer/abscess in the cornea.
- Decreased corneal sensitivity, hypopyon, iritis, secondary glaucoma and superficial corneal vascularization. Corneal ulcer is stained green with fluorescein 2%.

- Complications: corneal thinning, ectasia, descemetocoele, secondary glaucoma, perforation and is insequelae including endophthalmitis or panophthalmitis and loss of eye.

Treatment (to be managed by an ophthalmologist)

After corneal ulcer diagnoses give ciprofloxacin 0.3% eyedrop 6 time and atropine eye ointment and refer to ophthalmologist.

SENILE CATARACT

While cataract refers to the age-related specification of crystalline lens, the exact cause of sanile cataract is not known.

SALIENT FEATURES

- Gradual painless progressive diminution of vision in one or both eyes.
- Excessive glare, monocular diplopia or polyopia, coloured halos around lights, diurnal variation in vision, change in colour values and fixed black spots before eyes.
- Ocular examination reveals grayish white or whitish lenticular opacity on torch light examinations depending on the stage of cataractogenesis, i.e. immature, mature or hypermature. Detailed evaluation of cataract change and fundus examination is done after dilating the pupils using distant direct ophthalmoscopy, slit-lamp examination, direct ophthalmoscopy,

Treatment

Till date no proven drug treatment exists to delay, prevent or reverse the development of senile cataract. Definitive treatment of senile cataract is lens extraction. Indications of lens extraction are visual handicap, interference in patient activities due to poor vision or glare disability even if cataract is immature. In mature, hypermature cataract, urgent lens extraction is done to prevent further complications such as glaucoma, iritis, or displacement of lens.

Patient education

- Do not wait for maturation of cataract for undergoing cataract operation.
- Secondary glaucoma and other complications may develop if total cataract remains unoperated for a long time.
- Laser is not used for cataract surgery as such, however, Nd: YAG laser is used for posterior capsulotomy which is required in a large percent after surgery.

DRY EYES SYNDROME

It represents a diverse group of conditions characterized by symptoms of ocular discomfort and is associated with decreased tear production and/or abnormally rapid tear film evaporation. Abnormally in preocular tear film result in ocular surface damage and dry eyes and affects 15% in elderly and 20-30% in contact lens wearers.

Common causes for dry eyes syndrome

Environment: Excessive heat and air-conditioning long and continuous work on computer and similar electronic device.

Systemic: Ageing and menopause, side effect of antihistamines, birth control pills, diuretics, psychotropic drugs, etc. Disease like Sjogren's syndrome, rheumatoid arthritis, collagen vascular disease, etc.

Local: abnormality of lacrimal gland, eyelids, ocular surface and lacrimal drainage systemic; topical medications and contact lens use.

SALIENT FEATURES

- Symptoms usually precede signs. Symptoms are ocular irritation and pain, dryness, grittiness, foreign body sensation, itching, burning, photophobia, redness, excessive tearing and blurring of vision.
- Signs: Conjunctival congestion, decreased tear meniscus, irregular corneal surface and debris in the tear film.
- Also present as corneal epithelial keratitis, fluorescein /Rose Bengal staining and inflammation of ocular surface in advanced cases. In severe cases, mucous plaques
- corneal filaments, epithelial defects, secondary infections, thinning and perforation of cornea can occur. There may be associated blepharitis, meibomianitis and eyelid abnormality.
- Various tests for dry eye include Schirmer's test, tear film break up time, conjunctival cytology, tears osmolarity.
- In severe case, complications like persistent epitheliopathy, sterile corneal ulcerations and secondary microbial infections can occur.

Treatment

Pharmacological

1. Artificial tear substitutes up to four times a day [methylcellulose 1% hydroxypropyl methylcellulose (HPMC) 1%.
2. Carboxymethyl cellulose 0.5%) to four times.
3. Lubricating eye ointment at bedtime.
4. 10% acetylcysteine eyedrops 1-2 drops into the affected eye 3-4 times daily for excessive mucin secretions.
5. Topical anti-inflammatory treatment with cyclosporine-A 0.05% twice a day.

If the symptoms not controlled within week than Refer to ophthalmologist.

