

My Notes & Procedures

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Diseases of the Retina and Optic Nerve

Retinitis.

Is inflammation of the retina. Many different types occur which are diagnosed by examination with the Ophthalmoscope. Diabetes and renal disease sometime affect the retina and these diseases are often first diagnosed by the oculist because of the distinctive changes in the retina. Hypertensive changes of the retinal arteries may also be noted by the oculist. Raised intra-cranial pressure causes a swelling of the optic nerve when it enters the eye. This swollen optic disc is of importance in diagnosis.

Detachment of the Retina.

The retina sometimes becomes detached from the choroid with complete loss of vision. A small area of the retina has usually degenerated and formed a small hole or "tear" in the retina. The surgeon localises this hole in the detached retina and endeavours to calculate accurately the position it would occupy on the eye if the retina were in its normal position. The conjunctiva is incised and the sclera exposed in the determined position and then a ring of diathermy applications made on the sclera around the estimated position of the hole. The fluid from the vitreous body, which has seeped through the hole and floated the retina off the choroid, is then allowed to escape through a small hole in the centre of the diathermy area. If the hole has been accurately localised an area of retinitis and choroiditis will occur around the hole and the retina will stick to the choroid thus

sealing off the hole and in perhaps 70% of cases the retina will remain in its proper position with restoration of vision. A detached retina operation case is usually nursed as far as possible in a position that will allow the "hole" to be in a dependent position. Both eyes are kept bandaged for about three weeks and the patient is nursed in bed for this time. When the bandages are removed, dark glasses are often worn, over which a piece of plaster has been stuck with a small hole in the centre of each glass. These "detachment" goggles are worn so that the patient is unlikely to move his eyes about.

Cataract.

The crystalline lens sometimes becomes opaque, with interference to vision. This opacity of the lens is called cataract. A completely opaque lens (mature cataract) causes the pupil to be white rather than black, but less complete cataracts are not noticeable on external inspection of the eye. Cataract is often seen in old people and may almost be regarded as an "age change" comparable to age changes of hair and skin. Senile cataract is especially liable to occur in diabetes. Urine is always tested for sugar when investigating a case of cataract. If diabetes is present, the patient must be stabilised sugar free on a diet, before operation is considered.

Babies are sometimes born with cataracts (congenital cataracts). This developmental abnormality is sometimes due to the mother having had some infection e.g., German Measles in the early stages of pregnancy. A

perforating injury to the eye which punctures the capsule covering the lens may cause cataract (traumatic cataract) by allowing aqueous fluid to enter the lens. This causes swelling and opacity of the lens fibres. If further aqueous fluid is allowed to enter the lens, lens may eventually "dissolve"

glaucoma is a rise of pressure following on some other injury or disease as in some types of iritis. Primary glaucoma is most commonly seen in long sighted eyes as these tend to be smaller in size than the average eye with consequent "overcrowding" of the filtration angle, and therefore a tendency for the

Cataract Operations

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| 1. Congenital cataract and Traumatic Cataract (under 30 years). | → Discission, often repeated several times (sometimes referred to as "needling"). |
| 2. Traumatic Cataract (over 30 years) and Senile Cataract. | → Extraction of lens or 'cataract operation'. |
| 3. Opaque capsule sometimes remaining after extraction of lens. | → Capsulotomy, again sometimes referred to as "needling". |

away. This is used as a method of treatment in young people. At about the age of 30 a hard core or nucleus exists in the centre of the lens which cannot be dissolved by the aqueous fluid, so this form of treatment is not applicable to senile cataract.

After the opaque lens has been removed by the above methods, a patient has to wear a powerful convex glass to compensate for the loss of the natural lens, before clear vision is obtained.

The extraction of a senile cataract is usually regarded as the major operation of eye surgery and great care, gentleness and tact are required for the successful nursing of these cases. The patients are often old and frail. A local anaesthetic is used, as post-anaesthetic vomiting or coughing would be most unfortunate.

Glaucoma.

This is a condition in which the intra-ocular pressure is increased. The hardness of the eye causes a pressure atrophy of the optic nerve, which leads to blindness. The condition may arise without any apparent cause and this is called Primary Glaucoma, depending on whether the onset is acute with dramatic symptoms, or a chronic insidious increase of pressures. Primary Glaucoma is divided into acute and chronic forms. Secondary

escape of the aqueous fluid to be obstructed.

