



AKHAND JYOTI
EYE HOSPITAL

Sight. Life. Hope.

MAJOR EYE DISEASES & TREATMENT



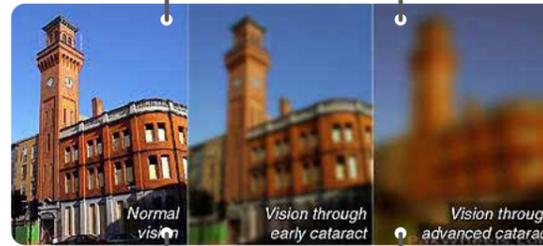
CATARACT

What is Cataract?

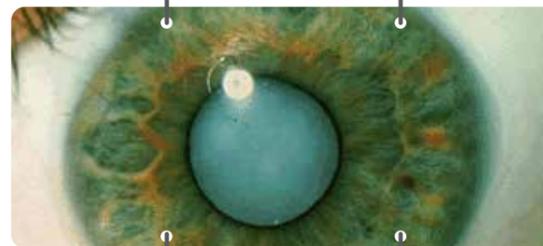
Normally, the lens of the eye is clear and allows light rays to pass through easily. When cataract develops, the lens becomes cloudy and opaque. The light rays no longer pass through the lens easily, so the patient cannot see clearly. Cataract is not a new growth or a film over the eye. It is not contagious.

Reasons for Cataract

It usually occurs in patients above the age of 50. Cataracts in patients are rare. Eye injuries may cause cataracts in patients of any age. Diseases like glaucoma, iritis, eye tumours, and diabetes may cause cataracts. Prolonged treatment with steroid drugs, either for local (e.g., allergic conjunctivitis) or systemic diseases (e.g., asthma) may lead to cataract formation.



THE QUALITY AND QUANTITY OF VISION DECREASES AS THE CATARACT PROGRESSES



CATARACTS CAN BE MILKY WHITE, BROWN OR BLACK IN COLOUR AS WELL



BLURRED VISION IS A MAJOR SYMPTOM

Types of Cataract

There are many types of cataracts. A change in the chemical composition of the lens causes most cataracts. The following are the various types of cataracts.

Senile Cataract

This is the most common type of cataract, comprising 80 percent of the total cataracts. It occurs in patients above the age of 50.

Congenital Cataract

Cataracts in patients are rare but are prevalent in states like Bihar. They can be caused by infection of the mother during pregnancy, or they may be hereditary.

Traumatic Cataract

Eye injuries may cause cataracts in patients of any age.

Secondary Cataract

Eye diseases, like glaucoma, iritis, eye tumours, and diabetes may cause cataracts.

Drug-induced Cataract

Prolonged treatment with steroid drugs, either for local (e.g., allergic conjunctivitis) or systemic diseases (e.g., asthma) may lead to cataract formation.

Symptoms of Cataract

Cataract formation is not associated with "signals" such as pain, redness or tearing. The common symptoms are:

- Blurring or dimness of vision
- Double vision
- Glare & sensitivity to light
- Yellowing of colours

Treatment

Cataract cannot be cured by medicines or spectacles. Removal of the clouded lens by SURGERY is the only treatment.

Types of Cataract Removal

Routine method (old methods – not used at Akhand Jyoti Eye Hospital)

After administering a local anaesthesia, a 10-13 mm incision is made in the eye. The cataract lens is removed and it may be replaced by an Aphakic glass. The incision is then closed with sutures. After the surgery, glasses with high power called ophakic spectacles are prescribed to the operated person.

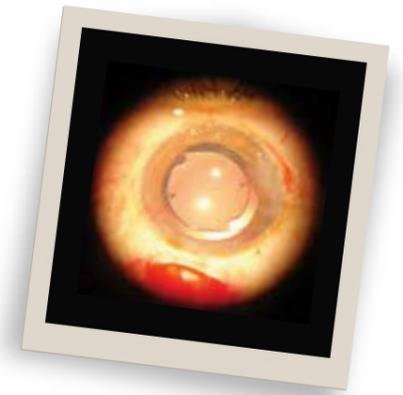
Disadvantages:

These ophakic glasses are heavy, images seen are larger than they normally appear to be, and the field of vision is restricted.

