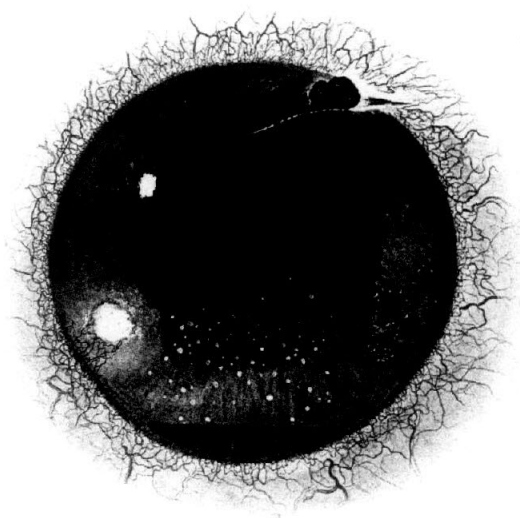
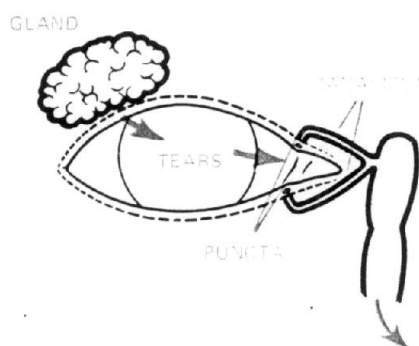
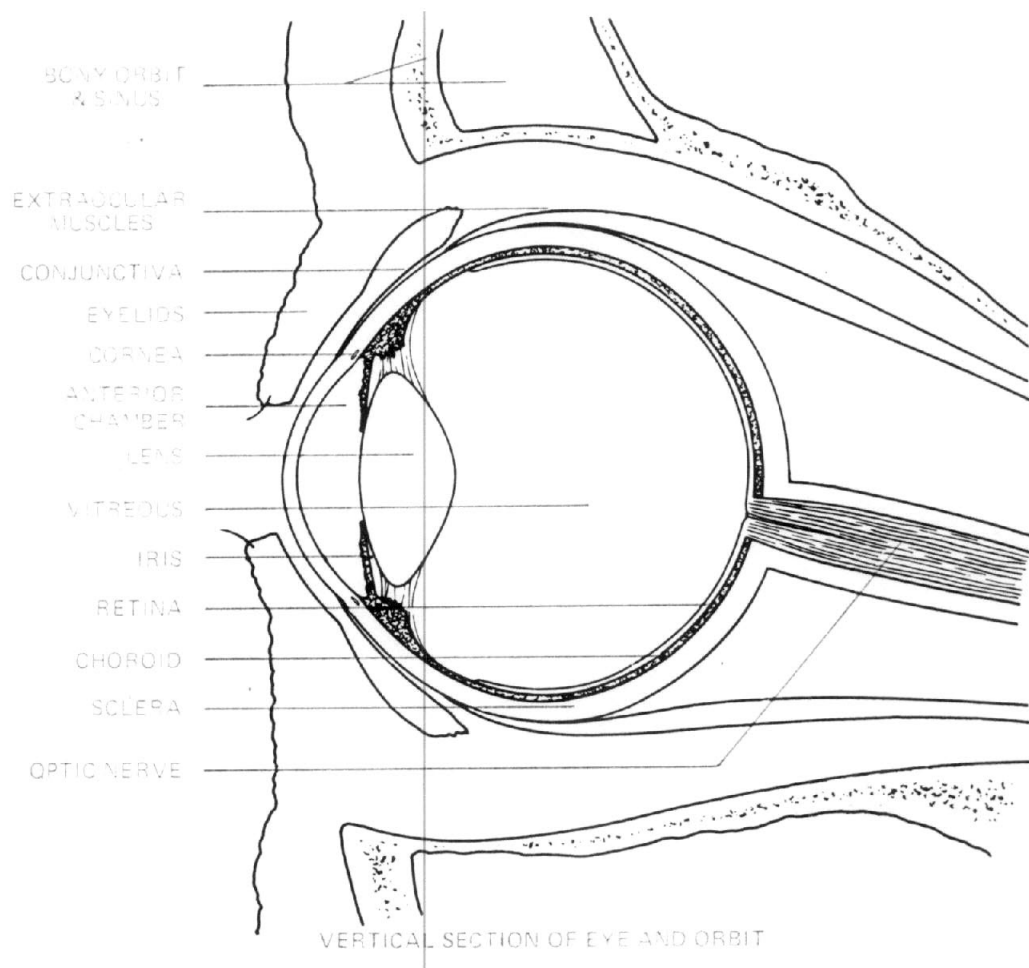
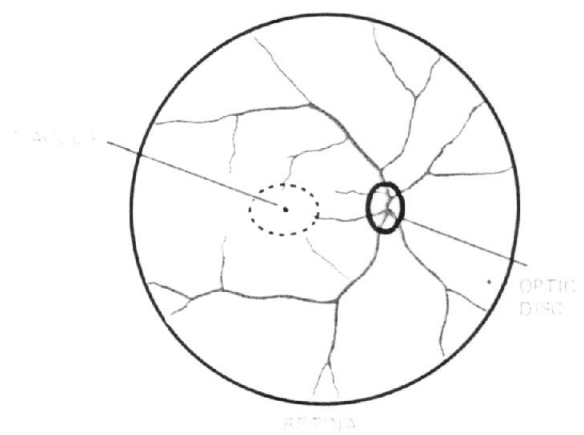

OCULAR EMERGENCIES





LACRIMAL APPARATUS



METHODS, EQUIPMENT AND SUPPLIES

History

This may be relevant: Use of hammer and chisel?
Recent arc welding? Any history of allergy? Any previous treatment?

