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A FURTHER CASE OF IRIDOSCHISIS *

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IN a previous paper Loewenstein and Foster (*Brit. Jl. of Ophthal.*, 1945, Vol. XXX, p. 277) have described a rare case of a special kind of iris atrophy in which the ruptured radial fibres of the iris floated freely at one end in the aqueous. Consideration of the previously recorded cases (eight in number) in conjunction with our own led us to suggest *iridoschisis* as the best name for the condition.

Though we were fortunate enough to carry out the first histological investigation of the disease the cause remained obscure.

The case presented herewith exhibits similar though less marked changes and the description is supplemented by a coloured painting

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by Mr. Gabriel Donald (Artist to the Tennent Institute, Glasgow), photographs of the clinical condition, and photomicrographs of a portion of iris removed at iridectomy.

History

The patient, C.B., a railway shunter (aged 46 years), denied previous refractive error or eye trouble. The visual test imposed periodically by the railway company would tend to confirm this. When examined on January 30, 1947, as a workmen's compensation case (J.F.), he stated that exactly two years before he had fallen on the edge of a railway platform and broken his nose rather badly, the bridge being displaced to the left.

Apart from a "black eye" on the right side, he had noticed nothing wrong with his eye until ten weeks later when he accidentally noticed that the colour of the right iris seemed to have altered. Subsequently friends told him that "one of his eyes was hazel and the other blue." A certain diminution in the reading vision of the right eye occurring gradually since then led him to obtain reading glasses.

On Examination

Left eye.—Vision = 6/12: with -1.0 D.Cyl. $180^\circ = 6/6$.

The eye is normal. The iris is blue with a hazel colour at the pupillary border.

Right eye.—Vision = 6/12: with -1.0 D.Cyl. $45^\circ = 6/6$.

The corneal endothelium is slightly opaque in the pupillary area.

The iris is a slightly darker blue with large areas of brownish atrophy most marked in the lower half, where the dark pigmented

FIG. 1.

Stereophoto of irodochosis. Case No. 2.

FIG. 2.

layers of the iris show clearly through the atrophic portion of the anterior layer. Here and there the fibres of the anterior layer of the iris have sprung away, and the pupillary ends of some of them have adhered to the posterior corneal surface near the limbus.

The pupil is oval, being larger below than above (Fig. 1).

The coloured plate (Fig. 2) gives a good idea of the slit-lamp appearance though omitting the adhesion of the fibres to the cornea. The lens, vitreous, and optic disc, were normal, though the tension was 35 mm. Hg Schiötz.

Diagnosis.—Iridoschisis and secondary glaucoma probably due to trauma.

Treatment.—May 23, 1947.

A basal iridectomy was performed on account of the high tension (S.K.S.), the excised iris being preserved in formol saline.

Recovery was uneventful and the corrected vision in this eye was 6/9 and J.1 at the time of writing, July, 1947.

Biopsy.—The obstinate tendency of the excised iris to curl in formol saline makes it difficult to establish the structural arrangements of the tissue exactly.

FIG. 3.

Curled up iris obtained by iridectomy. Note: sphincteric portion unchanged—shrunk thin ciliary part cut twice—dilator well preserved—the entire anterior iris tissue is absent.

The pupillary portion of the iris is relatively intact, but contains more nuclei than usual. These nuclei are thickly covered with pigment, a common finding in dark irides, and frequently observed in naevi. (Fig. 3, photomicro).

There are dense collections of clump cells at the peripheral margin of the sphincter.

The papillary appearance of iris surface may be due to curling of the iris after excision.

The ciliary portion of the iris is much thinned, revealing hyaline degeneration of the iris tissue with well-preserved vessels; the pigmented dilator is intact everywhere.

The surface in contact with the aqueous shows a condensation of the tissue though not covered by endothelium.

Such gaps as are visible in this tissue suggest artefacts rather than natural openings to permit of aqueous absorption, as assumed by Carl Hamburger in his much debated doctrine of ocular metabolism.

Naturally endothelial cells at the iris surface are less regularly arranged than corneal endothelium.

FIG. 4.

Similar fine granules can be found in the endothelial cells of the cornea as a sequel of phagocytic activity.

There was histological evidence in our previous case (*Brit. Jl. of Ophthalm.*, 1945, Vol. XXX, p. 277) that the meshwork of Schlemm's canal was covered with pigment of a density even greater than one

would expect in a woman of 76 with cyclitic glaucoma. No gonioscopic or pathological examination of the angle made for pigment infiltration was performed in this, our second case.

Discussion

While the excised portion of iris in our second case fails to show the gross horizontal split found in the first, the degeneration is further advanced in another respect, as bio-microscopy shows the spongy portion of the iris to be absorbed over a far greater area.

We regard this case as traumatic, and assume that the force which drove the aqueous into the spongy portion of iris was considerable, as in Schoenberg's case. Here the patient habitually dived into water from a height of a hundred feet.

One would expect the rate of degeneration to be slower where the entry of aqueous was due to senile causes, as in the majority of the published cases.

The same mechanism may be in action in slighter degrees of iris atrophy, for example that seen in long-standing glaucoma.

Here the anterior layers shrink secondarily and draw the pupillary layer outward by cicatricial action, not infrequently producing ectropion uvae.

