Oliver (C. A.)

AN ANALYSIS

OF THE

Ocular Symptoms

FOUND IN THE

Third Stage of General Paralysis

OF THE INSANE.

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These observations and their deductions, which form a part and, in fact, conclude those which were presented to the society at its last annual meeting, are here given in hope of offering a few more facts to the ocular symptomatology of the disease.

As before stated, care was taken that each subject was seemingly free from any gross extraneous disease or local disorder, and discretion was exercised that competent and authoritative medical opinion had been given as to the type and stage of the general complaint; also, for reasons given at that time, the study has been limited to the male sex.

In a disease of such complex symptomatology, where, doubtless, quite a number of pathological peculiarities exist at one time, accurate pathognomonic changes cannot be expected in each case, and for this reason a great number of seemingly similar cases have been studied in the effort to obtain an idiocratic picture of a few of the oculo-motor and retinal changes to be found in this disorder. However, as the disease seems, as

shown by the microscope, to expend its greatest force upon both the motor and sensory regions of the cerebral cortex with involvement of the related higher mental areas, the symptoms which are improperly described as paretic only, assume types of both motor and sensory derangement with associated mental peculiarities of a distinctly related character. As a part of these the ocular apparatus, with its six channels on each side to the cortex of the brain, becomes not only a useful situation to study these changes, but is really invaluable as an exponent of intracranial changes.

OBSERVATIONS.*

First. Direct vision for form was reduced in every instance, where obtainable to any degree of certainty.

Second. Direct vision for color was subnormal in the few instances where it could be properly studied, showing itself more particularly for the colors green and red.

Third. Accommodative action: though impossible to obtain any reliable results by various subjective methods, yet by objective means (retinoscopy) it was seemingly lessened in every unequivocal case tried.†

Fourth. Visual fields: no determinate answers could be gotten.

Fifth. Pupils, as a rule, were somewhat larger than normal.

Sixth. Pupils were ofttimes unequal in size, and in some instances had a difference of one or two millimetres in their longer diameters.

Seventh. Pupils were frequently oval and ovoid in shape; their long axes being opposed to one another or placed at equivalent angles.‡

Eighth. The pupillary border of the iris, in several instances, was quite irregular in outline, without any visible evidences of localized inflammatory change.

Ninth. Changeability of pupillary form still persistent in

*A portion of these observations will form a part of the Fifth Annual Report of the Ophthalmological Department of the State Hospital for the Insane at Norristown, Penn.

† Curiously one case, upon several occasions, gave distinct ophthalmoscopic evidence of spasm of accommodation.

‡ It must not be forgotten that the pupils of many mentally healthy, present similar characteristics, especially in cases of astigmatism where asthenopia is complained of.

one case that had been so noted in the second stage of the disease.

Tenth. Irides were devoid of any gross peculiarities in comparative tint.

Eleventh. Irides, as a rule, were either extremely slow in response or absolutely immobile to the strongest light stimulus, though fairly responsive to efforts for convergence and accommodation.

Twelfth. The iris of the larger pupil in some instances was not so responsive to light stimulus as its fellow, this inequality of action seeming to bear no relation to the degree and character of the refraction error, and in some cases seemingly free from the apparent amount of objective optic-nerve change.

Thirteenth. The secondary movements of the iris were almost, if not entirely, lost in all instances in which light stimulus produced a reflex act.

Fourteenth. Irides, in quite a number of cases, were very feebly responsive to efforts for accommodation and convergence only; the want of this character of action being very changeable and unequal at the same time upon the two sides.

Fifteenth. Irregular and incomplete dilatation of the pupil followed the employment of strong solutions of atropine — sufficient to give full mydriasis in ordinary subjects — the comparative positions of the greatest amount of partial results being unequally situated at fifteen to thirty degrees differences, although several cases yielded peculiar and fantastic forms.