Vision Testing

Absolutely essential, even if only a rough guide. Can the patient count fingers and perceive objects in all four quadrants of the visual field? Ensure that the eyelids are sufficiently open during test.

Inspection

Examine ocular structure from anterior to posterior: lids, bony orbit, conjunctiva, cornea, anterior chamber, iris, etc.

Light:

A strong beam is essential and is more effective if concentrated, as by a good pencil torch, and shone obliquely.

Magnification:

A convenient type is a binocular loupe fixed to a headband which can fit over spectacles if necessary, leaving the hands free. A X10 hand loupe provides greater magnification but its use requires practice.

The OPTHALMOSCOPE, for examining the posterior segment of the eye, is often used only to demonstrate a red reflex through the pupil indicating clarity of the optic media. Its use is facilitated by dilation of the pupil (after the likelihood of glaucoma has been excluded). When examining myopic eyes do so with the patient wearing his spectacles.

The cornea, which must remain clear for continued optical function, is the most vulnerable external part of the eye and also the most sensitive. It must be clearly visualised. FLUORESCEIN may help in the assessment of corneal epithelial lesions which it stains green; this is particularly clear in a blue light. It is most easily inserted into the eye by means of impregnated paper strips, the tip of which is placed inside the lid for a second.

Other equipment which may be required are sterile disposable hypodermic needles, cotton wool "buds", epilation (block ended) forceps, sterile saline with I/V giving set, eye pads, 1 inch strapping (micropore), wire lid speculae.

MEDICATIONS

The following should always be available in single dose units:
LOCAL ANAESTHETIC DROPS: Benoxinate or Ophthaine
MYDRIATIC (DILATING) DROPS: Homatropine 2%
MIOTIC (CONSTRUCTING) DROPS: Pilocarpine 4%
ANTIBIOTIC EYE OINTMENT and/or Drops: Chloramphenicol or Sulphacetamide.

Unless 24 hour prescribing is readily available, there should also be a supply of:

Systemic Antibiotic: Ampicillin (Penbritin)

Local Steroid Drops: Betamethasone

Steroid/Antibiotic Ointment: Betamethasone and Neomycin

Idoxuridine Drops: (Kerecid)

Acetazolamide 250mg tablets.

The above are suggested because of availability and reasonable cost effectiveness. Alternative preparations are of course available, to be used at the practitioner's discretion.

POSITION OF THE EXAMINER

When examining closely, sit or stand on the same side of the patient as the eye under scrutiny. When carrying out treatment it is most convenient to do so sitting at the head of a couch or reclining chair, with the patient lying supine, fixing his gaze on an object above his head.

CHILDREN are sometimes surprisingly co-operative, and such measures as sedation and general anaesthesia must be judged according to the urgency of the situation. In an emergency, such as cement inside the lids, if necessary wrap the child up in a blanket to prevent struggling, the arms should be separate inside the layers of blanket and, with an assistant steadying the head and body, lay the child supine on a couch or the floor. It may be difficult to separate the eyelids, and Casualty Departments should have a pair of curved wire lid speculae for this purpose, as well as sterile saline for irrigation by means of an I.V. giving set, or an undine, after liberal instillation of local anaesthetic drops.

While the child is restrained there will be an opportunity to check the cornea for abrasions or foreign bodies; treatment for this may be given immediately, or if necessary deferred in favour of a general anaesthetic later.

SPECIAL CAUTIONS

Avoid delicate corneal treatment unless the eye is reasonably steady—G.A. if necessary.

Avoid the use of mydriatic drops whenever glaucoma is suspected—the condition might be aggravated (check anterior chamber depth).

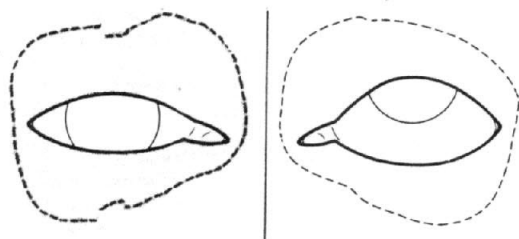
Avoid local STEROID ocular therapy unless specifically indicated: it exacerbates herpes simplex keratitis.

Avoid excessive use of local anaesthetic drops for painful corneal conditions: this may delay healing.

THE GRAVITY OF ANY ACUTE OCULAR CONDITION
DEPENDS ON TWO VITAL FACTORS WHICH MUST BE
ASSESSED:

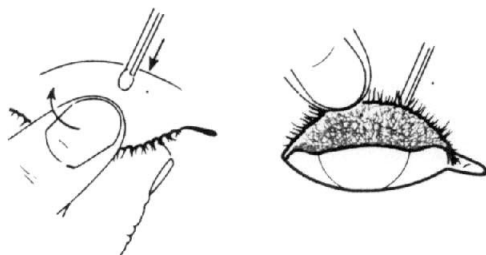
CAN THE PATIENT SEE?

WHAT IS THE STATE OF THE CORNEA?



