SYMMETRICAL CENTRAL CHOROIDO-RETINAL DISEASE OCCURRING IN SENILE PERSONS.

By JONATHAN HUTCHINSON.

The following cases belong to a group of which several instances have been under care of late, chiefly in elderly people, and in which the choroid becomes speckled with minute dots of yellowish white deposit. Most of these spots are round, and they occur chiefly in the neighbourhood of the disc, although a few single ones may be seen near the equator. They are comparatively inconspicuous, not being attended by any disturbance of pigment and being usually of very small size. In some instances they are arranged in groups and sometimes become confluent over a considerable area. They appear to affect, for the most part, the choroid only, and nothing special is to be noted in the disc, excepting perhaps slight pallor.

It appears very difficult to suggest any constitutional cause. There is no reason for suspecting syphilis and the patients appear to be in good health.

With regard to the precise seat and nature of these spots, I have no further information than that gathered from ophthalmoscopic examination. There is no doubt that the disease is confined to the choroid in the first instance, while the great defect of sight which accompanies it points to implication of the retina secondarily. In the late stages there appears to be more or less atrophy of choroidal tissue and production of some pigment. Both from the appearance of the spots and the serious defect of sight which occurs, it is probable that the changes take place in the superficial structures of the choroid, and it may be suggested as not improbable, that the small round white spots are

allied in seat and structure to the so-called "colloid" excrescences from the *lamina elastica*. These little bodies are said to be common in old age in eyes otherwise healthy, but are then found near the ora serrata; they are also very often found in eyeballs which have been long blind, and in which inflammation of the deep structures of the globe has occurred, and in such cases they are not confined to any special part of the eye. It may be remarked that in the region affected by the disease under consideration, the blood-supply to the choroid is somewhat peculiar, the short posterior ciliary arteries entering the eyeball in this region, while there are no emergent veins corresponding to them.

Attention may be directed to the following chief points in the clinical history of the disease:—

1. Limitation of the disease to the region of yellow spot and disc.

2. The disc itself almost healthy.

3. Retinal vessels not reduced in size.

4. No accumulation of black choroidal pigment, but blue-black pigment deposits sometimes remain at the yellow spot, probably the results of hæmorrhage.

5. Both eyes affected and in remarkably similar conditions.

6. The choroid in the periphery quite healthy.

7. All the patients past middle life and for the most part in good health. Slight deafness, incipient opacities of the lens, and symptoms of failure or senile disease of the nervous system are noted in several.

The disease appears to go through stages:—

1st. Scattered very minute yellow-white spots of deposit in the choroid around the disc; sometimes in groups.

2nd. Coalescence of these minute spots and the formation of patches with irregular borders.

3rd. Hæmorrhage at the yellow spot and absorption of the blood. It is not certain at what period this occurs.

Cases I, II, and III of the following occurred in three sisters, in each of whom a symmetrical disease of the choroid

around the disc and yellow spot occurred after middle life. The extent and character of the disease were almost precisely alike in the three patients. Two of them had at former times suffered from weakness of one or more limbs apparently amounting for a time to paralysis, slowly passing off, and leaving some permanent weakness. Their family history is given after Case III.

CASE I.—*Symmetrical Disease of Choroids in central part of Fundus in a Woman of 57—Interval of 2½ years between the two Eyes—History of Sudden Onset in Eye first affected—? Hæmorrhage—Slight deafness.*

(Notes by Mr. Waren Tay.)

Ellen G., æt. 60 (the eldest of the three sisters) stated that one day, rather suddenly, three years ago, she found that she could not see well with the left eye. She was busy ironing and was obliged to give it up as a cloud was before her sight. After this she had a good deal of pain, "pricking and shooting," and "hot pain." It was worse at night and often kept her awake. She had no pain elsewhere. She never had rheumatism. It was not until six months before coming under care that her right eye began to suffer. She had had just the same sort of pain in it, but it had not yet advanced nearly so far as in the left. She was rather stout and looked well. She had had good health through life with the exception of two attacks of "fever." The first was a "low fever" after a confinement, and the last an attack of "typhoid," two years before coming under care (a year, therefore, after her first eye failed). She considered that her hearing had failed a little since her eyes had been affected, but she was not deaf to any material degree. With the right eye (her better one) and with a + glass she only saw the letters of 20 J. She was born in the country and was accustomed to field work.