Another method is called ECCE. After administering a local anaesthesia, a 10 mm incision is made in the eye. The clouded lens is removed and replaced by an IOL and the incision is then closed with sutures. The entire procedure takes only 15 minutes.

What is IOL?

Intra Ocular lens (IOL) is a tiny transparent convex lens. It is made of polymethylmethacrylate, (a harmless substance). Unlike contact lens, an IOL stays in the eye and does not cause irritation. There are available made of more advanced and high materials. **AN IOL SEEN THROUGH A MICROSCOPE IMMEDIATELY AFTER IMPLANTATION.**



Advantages of IOL:

- Since the lens is placed inside the eye, most often the patient need not wear glasses for clear vision. But sometimes patient has to wear glasses for clarity.
- Images are clear and of the same dimension without distortion
- Full vision returns very clearly
- Normal field of vision

Phaco or sutureless surgery with implantation of IOL (latest method)

After giving a local anaesthesia, a 5mm incision is made in the eye. The cataract lens is broken into small pieces by a machine with ultrasonic waves and removed with a needle. A specially prepared IOL is inserted into the eye and the wound heals without sutures. Unlike contact lenses, an IOL stays permanently in the eye and does not cause irritation. Since the artificial lens is placed inside the eye, images are clear without distortion. Full vision returns very early with normal field of vision.

Advantages of Phaco

- Early surgery can be done, so that patient need not wait for the cataract to mature
- Small Incision
- No sutures and no need of suture removal.
- No irritation, no watering
- Early return to work
- No need to continue drops for a long time
- No need for hospital stay, Even if the patient stays, it is only for a short time
- Only one post-operative visit

The ophthalmic surgeon decides whether the patient can undergo phaco or not. [CLICK HERE](#) to know about the advantages of Phaco at our hospital.

GLAUCOMA

Glaucoma is a group of disorders in which the pressure of fluid within the eye gradually increases to a level that irreversibly damages the sensitive tissues of the eye, most notably the optic nerve which transmits visual images to the brain.

Cause

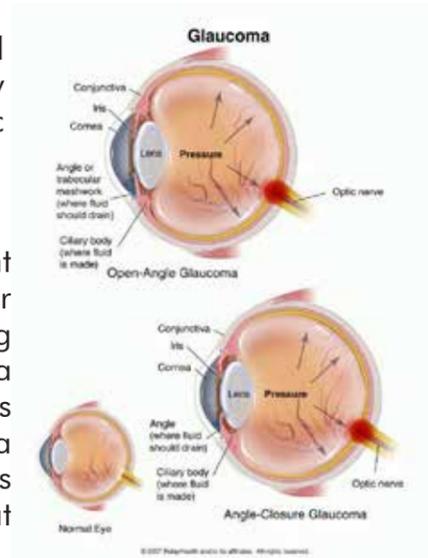
Anterior chamber is the fluid (aqueous humour) filled front portion of the eye. If the drainage of this fluid from the anterior chamber is restricted, pressure builds up within the eye causing irreversible damage to the optic nerve thereby causing a permanent loss of vision. Individuals over the age of 40 as well as persons with myopia, diabetes, or a family history of glaucoma are at an increased risk of developing glaucoma. Individuals who have sustained eye trauma or use corticosteroids are also at an increased risk.