BLACK EYE

SUBTARSAL FOREIGN BODY



EVERSION OF EYELID

INJURIES

SALT AND CEMENT

Remove with the aid of local anaesthetic drops, irrigation and sweeping round the folds of conjunctiva with cotton wool buds.

BURNS

These may be extensive, with damage and potential danger to the eye, or small. All emergency treatment must be directed to protecting the cornea from exposure or singed lashes which may cause ulceration.

Rx Antibiotic ointment. Refer.

CHEMICAL INJURY

ALKALI (lime) damage to the cornea is devastating. If any chemical enters an eye, irrigate PROFUSELY immediately, if necessary plunge head into a basin of water and force lids apart. Local anaesthetic drops facilitate irrigation which can be carried out most efficiently with saline from an I/V giving set, or an undine.

If delay in referral is unavoidable, instil mydriatic drops and antibiotic ointment after thorough irrigation—analgesics may be necessary.

BLACK EYE

Eyelid bruising does not necessarily indicate damage to vital structures, but important points must be elucidated:

- CAN THE PATIENT SEE?** If necessary, open swollen lids digitally.
- IS THE EYEBALL INTACT?** Check the integrity of the cornea, depth of anterior chamber and whether or not it contains blood (hyphaema). Compare the pupil to the opposite side; does it react? Is there a red reflex through the pupil?
- OCULAR POSITION AND MOVEMENT:** protrusion may indicate a retrobulbar haemorrhage, or the eye may be sunk back in the socket—enophthalmos, suggesting a "blow out" fracture of the bony orbit, which may also cause restriction of ocular movement and diplopia due to impaction of extraocular muscles in the fracture.
- BONY MARGIN:** Irregularity of the bony margin may be palpated.

Always X-RAY: If "blow out" is suspected ask for tomograms.

OTHER INJURIES may require more urgent treatment, in which case it may be expedient to call the ophthalmologist to a casualty or orthopaedic department. Fractures of the bony margin may require the opinion of a faciomaxillary surgeon.

Rx Refer to eye department if signs indicate.

SUBTARSAL FOREIGN BODY

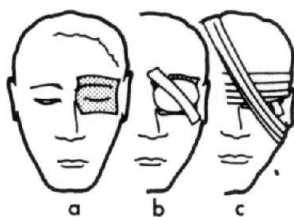
△ Presence usually suspected from history; a piece of grit entered the eye and is not seen on ordinary inspection. Very irritable eye.

Rx The patient is asked to open eyes and look downwards. Evert the eyelid by grasping the lashes and pulling them down, round and up while depressing the upper margin of the tarsal plate with a matchstick or glass rod. The F.B. is seen on the conjunctiva and can be wiped off with a finger tip or clean swab.

Insert antibiotic ointment.



CORNEAL FOREIGN BODY



EYE PADS



CORNEAL ABRASION

CORNEAL FOREIGN BODY

Often extremely painful. History usually relevant, metal grinding, etc.

F.B. visible on anterior surface of cornea.

Rx *Instil local anaesthetic drops 2 or 3 times. Steady eyelids of supine patient with one hand, and insist on his fixing gaze on a definite object above. Remove F.B. with sterile hypodermic needle.*

Special Note

If a rust deposit remains, or the F.B. is deeply embedded, do NOT scratch much: leave it and refer to an eye department: it is often easier to remove rust after 1 or 2 days. Very deep metallic F.B.s may require removal by magnet.

After Treatment

If the F.B. was only lightly embedded, it may not be necessary to pad the eye and bring the patient back; insert antibiotic ointment.

If the eye is sore, instil mydriatic drops.

If the F.B. left a large crater it will heal faster if the eye is padded for a day or two, and the patient should be seen again to make sure that healing is progressing, especially if the central part of the cornea is involved.

Eye Pads

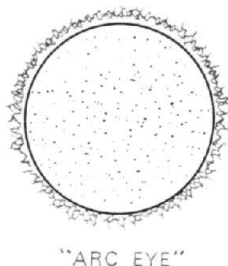
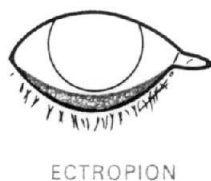
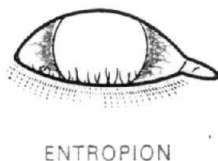
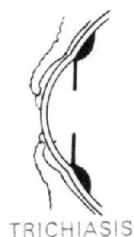
Some consideration should always be given to the problem of padding an eye; it is only advised when there is a painful defect in the corneal epithelium which heals more quickly under a closed lid, and is more comfortable. Eye pads may cause great INCONVENIENCE (drivers) and unless correctly applied may actually make conditions worse, quite apart from being useless. It may be more expedient to leave an eye unpadded and tell the patient to go home and that the eye will heal quicker if kept shut.

Antibiotic ointment is always inserted after F.B. removal. If an eye pad is advised, then it is placed over tulle gras on the closed lids, and held on by a diagonal piece of strapping (b) (micropore or Sellotape). A crêpe bandage is then applied, just firm enough to prevent the patient from opening his eye. (c) Padding is carried out daily until the corneal epithelial defect is nearly healed. If the eye remains irritable, continue mydriatic drops as well. Antibiotic ointment should be used twice daily for a further few days.