(a) *Acute Primary Glaucoma.* There may have previously been such vague symptoms as dimness of vision, and seeing halos around lights. Then suddenly, very severe pain occurs in the eye, with vomiting and general collapse. The eye is very red, the cornea oedematous, and the pupil, if it can be seen, is semi-dilated and immobile.

If the sight is to be saved treatment to the eye must be urgently and energetically applied. Medical treatment is persisted with for 12-24 hours and if the glaucoma does not, in that time, show great improvement, operation is necessary.

The medical treatment is local and general.

1. *Local.* Myotic drops are instilled about every 10 minutes for the first hour and then possibly half-hourly till the tension falls or operation is performed. It is hoped to free space in the filtration angle by contracting the pupil.

Eserin $\frac{1}{2}$ to 1% drops are used and often used alternately with Pilocarpine 2% drops. Both of these drops are myotics but act in a slightly different way and so reinforce one another. Other drops which contract the pupil, are sometimes used such as Doryl (or

Moryl) and Glaucosan. Hot bathing (wooden spoon) is also used frequently. Counter irritation is often applied to the skin of the temple, either as a cantharides plaster or leeches if available.

2. *General.* Free action of the bowels must be obtained quickly; an enema or strong purgative is used. Patient is blanket bathed, but local treatment must not be interrupted. If the response to this energetic medical treatment, as shown by softening of the eye, contraction of pupil and lessening of the pain, is not achieved in, say, 12 hours, an urgent operation of iridectomy is usually done. A general anaesthetic (possibly Pentothal) is needed as the eye is too hard and congested to absorb the local anaesthetic drops (Cocaine). A small incision is made at the upper edge of the cornea and a piece of iris drawn out and cut off at its root. This opening into the anterior chamber lowers the pressure at once and it is hoped that as the wound heals normal drainage will be established at this section of the filtration angle, from which the iris has been removed.

(b) *Chronic Glaucoma.* The patient may be unaware that anything is wrong with the eye, or he may have had transient symptoms as blurring of vision and seeing halos round lights. An acute attack of glaucoma may supervene, but in any case, if untreated, vision will be slowly but certainly lost. Little abnormality will be seen on inspection of the eye, but the surgeon will recognise "cupping" of the optic disc from the prolonged increased pressure. The visual field is charted with an instrument called a Perimeter. The loss of vision in chronic glaucoma often creeps in from the side of the visual field, the central vision being the last to go.

Again the treatment is medical and surgical. Myotic drops e.g., Pilocarpine $\frac{1}{2}\%$ may be used regularly to keep the pupil small, and thus aid normal drainage at the filtration angle. If

this does not succeed in keeping the pressure under control as shown by the visual fields, and the pressure of the eye ball as measured with the Tonometer, an operation may be decided upon. The usual operation is that of Corneo-scleral Trephine. A flap of conjunctiva is raised at the upper edge of the cornea and small hole bored through the corneo-scleral junction. When the conjunctival flap has been replaced and stitched up, a fistula will exist between the anterior chamber and the subconjunctival space. A small "blister" under the conjunctiva in the vicinity represents the aqueous seeping away under the conjunctiva.

A similar operation is called iridenclesis, the same result being obtained by a rather different technique.

Before operation for either acute or chronic glaucoma, the eye to be operated on will have been having myotic drops. After the operation Atropine can be safely used as drainage has been established surgically, and Atropine will lessen the tendency to iritis which might occur in the traumatised iris.

Great care is necessary to avoid getting Atropine into the eye which has not been operated on. This other eye is likely to be predisposed to glaucoma also and a large pupil may block the filtration angle and precipitate an acute attack. The non-operated on eye is usually kept on Eserine drops to guard against this danger.

Note. A warning may here be given as to the danger of Atropine drops precipitating an attack of glaucoma in a patient over 40. Atropine has to be used often in elderly patients' treatment of iritis or corneal ulcer but the possibility of producing an attack of glaucoma must always be remembered. If Homatropine has been used to dilate the pupil to allow a retina to be examined it is most important that Eserine $\frac{1}{2}\%$ be

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