Nonpharmacological

Hot compress, eyelid massage. Avoid continuous use of factor like T.V. computer, Mobile, other electronic devices.

REFRACTIVE ERRORS

Refractive errors (ametropia) are the optical defects of eye in which the parallel rays of light entering the eye do not come to focus on the fovea centralis. Ametropia includes myopia, hypermetropia and astigmatism. Astigmatism may be combined with myopia or hypermetropia.

SALIENT FEATURES

- Refractive errors are characterized by blurred vision, subnormal vision, eye strain or asthenopia, headache, tearing, latent or manifest strabismus

Treatment

Pharmacological

No Pharmacological treatment is available for ametropia.

Optical

- Accurate retinoscopy and corrective spectacles or contact lenses.
- If spectacles are not used patient may develop Amblyopia

- Where vision does not improve even with spectacles refer the patient to ophthalmologist.

Surgical

- Kerato refractive surgery.

Patient education

- Young patients opting for laser correction should wait till the refraction is stable for at least one year.

STRABISMUS (SQUINT)

Any child presenting with strabismus should have the following conditions ruled out:

- Refractive error-refraction should be done under full cycloplegia, i.e. Atropine ointment 1% 3 times a day for 3 days prior to performing retinoscopy. If any refractive error is present, that should be fully corrected by spectacles for at least 3-6 months, before performing definitive surgical therapy for strabismus.
- Any opacity in the media, e.g. cataract, corneal opacity, retinoblastoma etc. then should be immediately refer to ophthalmologist.
- Amblyopia element whether induced by strabismus or vice versa should be treated with occlusion therapy or other modality before treating strabismus.

Treatment

Nonpharmacological

Correct the refractive error or associated cataract, corneal opacity, etc. Fusion exercises for intermittent exotropia and other orthoptic exercises.

Surgical

Definitive therapy is surgical realignment of axis once other associated features have been treated.

Patient education

- Functional improvement in strabismus is best between 3-5 years of age.
- It is a misconception that squint is spontaneously corrected as the child grows; therefore, treatment of strabismus should not be delayed.

IRIDOCYCLITIS (ANTERIOR UVEITIS)

Uveitis is defined as inflammation of uveal tract, i.e. iris, ciliary body and choroid. Inflammation of iris and ciliary body constitutes iridocyclitis or anterior uveitis.

SALIENT FEATURES

- Acute anterior uveitis is characterized by painful red eye, diffuse periorbital pain, photophobia, blurred vision, excessive tearing. There is no purulent or mucopurulent discharge.
- Ocular examination reveals ciliary injection, normal or deep anterior chamber, small irregular pupil, posterior synechia, media opacities, tenderness of eyeball and variable decrease in vision.
- Slit-lamp biomicroscopy is essential for diagnosis and monitoring the treatment. Slit-lamp examination in active cases, reveals marked flare and cells in anterior chamber and fine keratic precipitates on the back of cornea. Posterior segment involvement and change is intraocular pressure may occur in anterior uveitis.

Treatment (Refer immediately to an ophthalmologist)

Pharmacological

1. Dexamethasone 0.1% eyedrops or Prednisolone or Prednisolone acetate 1% eyedrops. 1-2 hourly, tapered gradually on the basis of slit-lamp evidence of anterior chamber activity. If not controlled within 3 days than refer to ophthalmologist.
2. Homatropine hydrobromide 2% eyedrop solution.
Or
Atropine sulphate 1% eye ointment once or twice a day.
3. Close monitoring of intraocular pressure and treat appropriately, if elevated- Timolol maleate 0.5% eyedrops 2 times a day and/or Acetazolamide 250 mg 2 times a day.
4. Suitable Analgesic Tab. 3 times a day.
5. Identify the specific cause and give specific therapy (syphilis, tuberculosis, herpes simplex, herpes zoster, toxoplasmosis, etc.)

Nonpharmacological

Dark glasses.

Patient education

- Recurrent/chronic nature of the disease, which may interfere with vision, should be explained.
- Patients with history of uveitis, juvenile rheumatic arthritis, ankylosing spondylitis should be instructed to report immediately to an ophthalmologist, even if there is mild diminution of vision.
- Recurrent episodes of anterior uveitis and subsequent therapy may lead to complicated cataract and secondary glaucoma.
- Possible side effects or toxic effects of long-term topical periocular and systemic corticosteroid therapy should be explained.