CORNEAL ABRASION

Δ This painful condition may be caused by trauma from such injuries as overlong contact lens wear, manipulation, or by a finger nail or twig poked into the eye. There is profuse lacrimation and it is often necessary to instil local anaesthetic drops in order to examine the eye. Fluorescein may be helpful in determining its extent.

Rx *Treatment is the same as that described after removal of corneal foreign body: if the defect is slight, no pad, antibiotic ointment only. If the eye is very sore, instil mydriatic drops, antibiotic ointment and pad. Large abrasions usually take less than 48 hours to heal if properly padded. Analgesics may be necessary.*



Recurrent Erosion

This is a recurring corneal epithelial defect, usually in an area of cornea damaged previously, which may wake the patient at night, presumably due to a reduced tear secretion causing a weak patch of epithelium to be shed. Treat as for any corneal abrasion.

ABRASION OF CORNEA BY EYELASHES

Trichiasis

Ingrowing eyelashes are a common cause of corneal irritation and if the condition is chronic, as in post-trachomatous scarring, then corneal ulceration and visual impairment can occur.

Epilation (plucking) may be sufficient, but, if the condition is recurrent then electrolysis of the offending lashes should be arranged. Other treatment may include surgery to correct the position of the lid margin.

SENILE SPASTIC ENTROPION

This is a frequent cause of inflamed eyes in elderly persons.

Δ The margin of the affected lower lid is rolled inwards, with the lashes abrad ing the cornea, which may stain with fluorescein. A vicious circle is set up, spasm of the lids and corneal irritation consequent one upon the other.

Rx Strap lid with 1 inch strapping applied first to the lid, just below the lashes, drawn downwards, the other end pressed firmly onto the malar skin. This usually curtails the condition. Insert antibiotic ointment and refer. Corrective surgery is usually necessary.

ECTROPION

Δ The lid margin is turned outwards, often with a sagging lower lid, with unsightly exposed conjunctiva. Watering occurs because tears cannot drain through the everted punctum. The eyelid skin may become macerated and secondarily infected.

Rx Antibiotic ointment. Surgery is usually necessary.

SUPERFICIAL KERATITIS CAUSED BY ULTRA VIOLET LIGHT "Arc Eye"

Δ WELDERS and "Sun lamp" users. History is pathognomonic, pain, watering and photophobia after an initial delay of a few hours. Fluorescein reveals pitted corneal surface.

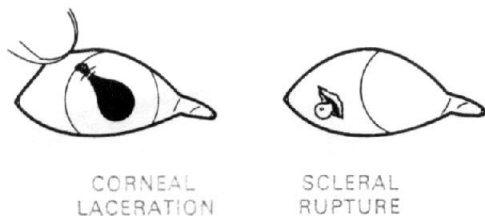
Rx Local anaesthetic drops may be necessary to relieve the pain. Mydriatic drops should be used if the condition is severe. Give frequent antibiotic ointment and send patient home to bed, to keep eyes shut. Analgesics may be necessary, and it should heal within 12 hours.

LACERATIONS

Eyelids

The most serious are those involving the lid margin, particularly at the medial end of the lower lid where the lower lacrimal canaliculus may be involved.

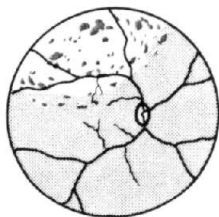
Repair of the lid margin requires meticulous care to avoid 'notching', and other deformities such as malposition of the eyelashes and unsightly cosmetic defects. It may be necessary to approximate conjunctiva, tarsal plate and skin separately. It is important to assess the extent of eyelid lacerations very carefully—very extensive defects can cause exposure of the



HYPHAEMA



IRIS SPHINCTER RUPTURE — DIALYSIS



COMMOTIO RETINAE

cornea which should then be protected by frequent application of eye ointment.

Conjunctiva

Usually not serious, but extensive laceration will require suturing. Do not try to remove ingrained dirt in the conjunctival wound too vigorously.

Cornea and Sclera

Lacerations of the outer coat of the eyeball may allow **EXTRUSION OF INTRAOCULAR CONTENTS**—a potentially disastrous condition requiring immediate surgery, usually due to flying glass fragments. Dark coloured uveal tissue, iris or ciliary body, may be incarcerated in the wound, and the anterior chamber may be collapsed. Do nothing to the eye, prevent semi-conscious patient from rubbing it—judge degree of "ocular" emergency in relation to OTHER body injury and, if possible, co-ordinate various medical attention to **SINGLE** general anaesthetic.

Rx Refer.

HYPHAEMA

Haemorrhage in the anterior chamber after trauma may vary from a barely perceptible deposit inferiorly, to complete obscuration of the iris. A moderate amount of blood is usually absorbed within a few days without treatment. However, patients are admitted to hospital for rest and observation because of the possibility of a secondary haemorrhage and glaucoma, which can occur within several days of the original injury.

IRIS DAMAGE

Sphincter rupture with a distorted or dilated pupil and, more rarely, iridodialysis, may be caused by blunt trauma. No treatment. There may be other ocular damage; refer.

LENS DAMAGE

Trauma may cause dislocation of the lens, the edge of which may be seen in the pupil, and cataract which may develop later. No treatment: refer. Penetrating injuries involving the lens cause cataract.

VITREOUS HAEMORRHAGE

Δ Partial or complete vitreous haemorrhage may occur from trauma and is diagnosed by a dull or absent red reflex through the pupil (it may accompany hyphaema). It usually clears, but further damage inside the eye may be revealed.