GLAUCOMA CAN BE OF SEVERAL TYPES AND AFFECTS THE OPTICS NERVE IN THE EYE

Symptoms

- Most glaucomas remain asymptomatic until advanced stage. Hence periodical check up, especially for those at risk, is necessary to detect glaucoma early.
- Some individuals, especially if there is a rapid build up of eye pressure, may experience one or more of the following symptoms:
- Pain around the eyes when coming out from darkness (e.g., as soon as the person comes out of a theatre).
- Coloured halo rings seen around bulbs, especially during mornings and nights.
- Frequent change of reading glasses, headaches, pain and redness of the eyes.
- Reduced vision in dim illumination and during nights.
- Gradual decrease of side vision.
- Blurring of vision.

BEWARE! GLAUCOMA IS CALLED THE "SILENT THIEF OF SIGHT"



Detection

The three basic tests in the detection of glaucoma are:

- Checking the pressure inside the eye.
- Inspection of the optic nerve after dilating the pupils.
- Testing the side vision by a computer assisted test called perimetry (visual field examination).



GLAUCOMA FIRST AFFECTS YOUR PERIPHERAL VISION, A REASON WHY PATIENTS REPORT LATE AS THEY COULD STILL SEE WITH THEIR CENTRAL VISION

Treatment

- Glaucoma cannot be cured. Appropriate treatment and regular follow-up can preserve residual vision from further damage.
- Several drugs are available to reduce fluid formation within the eye or promote their drainage from the eye. For most glaucoma patients, regular use of medications will suffice to control the pressure inside the eye. However, if the pressure control is not satisfactory other modalities like laser or surgery may have to be resorted to.

Remember

- Glaucoma cannot be cured, only controlled.
- Vision lost due to glaucoma cannot be re covered.
- Early detection and treatment of glaucoma, before it causes significant visual loss, is the ideal way to control the disease.
- It is essential that persons above the age of 40 have their eyes examined periodically to detect glaucoma early.
- Glaucoma is not an infectious disease, but may be hereditary. So, if any one in the family has glaucoma, it is advisable that the rest of the family members have their eyes examined, periodically.
- Once diagnosed as having glaucoma, the patient should be committed for lifelong treatment and periodical eye check-up.
- Drugs prescribed should be regularly used at specified time, to ensure round-the-clock pressure control. Medications may cause a few undesired effects. In the event of any adverse effect, the patient must approach the ophthalmologist immediately for alternate treatment.
- Early Glaucoma is hardly noticeable

RETINAL DISEASES

Diabetic Retinopathy

Diabetes and the Eye

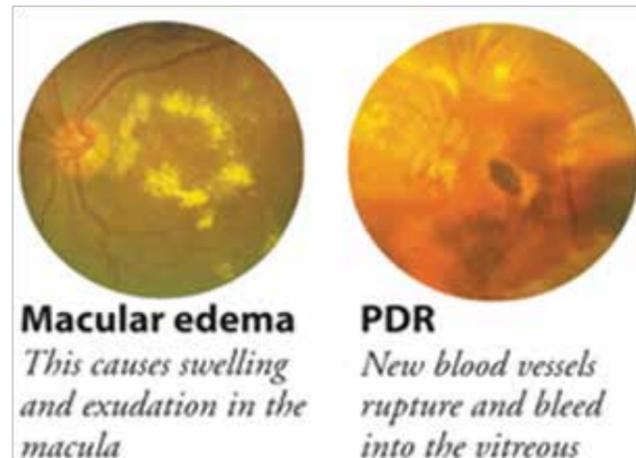
An increasing incidence of diabetes mellitus poses a major health problem in India. The contributing factors are:

- an inappropriate diet, high in fat and carbohydrates
- sedentary lifestyle

Diabetes may affect both the young (type I) and the old (type II). The latter type is far more common.

Regardless of the type of diabetes, many diabetics develop a complication called diabetic retinopathy, a change in the retinal blood vessels that leads to loss of vision.

How does diabetes affect the eye?



RETINAL DISEASES ARE SIGHT THREATENING AND THE EARLIEST INTERVENTION IS NECESSARY

Diabetes causes weakening of the blood vessels in the body. The tiny, delicate retinal blood vessels are particularly susceptible. This deterioration of retinal blood vessels, accompanied by structural changes in the retina, is termed diabetic retinopathy and will lead to loss of vision. Diabetic retinopathy is gradual in onset and is related to the duration of diabetes. High blood glucose levels, high blood pressure and genetics influence the development and progression of diabetic retinopathy.