Sixteenth. Insufficiency of the interni was noted in several cases, though on account of the mental condition of the subject, nothing could be positively determined.

Seventeenth. Ataxic nystagmic motions of the extra-ocular muscles were present at times in a few instances, especially noticeable with the third and sixth nerve distributions, either in separated or conjoined action.

Eighteenth. The optic discs in many instances were decidedly and unequally semiatrophic; the degeneration being especially pronounced in the deeper layers and on the temporal side of the nerve.

Nineteenth. The capillarity of nerve substance was ma-

terially lessened, the greatest amount of blood supply being recognized in a rather narrow crescentic area to the nasal side of the disc.

Twentieth. The disc in a few instances was of a suffused and gelatinous appearance; its edges being plainly seen, and the surrounding retina somewhat œdematous.

Twenty-first. A series of minute venous and arterial loops in the retinal vessels on the disc were seen in one well-marked case.*

Twenty-second. The scleral ring was sharply cut all around and quite broad; this, as a rule, being more noticeable to the temporal side of the disc.

Twenty-third. Blackish crescents of pigment, broken and somewhat absorbed, beyond the scleral ring, at the outer edge of the optic nerve head were frequent.

Twenty-fourth. Pigment lines of different widths and varying degrees of absorption were seen beyond the scleral ring at the inner edge of the optic nerve head.

Twenty-fifth. Pigment layer of retina was, as a rule, diminished in thickness, the greatest amount of striation being seen at the superior and inferior borders of the optic disc.

Twenty-sixth. Retinal striation in a few instances was very pronounced, rendering the disc edges quite hazy.

Twenty-seventh. Retinal arteries were reduced in size, and sometimes slightly tortuous.

Twenty-eighth. Retinal veins were somewhat undersized and quite tortuous in a number of cases.

Twenty-ninth. Blood currents of the retinal vessels were apparently normal in tint.

Thirtieth. A few lymph reflexes were seen, these being generally situated in the walls of the main retinal stems.

Thirty-first. Fine pin-point opacities in the retina between the disc and the macula were seen in two cases; no other gross changes in the retina.

Thirty-second. The choroid was granular and disturbed in the majority of cases.

* Acquired syphilis was suspected in this instance.

Thirty-third. Refraction was generally hypermetropic with marked degrees of astigmatism.*

SUMMARY AND CONCLUSIONS.

1. The oculo-motor symptoms of the third stage of general paralysis of the insane, which consists in varying though marked degrees of loss and enfeeblement of iris response to light stimulus, accommodative effort, and converging power; lessening of ciliary muscle tone and action; weakening and inefficiency of extra-ocular muscle motion — all show paretic and paralytic disturbances connected with the oculo-motor apparatus itself, of greater amount and of more serious consequence than those seen in the same apparatus during the second stage of the disease.

2. The sensory changes of the third stage of general paralysis of the insane, which, though similar to those found in the second stage of the disorder, are so pronounced as to show a semiatrophic condition of the optic nerve head and a marked reduction in the amount of both optic nerve and retinal circulations, with consequent lowering of centric and excentric vision for both form and color, all indicate a degenerate condition of the sensory portion of the ocular apparatus, with impairment of sensory nerve action.

3. The peculiar local changes seen in these cases, which consist in conditions of the choroid and retina indicative of more pronounced local disturbance and irritation of these tunics than those found in the second stage of the disease, all represent the results of greater wear and tear given to a more delicate and a more greatly-weakened organ.

4. Both the motor symptoms and the sensory changes of the ocular apparatus, as thus described in the advanced or third stage of general paralysis of the insane, furnish not only evidences of a local disturbance of a more pronounced type than those shown in the second stage of the disorder, but plainly show themselves as one of the many peripheral expressions of fast-approaching degeneration and dissolution of nerve elements most probably connected with related cortex disintegration and death.

* Thanks are due to Drs. Henry Sidebottom and Henry C. Cattell, for their kind assistance during the study of these cases.