Rx Rest. Refer.

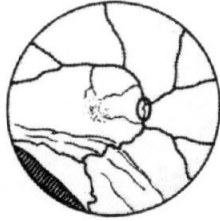
COMMOTIO RETINAE—RETINAL HAEMORRHAGES

Δ Bruising of the retina may be seen as whitish areas of oedema (commotio) and haemorrhages, which may be bright red droplet shaped preretinal or, more usually, intraretinal streaks or ptechia.

These are particularly serious if the **MACULA** is involved: damage to this vital area may result in permanent visual impairment.

Great care is taken to exclude holes in the retina or a dialysis which can lead to detachment. Patients in whose eyes this type of damage is suspected should be kept quiet and be referred soon.

Rx Rest.



MACULAR OEDEMA AND RETINAL
DETACHMENT

RETINAL DETACHMENT

Apart from myopia, trauma is the other cause of detachment in young people, and it may be the cause of this condition at any age. The main symptom is an increasing visual field defect, coming on several days after the trauma, which may possibly have been to the head rather than directly to the eye.

The detached area of retina is spatially opposite to the field defect, and it appears grey and ballooned with dark tortuous blood vessels, rather than the usual pink appearance of retina and choroid.

MACULAR INVOLVEMENT, which may, or may not be suspected according to visual acuity, is the vital factor: all retinal detachments require surgery and if the macula can be preserved then the prognosis is good, and referral most urgent.

Rx *All cases should be seen by an ophthalmologist as soon as possible; if delay is unavoidable a case must be kept in bed until he can travel to the eye clinic.*

Retinal detachment may occur spontaneously in HIGH MYOPES of any age and in old people, and after cataract extraction. It is especially likely if the retina of the OTHER eye has been detached. Previous "floaters" and flashes of light may be valuable diagnostic symptoms.

Treatment is always surgical.

INTRAOCULAR FOREIGN BODY

Always suspect this potentially blinding condition when there is a suggestive HISTORY such as injury while using a hammer and chisel—even when the eye looks relatively normal. The entry wound may be surprisingly difficult to see.

The F.B. may be visible anywhere in the eye, but it may be obscured by cataract formation in a damaged lens.

ALWAYS X-RAY TO EXCLUDE I.O.F.B. even if it is only a remote possibility. The chances of blindness and losing the eye increase rapidly while the F.B. remains. Usually they are metallic, most are magnetic allowing removal with the aid of a magnet.

OPTIC NERVE DAMAGE

After a head injury a patient may regain consciousness to find blindness in one eye, which is total, with no direct pupillary light response. The eye may appear otherwise normal.

This condition may be due to damage to the optic nerve, probably inside the bony optic canal which leads from the back of the orbit. Usually no treatment is advised but neurosurgical or ophthalmological advice should be sought as soon as possible.

HEAD INJURY

A fixed dilated pupil in one eye of an unconscious patient after head injury may indicate III nerve involvement due to a space occupying lesion such as an extradural haemorrhage. Fixed dilated pupils in both eyes indicate profound coma. Both conditions require urgent neurosurgical opinion.

MEIBOMIAN CYST

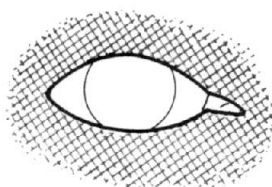


STYE

BLEPHARITIS



DACRYOCYSTITIS



SKIN ALLERGY



ALLERGIC CONJUNCTIVITIS WITH CHEMOSIS

INFLAMMATIONS

MEIBOMIAN CYST

Round hard, discreet lump, usually within the tarsal plate. There may be associated inflammation.

- Rx** Incision and curettage are necessary, and this should be carried out when inflammation has cleared by previous treatment with local antibiotic ointment and systemic antibiotic if severe.

STYE

A pointing "boil" on lid margin.

- Rx** Hot bathing, local antibiotic ointment. If necessary give systemic antibiotic. If recurrent check urine for glycosuria.

CELLULITIS OF EYE LID

This may occur with cysts and styes, or for no apparent reason. It should always be treated with care and vigour, since this territory drains to the cavernous sinus.

Δ There is diffuse swelling, tenderness and redness of the eyelids, and there may be pyrexia.

- Rx** Systemic antibiotics in high dosage.

BLEPHARITIS

Often chronic, may be acute. Lid margins crusted and sore.

- Rx** Local antibiotic ointment. Combined steroid and antibiotic ointment may be more effective.

DACRYOCYSTITIS

Inflammation of the lacrimal sac with obstruction. Usually there is a history of watering eye. This painful condition occurs more commonly in babies and old people.

Δ There may be a sticky discharge on the lids and a tense fluctuant swelling at the side of the bridge of the nose.

- Rx** Gentle digital pressure may express pus through the lacrimal puncta.
Systemic antibiotic. Incision and drainage may be necessary if the inflammation is "pointing", but if possible this is AVOIDED in favour of D.C.R. operation later (Dacryocystorhinostomy, a new drainage route through to the nose).

ALLERGY

Eyelids

Δ Allergic inflammation is usually iatrogenic (local atropine and antibiotics are the commonest causes).

The skin is red, itchy and eczematous with exaggerated wrinkles.

- Rx** Stop treatment.
Local steroid ointment to skin. If severe, systemic antihistamine. Inform patient of details and record prominently in notes.