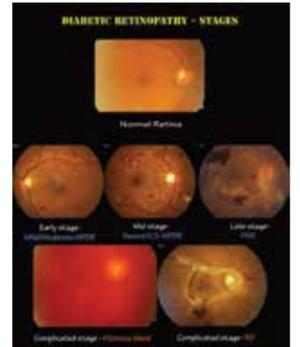
There are two main stages of diabetic retinopathy:

Non-proliferative: When the blood vessels leak, macular edema may occur, thereby reducing vision.

Proliferative: When new, weak blood vessels grow or proliferate, bleeding into the vitreous may occur and cause severe visual loss.

Eye examination in diabetic retinopathy. Every diabetic is a potential candidate for diabetic retinopathy. There are no symptoms at the initial stages. Periodic eye examination with dilated pupils is the only way to detect early disease and prevent further deterioration of vision.

EARLY DAIGNOSIS AND TREATMENT IS IMPORTANT IN RETINAL DISEASES, ESPECIALLY DIABETIC RETINOPATHY



Diagnosis

Diagnostic tools such as a slit lamp, ultrasound and procedures such as fluorescein angiography are used in addition to an ophthalmoscope to assess whether the patient has diabetic retinopathy or other eye problems.

Fluorescein Angiography

This is a magnified photograph of the retina using an injectable dye. It helps classify the condition, record changes in the retinal blood vessels, decide on the mode of treatment and evaluate the treatment.

Treatment

Lasers are widely used in treating diabetic retinopathy. Lasers are formed by an intense and highly energetic beam of light. They can slow down or stop the progression of diabetic retinopathy and stabilise vision.

Laser and its side effects

Laser treatment is usually performed as an outpatient procedure. The patient is given topical anaesthesia to prevent any discomfort and is then positioned before a slit lamp. The ophthalmologist directs the laser beam precisely on the target with the aid of the slit lamp and a special contact lens. Absorption by the diseased tissue either seals or destroys the tissue. Additional treatment may be required according to the patient's condition.

Some patients may experience side effects after laser treatment. These are usually temporary. Possible side effects include watering eyes, mild headache, double vision, glare or blurred vision. In the event of sudden pain or vision loss, the ophthalmologist must be contacted immediately.

What is Vitrectomy?

The retina is the light-sensing tissue at the back of the eye. The vitreous is the clear, jelly-like substance that fills the middle of the eye. In some patients, there may be bleeding into the vitreous or the vitreous may pull the retina, reducing vision severely. In such instances a surgical procedure called vitrectomy is performed. The Vitreous is removed during vitrectomy surgery and usually replaced by a saltwater solution.

The operation removes any blood or debris (from infection or inflammation) that may be blocking or blurring light as it focuses on the retina. Vitrectomy surgery removes scar tissue that can displace, wrinkle, or tear the retina. Vision is poor if the retina is not in its normal position. This surgery can also remove a foreign object stuck inside the eye as the result of an injury.

Age Related Macular Degeneration (ARMD)

What is macular degeneration?

Macular degeneration is a condition of the eye that is often related to aging. It is commonly referred to as age-related macular degeneration, and is often abbreviated as AMD. Age related macular degeneration is the most common cause of legal blindness in the geriatric population in the west and is probably more common in India than believed.

Dry ARMD causes thinning and atrophy of the macula with variable visual loss but is not amenable to any treatments as of now. Wet ARMD results from leakage or bleeding from choroidal neovascularisation and if untreated could lead to scarring and progressive visual loss. Conventional laser therapy has been found to be effective in the management of only a selected group of patients.