ORBITAL CELLULITIS

Suppurative inflammation of adipose and soft tissues of orbit is termed as orbital cellulitis. It occurs more frequently in children than adults. Spread of infection from paranasal sinuses, particularly ethmoid sinus is the commonest cause. Other causes include extension of infection from dental abscess, ear, face and lid infection, panophthalmitis, dacryocystitis, dacryoadentitis, postoperative to any facial or ocular surgery, perforating injury and haematogenous spread, etc.

SALIENT FEATURES

- Marked unilateral axial irreducible proptosis, restricted and painful ocular motility, lid oedema, chemosis of conjunctiva, constitutional symptoms such as fever, headache, nausea, vomiting, malaise, prostration.

Treatment

Pharmacological

Severe cases are to be treated in the hospital.

1. Cap. Amoxicillin 500 mg plus Cloxacillin 500 mg in 3 divided doses for 7 days.
Or
Cap. Amoxicillin 250 mg plus Clavulanic acid (125 mg) every 8 hours.
2. Inj. Gentamicin 5 mg/kg in 2 divided doses for 7 days.
Or
Inj. Cefotaxime 1-2 g in 10ml sterile water for injection over period of 3-5 min every 12 hours. In neonates- 100-150 mg/kg in 2-3 divided doses. In infants and children- 50-180 mg/kg /day in 4 divided doses. Antibiotics are changed according to the report of culture and sensitivity and continue till resolution occurs.
3. For anaerobic infections
Inj. Metronidazole 500 mg IV infusion 8 hourly, shifted to oral dose of 400 mg 8 hourly based on the clinical response for 1 week. Otherwise refer to ophthalmologist.
4. Symptomatic therapy for pain: antipyretics and analgesics in usual doses.
5. Antibiotic eye ointment 5 times a day to prevent exposure keratopathy.

Nonpharmacological

Warm compresses with hygienic measure.

Patient education

- Any ear, sinus or dental infection especially in children should be treated promptly.
- Any child presenting with unexplained lid oedema or cellulitis should be immediately referred to an ophthalmologist.

ENDOPHTHALMITIS

Endophthalmitis is of two types: (1) exogenous endophthalmitis caused by the direct inoculation of infecting agent through breach in the continuity of ocular coats, e.g. postoperative, post-traumatic, (2) endogenous endophthalmitis results due to haematogenous spread of infective agents. Depending upon the aetiology of infectious agents, both these categories may be bacterial or fungal.

SALIENT FEATURES

- History of eye surgery, penetrating injury, fever, infection or predisposing systemic disease leading to metastatic endophthalmitis.
- Marked visual loss, ocular pain, headache, ocular discharge, photophobia, intense redness and lid swelling.
- Ocular examination reveals conjunctival and ciliary congestion, profound decrease in vision even up to perception of light with accurate or inaccurate projection of rays. Corneal oedema, hypopyon, signs of uveitis, exudation in vitreous leading to reduced or absent fundus reflex are the other associated features. The clinical picture is variable depending upon the route of entry, infection process and duration of disease.

Treatment

Refer immediately to an ophthalmologist after starting Moxifloxacin 0.3% eyedrop every one hour and inj. Gentamicin 50mg/ml and Atropine 1% eye

Patient education

- All patients with open globe injury must contact an ophthalmologist after getting initial treatment.
- Cataract- operated cases should never ignore pain, tearing and photophobia and decrease in vision in the operated eye and must consult the ophthalmologist at the earliest.

OPTIC NEURITIS

Optic neuritis includes papillitis (inflammation of optic disc), retrobulbar neuritis (inflammation of retro-ocular portion of optic nerve) and neuroretinitis when both optic disc and retina are inflamed. The chief causes of optic neuritis are: demyelinating disease (usually multiple sclerosis), systemic viral/bacterial infections, autoimmune diseases and secondary to ocular inflammations, e.g. uveitis, endophthalmitis, orbital cellulitis, etc. MRI of the brain to detect multiple white matter lesions should be done for diagnostic and therapeutic purpose.