Allergic conjunctivitis

Δ This can occur with rapid and alarming chemosis (oedema of the conjunctiva) as a response to pollens and animal dander, usually in an atopic patient.

- Rx** Steroid eye drops hourly.
Antistaminic eye drops hourly.
It usually subsides quite quickly but referral is usually advisable. 9



CONJUNCTIVITIS



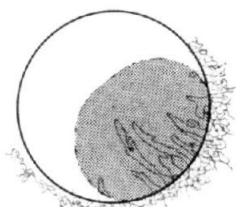
KERATOCONJUNCTIVITIS



MARGINAL ULCERS



DENDRITIC ULCER



KERATITIS

CONJUNCTIVITIS

Δ Diffuse redness of the conjunctiva with discharge, little pain, no disturbance of vision.
Culture in babies, and in any case if severe.
Usually bacterial, but occasionally viral and if so may be highly contagious. Warn patient to be scrupulous about the use of face towels at home (or school).

Rx *Antibiotic drops and ointment. Use drops half hourly if severe. Most cases of failure to respond are due to under treatment. Occasionally culture indicates a change in antibiotic. Always encourage liberal use of treatment.*

KERATITIS (Inflammation of the Cornea) and CORNEAL ULCERATION Keratoconjunctivitis

When the cornea becomes involved there is PAIN. Inspection may reveal infiltrates—whitish spots.

Rx *As for conjunctivitis: antibiotic drops and ointment.*

Marginal ulcers

Δ Painful. Redness especially marked adjacent to the affected segment, which may stain with fluorescein. May be recurrent.

Rx *Antibiotic drops and ointment.
The Ophthalmologist may give local steroid and antibiotic drops and ointment.
Mydriatic drops if severe.*

Exposure keratitis

Due to failure of the eyelids to close over cornea—may result in dangerous situation in comatose patients, facial palsy and dysthyroid exophthalmos. Efforts must be made to protect cornea. Red Eye.

Rx *Antibiotic ointment liberally applied will usually provide protection, but other steps may be necessary to avoid corneal ulceration.*

Patients with FACIAL Palsy may be helped by a temporary tarsorrhaphy (joining lids together) by strapping or a stitch, and this may later be made permanent.

DYSTHYROID EXOPHTHALMOS may cause an acute emergency: collaboration between physician and ophthalmic surgeon is essential. Danger may be averted by systemic steroid therapy and/or an emergency tarsorrhaphy.

HERPES SIMPLEX KERATITIS

Dendritic ulcer

Variable history of irritation, redness, watering and photophobia: for days or weeks. The patient may have suffered from 'cold sores' of the lips.

Δ Fluorescein staining reveals branching figure on corneal surface.

Rx *(I.D.U.) Idoxuridine drops 2 hourly. All cases should be referred promptly: further treatment may include carbolic acid or cryotherapy—debridement of the affected epithelium. If the eye is sore give mydriatic drops.*

NB.—Do not give local steroids.

If steroids have been used inadvertently refer at once.

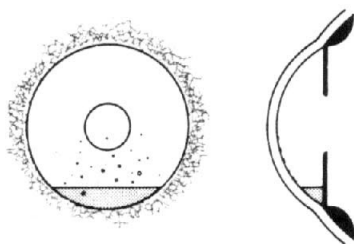
DEEP KERATITIS

Commonest cause in U.K. is deep extension of herpes simplex (trachoma is the main cause in hot dry countries and is seen in immigrants to this country.)

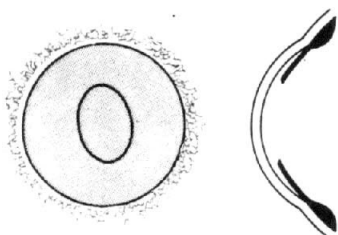
The affected part of the cornea loses its transparency due to oedema and/or white infiltrate. The eye is usually inflamed and



INFECTED
CORNEAL ULCER



IRITIS



vision impaired.

If the condition becomes chronic the scar may become vascularized.

Rx *This serious condition should be referred promptly. If delay is unavoidable dilate pupil and give antibiotic drops or ointment.*

INFECTED CORNEAL ULCER

This is an extremely serious condition requiring immediate treatment to prevent intraocular extension. It may result from infection at the site of a foreign body, or of an ulcer due to corneal exposure.

There may be a circumscribed yellowish white patch in the cornea. The eye is very red especially close to the cornea and there may be a hypopyon (pus in the anterior chamber).

Rx *CULTURE if possible before starting treatment: if delay in referral to an eye department is unavoidable a culture should be taken carefully from the ulcer if possible, then start antibiotic therapy, half hourly drops topically and systemically in maximum dosage. Dilate the pupil with as many instillations of mydriatic drops as are necessary i.e. every quarter of an hour until pupil is dilated (it may be stuck down to the lens—posterior synechiae). The importance of the culture is that, in treating serious eye infections, success or failure depends on using the correct antibiotic, and this is only determined by growing and identifying the organism and its sensitivities. Further treatment may include subconjunctival and intravenous antibiotics.*

NEUROPARALYTIC KERATITIS

In the absence of its sensory nerve supply the cornea is particularly liable to Keratitis which may become severe quite rapidly. Often there is a history which gives a clue to the diagnosis such as treatment for Trigeminal Neuralgia. If a painless red eye develops in such a patient treat with mydriatic and antibiotic, and refer: tarsorrhaphy may be necessary.