Treatment

Photodynamic therapy (PDT) with Visudyne

The light sensitive drug- visudyne is injected into the patient's bloodstream which accumulates in the abnormal new vessels in the eye. This drug is activated by a non-thermal laser which closes the abnormal vessels without damaging the overlying sensory retina. Studies have shown that PDT slows the progression and improves vision in some forms of the disease.

Transpupillary Thermotherapy (TTT)

TTT is a cost effective alternative in the disease forms not eligible for PDT. This is a low energy diode laser which directly closes the abnormal vessels with a small risk of damage to the overlying retina.

Sub macular Surgery

Sub macular surgeries and macular translocation surgeries have been found to be effective in selected cases of advanced ARMD.

Diabetic Retinopathy: A silent presence

Diabetes is twice as likely as non-diabetics to develop eye problems. The most common eye complication in diabetes is diabetic retinopathy; other complications are cataract and glaucoma.

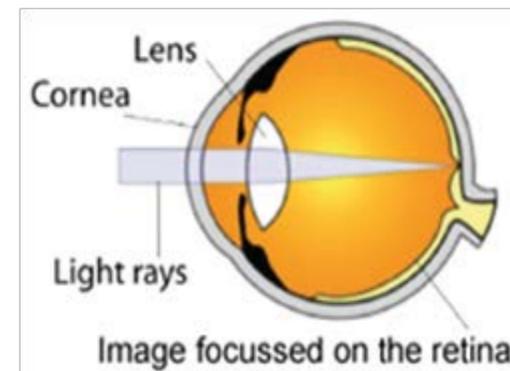
Fifty percent of diabetics develop some degree of diabetic eye disease.

The risk of blindness is 25 times higher in diabetics than in non-diabetics.

Early detection and timely treatment of diabetic eye disease significantly reduces the risk of vision loss.

Diabetic retinopathy is often symptomless in the early stages. Since only an ophthalmologist can detect early signs of diabetic retinopathy, all diabetics should have their eyes examined at least once every year.

Refractive Errors



What are refractive errors?

In normal vision, light rays from an object focus on the retina (emmetropia). Alternatively, in the presence of refractive error, the light rays get focused in front or behind the retina causing blurred vision. Under normal conditions, as the eye ball grows in size from infancy to adulthood, there will be a corresponding change in curvature of cornea and the lens, enabling the eye to remain emmetropic, at all ages.

When one of these happens, refractive error occurs:

- The eye ball being larger or smaller than the normal size
- The corneal curvature being flatter or steeper than usual
- Increase or decrease in the power of the lens

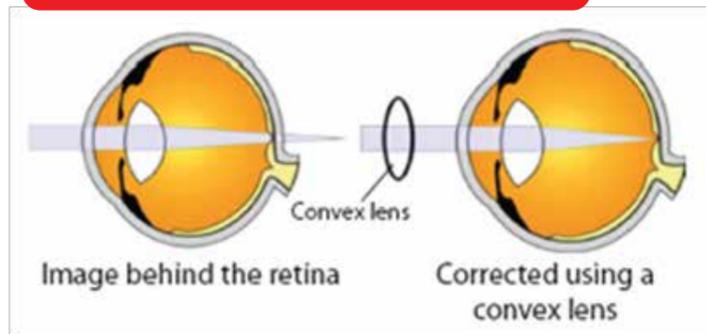
Symptoms of Refractive Errors

- Patients can have difficulty in reading small letters on the blackboard
- Some patients squeeze their eyes while trying to see distant objects like blackboard, television etc.
- Patients hold books close to their face while reading
- Patients with myopia have defective vision for distance and clear vision for near
- They can experience eye strain while trying to read for long hours
- Some patients with hyperopia can present with squint
- Patients can develop swellings on the lids due to constant rubbing of the eyes to see things clearly
- Eye pain and headache may occur

The patient should be immediately brought to an ophthalmologist, if any one of the above symptoms is observed.

The refractive errors can be classified as myopia (near sightedness) and hyperopia (far sightedness).

