Aniridia and glaucoma / by E. Treacher Collins.

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ANIRIDIA AND GLAUCOMA.

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The occurrence of primary glaucoma in cases of congenital absence of the iris, either complete or partial, would at first appear to show that closure of the filtration area of the cornea, by the apposition of the root of the iris to its posterior surface, is not an essential [illegible] the production or in the maintenance of the [illegible]sed tension, and that the removal of a portion of [illegible] is not the chief cause of its diminution in the operation of iridectomy.

*Mr. Lang has recorded a case of primary glaucoma in a patient with a congenital coloboma of the iris outwards: †Dr. Brailey one of double microphthalmos and glaucoma in a girl aged 18, the iris being absent in her right eye except for a narrow crescentic piece on the inner side which occupied about two-fifths of the circle, and absent in the left except for three small isolated bits, also on the nasal side. ‡Dr. Armaignac reports a case of glaucoma secondary to dislocation of the lens in a patient with nearly complete aniridia.

To these I am able to add the following one of primary glaucoma, with apparently complete aniridia.

Case I.—Charles E., æt. 34, was admitted to Moorfields Hospital on November 9th, 1889, under the care of

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*Trans. of the Ophth. Soc. Vol. x., p. 106. †Ibid., p. 139.
‡Mémoires et Observations d'Ophtalmologie pratique, p. 239.

Mr. Tay, who has kindly permitted me to publish the case. The patient stated that when a boy at school he had good sight, both for near and distant objects. He was able to read, but could not bear a bright light. His right eye was not then so good as his left. For two years previous to admission he had noticed gradual failure of sight in his left eye, while that of the right, he thought, had somewhat improved. He had worn glasses (+ 6 D., with a stenopaic aperture in the right 3·5 mm. wide) for eighteen months. His parents' eyes were healthy; he had had three children, two of whom (the first and the third) were dead, and both these children, he said, had the same malformation of eyes as himself. The second child, who was alive, had good blue eyes.

Examination showed complete absence of both irides. Some fine granular opacities and a few vacuoles were seen in the right lens. There was deep cupping of the optic nerve in this eye. T. was + 1, V. = $\frac{6}{6}$; $\bar{c}$ + 6 D., and with a stenopaic aperture 3 mm. wide = $\frac{6}{36}$. The nasal and lower parts of the field were much contracted. The left lens was cataractous, presenting an appearance like mother-of-pearl, the triradiate arrangement at the anterior pole being plainly marked. T. was increased. V. = hand reflex only.

On Nov. 18th the cataract was extracted from the left eye, the operation being uncomplicated. Vision with this eye on patient's discharge from the hospital was noted as $\bar{c}$ + 16 D., and a stenopaic aperture 3 mm. wide = $\frac{6}{24}$, and with + 20 D. = J. 4.

In the next case which I record, I have been able to make a pathological examination of the eyeball. I am indebted to Mr. Nettleship for the specimen and the notes of the case. It is one of double congenital aniridia, in which one cornea became ulcerated, the eye subsequently becoming glaucomatous, and a staphyloma forming in the ciliary region. The pathological examination throws light on the way in which the increased

tension was probably brought about in the above-mentioned cases. It shows, in fact, that these cases do not form any exception to the rule that glaucoma is accompanied with blocking of the filtration area of the cornea, and that no new theory need be sought to explain them. In this case the ciliary body ended anteriorly in a rounded, slightly projecting nodule, the rudimentary iris, which, though not sufficiently large to be seen through the cornea, yet, when pushed forwards so as to come in contact with the posterior surface of the latter, was sufficient to block the filtration area. The primary cause of the glaucoma in this case is difficult to determine; possibly it may have been the hæmorrhage into the lymph space between the choroid and sclerotic.

The pathological examination of this eye also shows that the apparent complete congenital absence of the iris, or the presence of a congenital coloboma of the iris, does not diminish the likelihood of relief of tension being obtained by a sclerotomy in the former case, or an iridectomy in the latter.

Case II.—Amelia B., aged 22, a pale, unhealthy-looking girl, was admitted into St. Thomas's Hospital on October 18th, 1889, complaining of pain in her right eye. She had been in the hospital previously in May, 1880, with congenital aniridia in both eyes and a perforating ulcer of her right cornea.

On examination she was found to have ptosis and marked nystagmus. The right eye was congested; there was a central leucoma of the cornea and a staphyloma in the ciliary region down and out. The condition of the cornea prevented examination of the deeper structures; the tension was not noted. In her left eye the cornea was quite clear; the iris was absent, the fundus normal. V. = $\frac{6}{60}$, and letters of J. 16 unimproved with glasses. She was illiterate. She had good teeth, and showed no signs of inherited syphilis.