SALIENT FEATURES

- Unilateral or bilateral, sudden severe visual loss, ipsilateral eye pain; markedly impaired colour vision, visual obscurations in bright light and episodic transient visual obscuration on physical exertion, hot bath, hot weather, fatigue, etc.
- Profound decrease in visual acuity, dyschromatopsia, centre or paracentral scotoma, tenderness of the globe near superior rectus insertion and reduced visually evoked response.
- Marked abnormality in pupillary response to light reflex (sluggish or afferent pupil defect).
- Fundus examination reveals optic disc oedema with or without flame-shaped retinal haemorrhages in papillitis and neuroretinitis and a normal fundus in retrobulbar neuritis.

Treatment

Refer immediately to an ophthalmologist after giving inj. Dexamethasone 10mg and inj. Gentamicin 50mg/ml for adult.

Patient education

- Explain recurrent nature of disease and permanent visual loss can occur.
- Risk of developing multiple sclerosis.
- Avoid factors provoking transient visual obscurations like physical exertion, hot bath, hot weather, stress, anxiety, anger etc.

DIABETIC RETINOPATHY

Diabetic retinopathy (DR) is the microangiopathy of retinal vasculature occurring in long-standing diabetes mellitus. It is classified into non proliferative DR and proliferative DR; diabetic macular oedema may be present at any of these stages.

Treatment

Pharmacological

Anti VEGF Intravitreal injection are given by ophthalmologist.

Nonpharmacological

Early diagnosis and proper diabetic control laser photocoagulation or vitrectomy surgery.

Patient education

- Explain the importance of half yearly fundus examination.
- Laser treatment can prevent deterioration of vision but cannot correct existing visual deficit. (for details and prevention of complications of diabetes see section on Diabetes Mellitus).

RETINAL DETACHMENT (RD)

Retinal detachment is defined as separation of the sensory retina from retinal pigment epithelium. It may be localized or entire retina may be involved. Retinal detachment involving macula results in profound visual loss. Retinal detachments are of three types: (i) rhegmatogenous RD, (ii) exudative RD and (iii) tractional RD.

SALIENT FEATURES

- Rhegmatogenous RD is caused by formation of a hole/tear in the retina. Clinical features include symptoms of flashes of light, sudden shower of black spots and veiled vision, loss of central vision, if macula also detached. The diagnosis is made by examination of fundus by distant direct ophthalmoscopy, direct and indirect ophthalmoscopy. The detached retina appears grey with oscillating folds.
- Tractional RD is caused by gliotic bands on retina.
- Exudative RD is caused by collection of serous fluid between neurosensory retina and retinal pigment epithelium.

Treatment

After diagnosis Refer to ophthalmologist.

Pharmacological

There is no pharmacological therapy, which can prevent delay or cure rhegmatogenous Retinal detachment.

Surgical treatment for rhegmatogenous RD

Treatment of choice is reattachment surgery.

Patient education

- Patients with high myopia, family history of RD, post-cataract surgery, past episodes of chorioretinal inflammation should be warned of the premonitory signs of impending RD (sudden onset of floaters, flashes of light and sudden obscuration of one field of vision). In such cases, they should immediately undergo a dilated fundus examination by indirect ophthalmoscopy by an ophthalmologist.
- Explain these patients not to indulge in contact sports.

RHINOSPORIDIOSIS OCULI (OCULAR RHINO)

Causative organism- Rhinosporidium Seeberi

Introduction

- The disease spreads from animal hosts to humans.
- This disease spreads by taking bath in the same pond in which cattle take bath.
- Children are more affected.
- Chhattisgarh has a high prevalence rate of this disease.

SALIENT FEATURES

- The spores of this disease spread through the polluted water and reach eyes, nose, mouth, urethra, and anus and grow there slowly.
- They cause haematoma at the affected site causing pain and bleeding.
- Sometimes they reach the bone and make it weak.
- If spores reach the brain it can even cause death.

Treatment

1. Surgery of the affected eye is being only treatment and the patient should be referred to an eye surgeon.

Patient education

- Avoid using the ponds used by cattle for taking bath.
- If possible make a separate pond for the use of cattle.