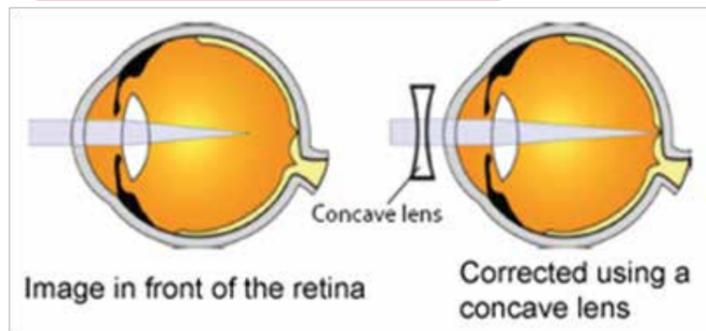
What is Hyperopia?



- In hyperopia or far sightedness, the light rays from an object form an image behind the retina.
- Patients with hyperopia

- Find difficulty in reading, writing and looking at both near and distant objects
- Face eye strain while trying to read for long hours
- May have squint (crossed eyes)

What is myopia?

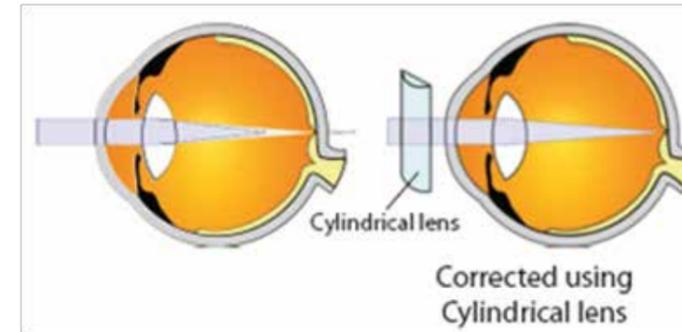


- In myopia or near sightedness, the light rays from an object form an image in front of the retina.
- Patients with myopia

- Have defective vision for distance and clear vision for near
- Squeeze their eyes while trying to see distant objects
- Hold books close to their face while reading
- Patients with the above conditions may also:
 - Rub their eyes constantly or blink frequently, because of the eye strain which they experience all the time or have pain, watering or burning sensation in the eyes
 - Have headache in the forehead region which gets intensified in the evening
 - Have recurrent swellings in the eye lids

Astigmatism

Treatment for the above conditions



- Correction using spectacles is the best option available. Though patients may initially refuse to accept glasses, they will become used to them once they realise they can see better with them on.
- The power of the glasses may change depending on the growth of the eye ball. An eye

check-up and change of glasses if necessary, has to be done once in 6 months for patients under 5 years of age and once a year thereafter. Making a patient wear glasses regularly is the duty and responsibility of the parents.

- Failure to wear glasses in childhood when needed will retard the development of vision in that eye.
- Patients older than 15 years can use contact lenses if they don't want spectacles. Those over 18 to 20 years of age with stable power also have the option of LASIK, a laser refractive surgery apart from contact lenses.

Failure to correct the refractive errors and the eventual low vision may hamper the academic activities of the patient. So an ophthalmic consultation is essential in patients, especially with symptoms of refractive errors. Finally, there is no relationship between nutritional deficiency and the occurrence of refractive error. So loading these patients with Vitamin A will not help them. Sometime this may lead on to other complications.

LASIK - Refractive Surgery

LASIK (Laser In situ Keratomileusis) is the high-tech out patient surgical technique for the treatment of myopia, astigmatism and hypermetropia. Utilising the accuracy and precision of the computer controlled excimer laser, LASIK changes the shape of the cornea and corrects refractive errors.

Remember

- Failure to correct refractive errors leads to decreased vision and also hampers the academic activities of the patient.
- Patients found with symptoms of refractive errors should be brought to an ophthalmologist for necessary correction.
- Parents should encourage their children to wear glasses. Wearing glasses is not a stigma.
- Loading children with Vitamin A may neither help in preventing nor correcting refractive errors.
- Spectacles themselves do not increase or decrease the power of the eye.