She stated that her eyes had always been different

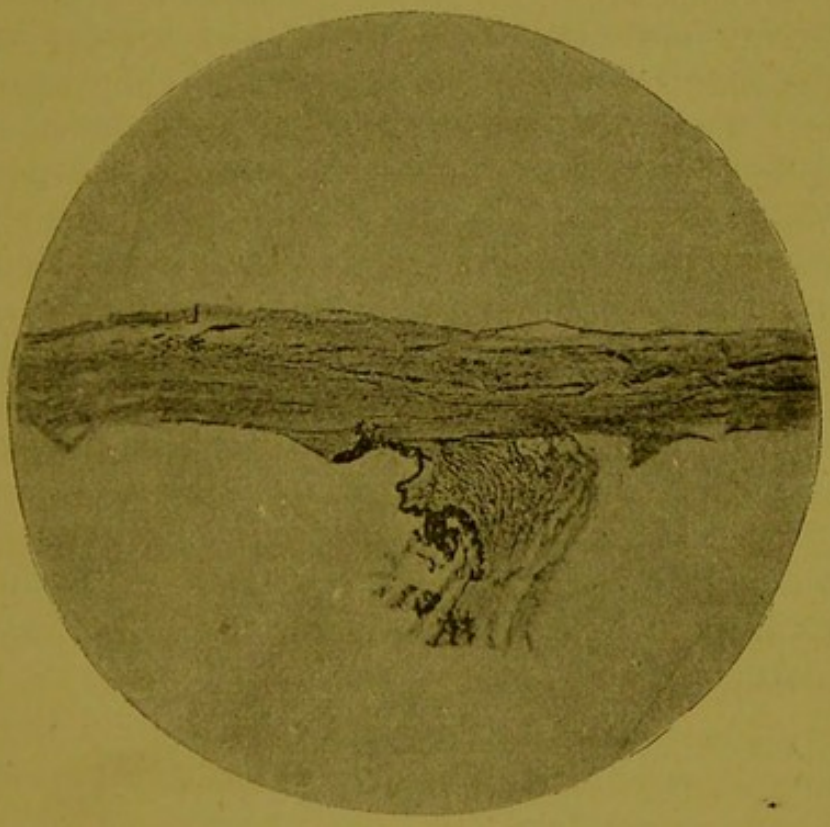
from those of other people. Her father had died from cancer of the stomach ; her mother was alive and well. She had two brothers and one sister alive, and one sister had died aged 31. None of these had anything the matter with their eyes. She had a baby seven months old ; this child was seen, and both irides were absent. Thin opacities were observed in each lens, presenting all the appearances of lamellar cataracts. The margins of the lenses and the fibres of the suspensory ligament could be clearly made out. The child could distinguish light, and otherwise seemed quite healthy ; there was no rash on the skin. The patient's right eye was excised on the day following admission.

Pathological Examination.—The eyeball was opened by an antero-posterior vertical section. The ciliary body, with its processes, was present, though much stretched and atrophied down and out in the region of the staphyloma. It ended anteriorly in a small rounded projection, the sole representative of the iris. The lens appeared small ; it was in its normal position, the suspensory ligament being much stretched. The retina and choroid were detached. There were extensive blood clots between the latter and the sclerotic, extending from the ciliary body to the optic nerve. The optic disc was deeply cupped and excavated.

Microscopical Examination.—The filtration area of the cornea is blocked by the intimate adhesion to it of the rounded nodule in which the ciliary body terminates. This is shown in the accompanying figure, which has been reproduced from a photograph of a section of this eye, kindly taken for me by Mr. E. Collier Green. The ciliary body in this section, as the result of manipulation during the embedding of the specimen, has become somewhat displaced from its connection with the sclerotic.

That it is possible for glaucoma to occur in an eye in which there is traumatic aniridia is shown by the following case. In it the filtration area had become

blocked by the anterior part of the ciliary body, which was drawn forwards and held in contact with the cornea at its periphery by the entangled lens capsule.



Case III.—George P., aged 26, was admitted to Moorfields Hospital under Mr. Tay on January 5th, 1890. He stated that twelve years previously he had wounded his right eye with a chisel, and that since that time he had been unable to see with it. During the last few years it had gradually been increasing in size. The eye being blind and staphylomatous, was excised the following day.

Pathological Examination. — T. was + 2. The antero-posterior diameter measured 29 mm., the vertical 27 mm., and the lateral 25 mm. In the whole circumference of the globe between the margin of the cornea and the insertion of the recti muscles, there was thinning and bulging of the sclerotic, most marked at the upper part. Passing horizontally across the cornea

at about the junction of its lower and middle thirds was a dense white cicatrix with some yellow deposit around it. Adherent to this cicatrix on its inner surface was the lens capsule. The nucleus and greater portion of the cortex of the lens were absent; the iris was entirely absent; the ciliary body was considerably stretched and atrophied; its processes were drawn forwards and elongated. There were extensive patches of choroidal atrophy, with deeply pigmented margins. The vitreous was fluid; the retina *in situ*, except at the ora serrata, where it was slightly drawn forwards. The optic disc was deeply cupped.

Microscopical Examination.—The anterior part of the cornea shows some round-celled infiltration and new vessels between its layers. The iris has been torn away at its extreme root. The ciliary muscle is much atrophied. The most anterior of the ciliary processes is intimately adherent to the posterior surface of the cornea at its periphery, in the region of the ligamentum pectinatum.

NICATI (Marseilles). The Gland of the Aqueous Humour; Gland of the Ciliary Processes; or Uveal Gland. *Arch. d'Ophtal., Nov.—Dec.*, 1890; *Jan.—Feb.*, 1891.

This paper gives an account of a series of researches establishing the existence of a glandular apparatus for the secretion of the aqueous humour, considered from the histological, physiological and pathological standpoints.

After giving a historical outline of our knowledge of the anatomy and physiology of the apparatus for the secretion