IRITIS

An often acute inflammation of the iris which is occasionally associated with systemic disease such as spondylitis. The most severe cases are usually recurrences.

Δ The eye becomes painful for no apparent reason over a day or two with photophobia and circumcorneal redness, often without visual disturbance (but it may be grossly reduced in severe cases). Close inspection may reveal Keratic Precipitates, little aggregations of inflammatory cells on the internal surface of the cornea. There may be an hypopyon. The pupil is usually normal or small, sometimes irregular. The anterior chamber is of normal depth and contains inflammatory cells which are not normally visible.

Rx *Dilate pupil with mydriatic drops, local steroid drops hourly. Always refer.*

GLAUCOMA

There are two sorts of primary glaucoma, Chronic Simple, which is slow and insidious, and Narrow Angle, which may be present with an acutely inflamed eye. Secondary Glaucoma can occur in many other ocular conditions such as hyphaema and iritis.

ACUTE NARROW ANGLE GLAUCOMA

Fluid cannot leave the eye because of the shape of the shallow anterior chamber—which is a vital diagnostic feature: the iris and pupil are close up behind the cornea.

Δ It usually occurs in the elderly, females more commonly, with



HERPES ZOSTER OPHTHALMICUS

pain, redness and reduced vision. Besides the shallow A.C., the cornea is hazy due to oedema, pupil fixed and semidilated, and the eyeball feels hard when palpated.

DIGITAL PALPATION is carried out by placing your two forefinger tips onto the patient's closed upper lid, and gently feeling the consistency of the eye while steadying the hands by the middle fingers on the patient's brow. Compare with the other eye (and a normal subject); the hardness of an acutely glaucomatous eye should be apparent.

Rx *Miotic drops. Pilocarpine 4% every 5 minutes for 1 hour.*

Diamox 500 mg orally.

Refer immediately, but if delay is unavoidable continue pilocarpine drops 2 hourly and Diamox 250 mg 4 times a day until the patient reaches the Eye Dept. Surgery is always carried out for this form of glaucoma but usually after the attack has been controlled by medical therapy.

Analgesics may be necessary.

HERPES ZOSTER OPHTHALMICUS

Usually affects elderly, but can occur in patients of any age.

Pain in the ocular region may precede the rash by several days, it is sometimes severe and initially difficult to diagnose.

The skin eruption occurs in the area supplied by the ophthalmic division of the Trigeminal Nerve on one side, this includes the eyelids, forehead, scalp and side of the nose.

The degree of pain, skin and ocular involvement is **EXTREMELY VARIABLE.**

The vesicles become pustules which coalesce and form scabs over the affected area.

There may be signs of secondary bacterial inflammation with erythema and oedema.

The eye may become involved at any stage, usually when the skin eruption is at its worst. The eyeball may be red and painful, and vision disturbed: Keratitis, Iritis and Secondary Glaucoma are fairly frequent ocular complications, and to recognize them it is often necessary to separate grossly inflamed eyelids digitally in order to inspect the eye: The main features to assess are the **BRIGHTNESS OF THE CORNEA**, and **WHETHER OR NOT THE EYE IS INFLAMED.** If in any doubt call an Ophthalmologist. Sometimes these patients are too ill to be moved.

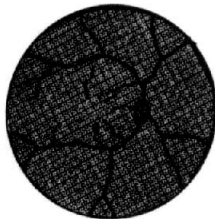
Rx *If the eye is involved, mydriatic drops and steroid and antibiotic ointment should be inserted at least twice a day.*

While the skin is oozing, calamine lotion may help to dry it. Application of steroid and antibiotic, either in an ointment or by a spray, is soothing. The scabs should be left for several days after they have dried, until they "fall" off. Systemic antibiotic is usually given during the early stages of the eruption if secondary infection is feared.

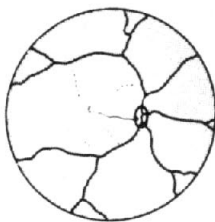
Neuralgic pain may be severe and require quite high dosage of analgesics.



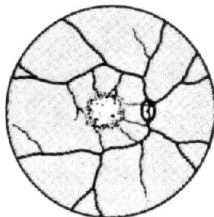
SUBCONJUNCTIVAL HAEMORRHAGE



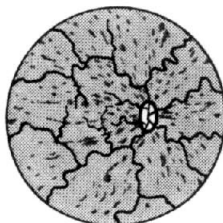
VITREOUS HAEMORRHAGE



CENTRAL RETINAL ARTERY OCCLUSION



DISCIFORM DEGENERATION OF THE MACULA



CENTRAL RETINAL VEIN OCCLUSION

VASCULAR CONDITIONS

SUBCONJUNCTIVAL HAEMORRHAGE

This may be traumatic or spontaneous.

Urine and blood pressure should be checked, and if recurrent haemorrhages occur haematological investigation is indicated.

FLLOATERS/VITREOUS OPACITIES

Black spots or shapes suddenly occurring, and remaining in the patient's sight often cause worry and annoyance, most are of little significance.

△ These vitreous opacities are usually due to small haemorrhages, and may be seen through an ophthalmoscope, sometimes they may be found to be associated with flat retinal holes.