Allergy and The Eye

Allergic conjunctivitis is caused by allergens (substances that cause allergies).

Causes

The possible allergens that lead to allergic conjunctivitis are:

- Smoke
- Dust
- Pollens
- Animal hair and feathers



Symptoms

- Redness in the white of the eye and inner side of the eyelid
- Irritation
- Increased amount of tears
- Itching of the eyes
- Ropy discharge from the eyes

Do's and Don'ts

- Avoid exposure to dust
- Contact lenses which are worn must be removed
- For protection, plain glass can be worn
- Hands and eyes must be often washed
- Use icepacks on eyelids to reduce itching
- Touching or rubbing the affected eyes must be avoided
- Steroid eye drops may be used after consulting and under the strict supervision of a registered eye doctor
- Self-medication with steroids may cause an elevation in the pressure of the eye which may result in glaucoma and eventually irreparable vision loss

In most of the cases, this disease does not cause vision impairment. This is a chronic disease. So, self-medication should be avoided. Powerful medicines, though sometimes give immediate relief, should not be used without the advice of a doctor, since they will cause vision threatening side effects.

Corneal Diseases

What is Cornea?

The cornea is the transparent tissue that covers the front of the eye. An easy way to locate the cornea is simply to look at the eye in the mirror. You will notice a clear surface covering the iris (the coloured part of the eye) and pupil. This is the cornea.

Functions of Cornea

It provides a physical barrier that shields the inside of the eye from germs, dust, and other harmful matter.

It acts as the eye's outermost lens. When light strikes the cornea, it bends or refracts the incoming light onto the crystalline lens. The lens then focuses the light onto the retina, the paper-thin tissue at the back of the eye on which the image is formed.

Corneal Problems

The cornea copes very well with minor injuries or abrasions. However, if the scratch penetrates the cornea more deeply, the healing process will take longer, resulting in greater pain, blurred vision, tearing, redness, and extreme sensitivity to light. These symptoms require professional treatment. Some of the more serious problems that affect the cornea are:

■ Microbial Infections (Keratitis & Corneal Ulcers)

When the cornea is damaged, such as after a foreign object has penetrated the tissue, bacteria or fungi can pass into the cornea, causing a deep infection and inflammation. This condition may cause severe pain, reduce visual clarity, produce a corneal discharge, and perhaps erode the cornea.

As a general rule, the deeper the corneal infection, the more severe the symptoms and complications.

■ Conjunctivitis

This term describes a group of inflammatory and often contagious diseases of the conjunctiva (the protective membrane that lines the eyelids and covers exposed areas of the sclera, or white of the eye). These diseases can be caused by a bacterial or viral infection, drug allergy, environmental irritants, or a contact lens product. At its onset, pinkeye is usually painless and does not adversely affect vision. The infection will come and go in most cases without requiring medical care. But for some forms of pink eye, such as epidemic keratoconjunctivitis, treatment will be needed. If treatment is delayed, the infection may worsen and cause corneal inflammation and a loss of vision. Depending on the type of pink eye that a person develops, treatment often consists of antibiotics and steroids.

■ Ocular Herpes

Herpes of the eye is a recurrent viral infection. Extremely painful, it is very common in India. It requires regular follow up with the ophthalmologist.

■ Corneal Scarring

Corneal scarring is by far the biggest cause of blindness in India. Due to scarring, the cornea loses its transparency thereby destroying normal vision. These scars can be the result of infections, chemical burns and injuries. In extreme cases of scarring which has led to complete visual loss, ophthalmologists recommend a corneal transplant operation (commonly known as eye transplant). Known as Penetrating Keratoplasty, the damaged cornea is replaced by a donor "graft". The surgical process is extremely complicated.

If the patients come on time, most of the above can be treated with medications like antibiotics. Constant follow up will be required in most cases, especially ulcers.