It is possible that the integrity of the iris stroma depends on the exclusion of the proteolytic enzymes of the aqueous by an intact surface layer. This is certainly the case in the cornea, where Holt and Cogan have demonstrated by electrical methods (*Arch. of Ophthalm.*, Vol. XXXV, p. 292, 1946), that the permeability of the structure depends on the state of the endothelium.

The progressive opacity and swelling of both lens and cornea in the presence of an unhealed breach of their surface membrane are, of course, well known.

One would expect such a lysis of the iris tissue to load the aqueous with pigment, with the possibility, as in long-standing cyclitis, of ultimate blockage of the drainage channels of the trabeculum.

On the other hand, changes of this type do not follow an ordinary iridectomy, where the access of aqueous to iris tissue may be quite extensive.

The probable explanation of this is that a rapid and marked retraction of iris vessels and fibres takes place at the site of the cut, and that the actual infiltration of aqueous is less than after the blunt injury described in which the iris split produced by the intruding aqueous follows the line of least resistance, *i.e.*, parallel to the iris surface.

That the retraction after iridectomy is marked can be judged by the rarity of iris haemorrhage after this operation.

It is an interesting fact that in our first case the floating iris

threads which had resisted proteolysis better than the spongy iris tissue, each contained a blood vessel whose lumen was filled with red blood corpuscles.

Summary

A further case of iridoschisis is described. Pathological investigation of the iris has added nothing to our previous knowledge.

It is suggested that a blunt trauma forced the aqueous into the spongy iris tissue where the contained proteolytic enzymes destroyed the stroma. The pigment thus liberated blocked the drainage channels with production of secondary glaucoma.

A CROSS-SECTIONAL VIEW OF INJURIES IN AN OPHTHALMIC PRACTICE IN EIRE*

BY

EUPHAN MAXWELL

DUBLIN

THE injuries recorded in this paper were serious in themselves or in their sequelae. In order to emphasise certain aspects of the subject as a whole, a few trivial injuries have been included, but apart from this, as the title serves to explain, there has been no selection of cases.

The records in the Royal Victoria Eye and Ear Hospital, Dublin, have been preserved since 1904, the year in which the Hospital commenced to function. It is from such of these as deal with the patients treated in that department with which I have been connected directly or indirectly, and during certain years chosen at random, that my data have been collected. The years in question were 1904-5; 1914-15; 1924-25; and 1939-45; all inclusive. I have also included case histories from my private records together with such as were still available from those of my father.

As many of the injuries antedated the case-histories by intervals of time varying from days to years, the period under review has been found to extend over three-quarters of a century.

1.—Causation

The injuries, 796 in number, have been arranged in this section in age-groups. Percentages noted here as elsewhere must be

* Received for publication, October 20, 1947.

Oxford
Ophthalmological
Congress
July 8, 9, 10.
Programme, 1948

THE Congress opens with an address of welcome by the Master, Mr. F. A. Williamson-Noble; after which a discussion will take place on "The Use and Abuse of Topical Ocular Therapy," to be opened by Mr. F. Ridley, Dr. F. E. Preston and Dr. J. M. Robson. Papers occupy the time till 4.30, when tea will be taken in the gardens of Balliol College. The annual dinner is at 7.15 p.m.

The second day opens with a commercial exhibition: Papers follow until 11.15 a.m., when Sir Stewart Duke-Elder gives the Doyne Memorial Lecture.

In the afternoon a discussion on "the operative treatment of chronic glaucoma" will be opened by the Master and by Mr. Maurice Whiting.

The last day is given over to papers.

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British Medical
Association.
Section of
Ophthalmology.
116th Annual Meeting,
Cambridge, 1948

JULY 1, 1948, Morning Session, Thursday, 10 a.m. Opening Papers: (1) Mr. Juler—"Ophthalmic Problems associated with Gynaecological and Obstetrical conditions." Followed by Mr. Nutt. Afternoon, July 1, 1948, 2.30 p.m. Occasional Papers: A. G. Cross—"The present day position of contact lenses." J. D. Currie—"Optical Aids to the other man's job." P. H. Beattie—"Heredity of Eye Diseases." H. Ryan—"Nutritional Eye Diseases."

July 2, 1948, Morning Session, Friday, 10 a.m. (2) Mr. Recordon—"The Significance and Interpretation of Refraction." Followed by Mr. A. Lister, Mr. V. Purvis. Afternoon, July 2, 1948. Clinical meeting at Addenbrooke's Hospital at 2.30 p.m. 3.30 p.m. Films:—"Detachment," "Intra and Extra Capsular Cataract Extraction," "Strabismus and Glaucoma," by Mr. H. B. Stallard.

Officers of the Section.—*President*: O. Gayer Morgan; *Vice-Presidents*: E. G. Recordon, O. M. Duthie, J. H. Doggart; *Hon. Secretaries*: G. F. Wright, A. G. Cross.

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The University
Eye Clinic of Munich

We understand from Professor Weve of Utrecht that Professor Wesseley, who was expelled by the Nazis before the 2nd World War, has re-started the University Clinic at Munich. His age is 75 years.

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Corrigendum On page 129, 2nd line, the reference to our Volume for 1945 should have been XXIX not XXX as printed.