besides fatty droplets, a granular light brown pigment. It seems that these reticulum cells have engulfed pigment granules produced by other pigment cells, the melanoblasts.

Summary

Double staining with haematoxylin and Sudan IV with clearing of the tissue, is recommended for bulk specimens of retina and choroid. It offers a better chance of discovering such vascular anomalies as pathological anastomoses, aneurysms, sub-endothelial necrosis, and exudates in the retina, especially if fat plays a part.

The method allows a careful study of the choriocapillaris and sometimes shows fatty changes in isolated choroidal vessels. The branched chromatophores in the outer choroidal layers are frequently filled with fat, in cases of uveitis, and they are considered to be phagocytic reticulum cells.

The technique recommended is very simple, and does not presume histological experience. Even a busy practitioner may learn to do the work unsupported by a technician.

REFERENCES

- BALLANTYNE, A. J.—*Brit. Jl. Ophthalm.*, Vol. XXV, p. 480, 1941.
 BALLANTYNE, A. J. and LOEWENSTEIN, A.—*Trans. Ophthalm. Soc. U.K.*, Vol. LXIII, p. 95, 1944; *Brit. Jl. Ophthalm.*, Vol. XXVIII, p. 593, 1944.
 LOEWENSTEIN, A.—*Arch. of Ophthalm.*, Vol. XXVII, p. 73, 1942.
 LOEWENSTEIN and MACGREGOR.—*Brit. Jl. Ophthalm.*, Vol. XXVIII, p. 486, 1943.
 LOEWENSTEIN, A.—*Trans. Ophthalm. Soc. U.K.*, Vol. LXVI, p. 581, 1946.
 ——— *Arch. of Ophthalm.*, Vol. XXXIX, p. 9, 1948.

ANTERIOR FLAP SCLEROTOMY WITH BASAL IRIDENCELEISIS (A Preliminary Note)

BY

H. B. STALLARD

LONDON

RECENTLY I have tried a combined operation for glaucoma which I think possesses the merits of several of the accepted surgical procedures for this disorder. The operation consists in reflecting a conjunctival flap, fashioning a scleral flap hinged on the corneo-scleral junction, a limited cyclodialysis and the inclusion of a basal tongue of iris between the lips of the sclera leaving the sphincter pupillae intact. (See Fig. 1.) The results to date in 29 cases of chronic glaucoma and two of acute congestive glaucoma have been encouraging.

FIG. 1.

In all but one case satisfactory blebs have formed and remained, some are 6 mm. vertically and 8 mm. horizontally, and in all, the covering of conjunctiva and episcleral tissue has appeared to be substantial and in no instance thin and ectatic. (Fig. 2.) It seems on slit-lamp examination that the scleral flap is kept open on its hinges by the folded basal tongue of iris included in the lips of the

FIG. 2.

scleral incision. The intra-ocular pressure has fallen to 7.25 Hg mm. and remained so in 28 cases, and in these there has been no further field loss.

Miosis is produced before operation.

Anaesthesia. Pantocaine 1 per cent. and adrenalin. One ml. of novutox 3 per cent. with adrenaline 1/1,000 minims 2 is injected into the region of the ciliary ganglion and 0.5 ml. is injected into the belly of the superior rectus muscle. Pentothal and gas and oxygen may be given to nervous patients.

Operation. The speculum is inserted and a No. 1 white suture is passed through the tendon of the superior rectus muscle and clamped to the towel covering the frontal region. About 4 minims of novutox with adrenalin is injected beneath the conjunctiva about 3.5 mm. from the limbus from 10 to 2 o'clock so as to raise the episcleral tissues and conjunctiva.

The conjunctiva is now grasped and held forward by a pair of plane forceps 2.5 mm. anterior to the insertion of the superior rectus. The conjunctiva is snipped for about 5 mm. down to the sclera. Both blades of the spring scissors are then passed into the incision and directed temporally and downwards towards the limbus. (Fig. 3.) The blades are spread and the conjunctiva undermined. The closed blades of the spring scissors are next directed towards the nasal side and the limbus and are spread. The conjunctiva and episcleral tissues are thus undermined down to the limbus. The scissor blades are withdrawn. One blade of the scissors is then passed beneath the conjunctiva to the temporal side and slightly downwards and the conjunctiva is cut for

FIG. 3.

FIG. 4.

8 mm. or so from the mid-line. One blade of the spring scissors is then introduced beneath the conjunctiva on the nasal side and an incision 8 mm. or so in length is made towards the inner canthus and slightly downwards. (Fig. 4.) The conjunctival flap thus formed is turned forwards and downwards over the cornea and with a few brushing strokes from a small butter muslin swab the episcleral tissues are stripped cleanly from the sclera down to the limbus from 10 to 2 o'clock. With a double pronged conjunctival hook the conjunctival flap is held forwards and downwards by the assistant. In some cases a few strokes with Tooke's angled splitter will clear the episcleral tissue just above the limbus. Any bleeding points are checked by a touch from a heated probe. This probe also seals off any superficial episcleral vessels in the line of the scleral incision to be made 5 mm. long, 2 mm. above and concentric with the limbus.

A fine scleral hook is inserted into the sclera in the 12 o'clock meridian 2 mm. above the limbus. This steadies the eye during the scleral incision and it also retracts the anterior lip of the incision. (Fig. 5.)