Rx Refer. This treatable condition, if ignored, might later lead to the much more serious retinal detachment. Accompanying symptoms of flashes of light make the diagnosis more likely.

VITREOUS HAEMORRHAGE

Spontaneous haemorrhage into the vitreous is a complication of diabetic retinopathy and some other conditions (but the commonest cause is trauma). It may cause loss of vision.

△ There is a reduced or absent red reflex through the pupil.

Rx The patient should rest, and be referred.

CENTRAL RETINAL ARTERY OCCLUSION

Sudden painless profound loss of vision; commoner in arteriosclerotic patients.

△ Absent or reduced pupil reaction to direct light. The posterior part of the retina may be pale; possibly, a red spot at the macula.

Rx Refer at once. Treatment WITHIN HOURS may re-establish circulation.

CRANIAL ARTERITIS (Giant cell arthritis)

This should always be suspected in elderly patients with C.R.A. occlusion especially if the complaint is of head pains. The blood sedimentation rate should be checked immediately; it is grossly raised in patients with this disease. High dosage systemic steroid therapy should be started as soon as possible in order to protect the OTHER eye from a similar catastrophe.

HAEMORRHAGE AT THE MACULA

A relatively small haemorrhagic disturbance in this area causes severe CENTRAL visual defects. In YOUNG MYOPES this can occur spontaneously and be visible ophthalmoscopically.

In the ELDERLY haemorrhage and exudate may occur and either may predominate in the appearance of this arteriopathic lesion, known as DISCIFORM DEGENERATION. Refer.

CENTRAL RETINAL VEIN OCCLUSION

Gradual reduction of vision may be "suddenly" discovered by the patient who closes the good eye for some reason.

△ Scattered flame shaped haemorrhages throughout the retina, and congested veins. One quadrant only may be affected.

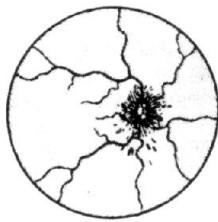
Rx No treatment. Check B.P. Refer.

Secondary glaucoma is a late complication, and should be suspected in patients who have had a C.R.V.T. followed some WEEKS later by pain.

HYPERTENSIVE RETINOPATHY

Various ocular manifestations may produce degrees of visual impairment.

Arterioles are narrow with increased light reflex, haemorrhages and exudates may involve the macular. Papilloedema may occur.



PAPILLOEDEMA

NEUROLOGY

STROKES

Cerebral vascular accidents may involve the visual pathways. The patient is usually arteriosclerotic.

HOMONYMOUS HEMANOPIA

Patients with sudden loss of one half of the visual field of EACH eye often report it as blindness "in one eye". Testing by confrontation soon reveals the true defect which is caused by a lesion in the opposite cerebral hemisphere to the side of the field defect. This need not be accompanied by other neurological signs but often is. Quadrantanopia may be found.

CORTICAL BLINDNESS

This rare occurrence is caused by vertebrobasilar artery insufficiency. There is no apparent ocular lesion but the patient cannot see, and usually no treatment is possible. Always refer to a neurologist.

AMAUROPSIS FLUGAX

Attacks of complete or partial painless loss of vision in one eye, which may sometimes be associated with transient neurological symptoms affecting the opposite side of the body. Due to carotid insufficiency.

Δ Reduced carotid pulsation may be palpated. A bruit may be heard with a stethoscope.

Rx Refer. Carotid artery surgery may be possible, in order to prevent permanent damage.

DOUBLE VISION

This may occur when the balance of the extraocular muscles is upset. Palsies of the III, IV and VI cranial nerves can occur suddenly, with or without other neurological signs and symptoms. These defects may be transient.

Always measure blood pressure and check urine for sugar.

Rx If diplopia is intolerable cover one eye.

INTRACRANIAL ANEURYSM

This may be present as pain in the ocular region or head, accompanied by double vision due to involvement of cranial nerves to extraocular muscles. Refer.

PAPILLOEDEMA

Swelling of the optic disc in one or both eyes is a serious sign, especially if there are neurological symptoms.

It is often difficult to distinguish between unusually pink optic discs, often seen in long sighted eyes, and true papilloedema. Small haemorrhages are a valuable clue, and the swollen disc edges cannot be defined.

Papilloedema may be caused by raised intracranial pressure, in which case it is usually bilateral. Vision may be normal, but field defects and other neurological signs may be found. Hypertension may cause papilloedema.

All cases should be referred without delay.

OPTIC AND RETROBULBAR NEURITIS

Unilateral, sometimes profound visual reduction, often with pain on ocular movement, usually occurring in young adults, commoner in females.

This may be the only manifestation of DEMYELINATING DISEASE but there may be a history of other neurological symptoms.

Reduced pupil response to direct light. Central or paracentral scotoma (visual field defect).

The optic nerve disc may or may not be swollen.

Special Note.—Do not discuss diagnosis with the patient. Do not dilate the pupil prior to referral which should be fairly urgent.

DRUG INTOXICATION

Patients showing bilateral abnormal pupils—dilated (L.S.D., Amphetamine) or constricted (Morphine and Pethidine) and/or abnormal eye movements must be suspected of intoxication.

HYSTERICAL BLINDNESS

This is the last differential diagnosis!

Often difficult to prove, and left to ophthalmologist or neurologist to elucidate.

The eyes look normal, pupils react to light, and when symptoms are unocular the "affected" eye can usually be tricked into seeing.