The scleral incision is made with either a sclerotome or a ground-down cataract knife vertically in the sclera, that is at right angles to its surface and cleanly down to the ciliary body but not into this structure. The sclerotome has the advantage of guarded blade, the guard being set 1 mm. above the blade so that not too deep a cut is made. However, a small cataract knife used with care is very effective. When the ciliary body shows in the incision any remaining scleral fibres are divided by a few light strokes with the point of the cataract knife. (Fig. 5.) The scleral hook in the anterior lip of the scleral incision is now slightly raised and a cyclodialysis spatula is passed through the centre of the incision into the anterior end of the supra-choroidal lymph space, then on to separate the scleral spur and to enter the anterior chamber. When in the anterior chamber the spatula is moved in turn to each side of the scleral incision so as to effect a cyclodialysis 5 mm. long, that is the length of the incision. (Fig. 6.) Aqueous flows out of the incision during this procedure. The cyclodialysis spatula is withdrawn.

With the scleral hook still in place one blade of Westcott's scissors is passed on the flat into one end of the scleral incision for 2 mm. The blade is then rotated so that its cutting edge faces forwards and its blunt end is level with the corneo-scleral junction and 1 mm. nearer the mid-line than the end of the scleral incision. The blades of the scissors are closed and a converging cut is made in the sclera down to the limbus.

A similar procedure is done at the other end of the scleral incision

FIG. 5.

FIG. 6.

and when this is completed a hinged scleral flap is made based on the limbus. (Fig. 7.) The convergence of the lateral cuts towards the base of the scleral flap is, I am sure, important in maintaining the mobility of the flap on its hinge.

FIG. 7.

FIG. 8.

A pair of Lang's iris forceps is now introduced closed into the centre of the incision and, keeping close to the deep surface of the sclera is passed into the anterior chamber. Whilst this manoeuvre is taking place the assistant raises the conjunctival flap forwards and then upwards so that the progress of the iris forceps in the anterior chamber may be seen by the surgeon. 2.5 mm. above the pupil margin the iris forceps is opened for 2 mm. and the iris seized and drawn up into the centre of the scleral wound as the conjunctival flap is being drawn downwards by the assistant. Fine and smooth co-ordination between the surgeon and his assistant is necessary throughout this part of the operation.

A snip about 1.5 to 2 mm. long is made with fine blunt-ended spring scissors in the iris immediately in front of the forceps. One blade of the scissors is passed through the snip towards the temporal side and a cut about 3 mm. long is made towards the iris root. (Fig. 8.) A blade of the scissors is then directed through the iris incision nasally towards its root and a cut is made for about 3 mm. The folded tongue of iris based on its root is then laid on the sclera so that about 2.0—2.5 mm. projects above the upper lip of the scleral incision.

It may be necessary in some cases to replace the pupil by passing an iris reposer into each end of the scleral incision to the side of the basal tongue of iris included in the wound and with a gentle downward stroke towards the centre of the pupil to restore its circular contour. Often it is sufficient to apply an iris reposer to the upper part of the cornea and make a downward stroke over its surface.

Penicillin is instilled on to the exposed sclera and the conjunctival flap is stroked back into place. The conjunctival incision is closed by a continuous key pattern suture of 00 black silk. A drop of atropine is instilled. Tulle gras, a pad and bandage are applied.

Post-operative treatment and course. There is no need for digital massage. Atropine is used at the first dressing and omitted after this. The pad and bandage are left off 48 hours after operation and the eye protected by a Cartella shield. The patient is allowed into a chair on the 4th day after operation and leaves hospital on the 8th day. The scleral flap remains open and drainage of aqueous along the tongue of iris seems to be effective as judged by the reduction of intra-ocular pressure to within normal limits and the presence of a bleb which appears 8 to 10 days after operation.

The anterior chamber is reformed on the day after operation. In one case it was lost one week after operation but reformed in 48 hours. To-date there has been no anxiety about delayed or non-reformation of the anterior chamber. A small hyphaema 1.2 mm. deep occurred in 6 cases and caused no ill effect.

Iritis occurred 3 weeks after operation in one case but there was no sign of it in any other. In this respect the post-operative course differs from that of the trephine operation where some degree of iritis commonly occurs.

To-date there has been no case of choroidal detachment and no evidence that lens opacities have appeared or increased as a result of this operation.

It has been effective in two cases of acute congestive glaucoma.

ALLERGIC CONDITIONS OF THE EYE*†

1.—Keratitis Rosacea

BY

VERA B. WALKER

OXFORD

THE term "allergy" as used in the experimental section of this paper denotes an altered reaction rather than a hyper-sensitivity, as seen in the following example. Atropine in small doses, say one drop of 1/200 solution, dilates the pupil in 20 minutes, and in a slightly longer time causes immobilisation of the ciliary muscle and of the iris. In a few people, a much smaller dose, say 1/200,000, will produce this effect in 20 minutes, and we say they are *hypersensitive*. Occasionally we find that this smaller dose produces not only the expected reactions, but also oedema and irritation of the surrounding tissues, acute lacrymation, acute rhinitis and/or eczema of the eyelids. This is an allergic or altered reaction. In this sense one particular tissue, *e.g.*, conjunctiva, cornea or iris may be affected, and this is the usual finding; but occasionally several, and more rarely all, parts of the eye are involved simultaneously or successively.

Most allergic conditions are acute in onset and if recognised and treated at once clear up quickly, often within a few minutes or hours, leaving no permanent damage to the tissues involved. It is for this reason that this paper is entitled "Allergic Conditions of the Eye," rather than "Allergic Diseases," but it must be realised that once a tissue has remained in an abnormal physiological condition for some time, as in recurrent keratitis or iridocyclitis, there are secondary changes, due either to inflammation or to infection, which must be healed by routine treatment, though the

* Part of an address delivered to the British Association of Allergists at Oxford, April 17, 1948.

† Received for publication, May 10, 1948.