Ophthalmoscopic Examination.—In the left eye there was extensive disorganisation of the choroid in the region of the yellow spot and of the optic disc. At other parts the structures seemed quite healthy. The disc was of good colour and its vessels of good size. At the yellow spot, there was a large irregularly star-shaped, or rather windmill-sail-like, blot of bluish pigment, probably the remains of blood-clot, and adjoining

it were some stained fringes from which the colouring matter had not been wholly removed. There were a few other isolated spots of pigment of the same character at other parts. The aggressive edge of the patch external to the yellow spot was very abrupt and definite. It showed a number of jags and crescents like the irregular border of a serpiginous ulcer. It was white and there was no disturbance of the choroidal pigment. Very similar, but less advanced, conditions were found in the right eye.

The pigment bears but a small proportion to the whole area of disease, the prevalent change being more or less complete thinning of the choroid; the atrophy is nowhere so complete as to leave bare sclerotic.

Since her first attendance she has failed in health considerably; become feeble, and vacant, and her memory has become very bad. These changes came on rapidly in one day, and she seems to have been from the first partly demented. She has had no fit and no paralysis.

Her sight is now (*Aug.*, 1875) just the same as when she first came in *April*, 1874, and the ophthalmoscopic appearances agree with the description then given.

The urine was tested at her first admission and found free from albumen.

She has had ten children; seven were either still-born or died in a few days; three are living and reported healthy and with good sight. Her youngest was born about fourteen years ago.

CASE II.—*Symmetrical Disease of Choroid and Retina in central parts of the Fundus in a Woman æt.* 48, *and in association with Temporary Partial Paralysis of all the Limbs—All the symptoms coming on during prolonged anxiety and at about the time when Menstruation ceased.*

(Notes by Mr. Waren Tay.)

Anne J., æt. 50, a widow, the second sister, stated that two years before she came under care she lost the use of her limbs. One day when she got up she found that she could not see with her right eye. She could not see to cut out a dress. She tried first one eye and then the other. The left eye had only been known to fail for six months, and since the loss of her

husband whom she had nursed for a year-and-a-half before his death. She was then laid up in bed for four or five weeks, unable to dress or undress herself; her joints were weak, and she could not lift hand or foot. She gradually regained power. There was neither swelling nor pain of the affected limbs. The illness was attributed to change of life. At the *date of admission* she now and then had a feeling of pins and needles in the right hand and arm, and sometimes she could not pick up a pin. She considered she had always had good health. She had never been laid up, nor unable to attend to her business, keeping a greengrocer's shop. She lost a good deal of blood *per vaginam* soon after the right eye failed, and had not menstruated since. She had always menstruated very little and irregularly. She had been married twenty-two years before her husband died of phthisis, but had never been pregnant.

There was a large central scotoma before the right eye and she could not read 20 J. with it. She could read No. 6 J. slowly with + 10 with the left eye. She complained of having felt a sharp pain now and then going round the right eye, and lately had felt the same on the left side.

In the right eye, the choroid near the yellow spot was spotted over with yellowish-white, minute, ill-defined patches. Near the disc they were almost everywhere irregularly confluent and were so extensive as to leave very little healthy choroidal tissue remaining. At the circumference of the diseased patch, however, the spots were very distinct, presenting a moth-eaten appearance. Neither at the margins of the spots nor in their centres was there any accumulation of pigment; but near to the yellow spot there were some long, conspicuous streaks of pigment of a bluish-black colour and very irregular in arrangement. They were remarkable for being thin and in parts almost gauzy in appearance. At most parts, the retinal vessels were very distinctly in front of both the white and the black patches, but in a few places their trunks were obscured both by white and by dark deposit. The disc itself was quite clear, its vessels of usual size, and their trunks, with the exceptions just alluded to, were easily traced. *In the left* (without atropine) the conditions were much the same as in the right, but not so advanced. At the yellow spot, there was a white patch with blotches of pigment of the same colour as in the right.

This patient was seen again in *August*, 1875, when the state of her sight and the ophthalmoscopic appearances were about the same.

Her hands, arms, and ankles are still weak, and have, according to her statement, never become so strong as before the first onset of the symptoms. Her fingers become stiff, and in the morning on waking up she always finds them partly bent into the palms, and her hands and arms are then so weak that she has much difficulty in dressing herself. The act of clasping anything with her hands causes pain in the flexor tendons and muscles of the forearms, so that she either cannot or dare not clasp firmly; the grip of her hand is very feeble; these symptoms are symmetrical. The weakness, &c., of the arms and hands is always worse in cold weather, and she then often has pins and needles in them.

She persists in calling the whole complaint "rheumatism." There has, however, never been either swelling or stiffness of the joints nor any pain in them. There is no grating in her shoulders, and she says the knee joints never either crack or become stiff. Weakness and pain in muscles during their contraction, aggravated by cold, are the leading symptoms.

CASE III.—*Similar changes in the Eyes, but in an earlier stage, in a third Sister. History of partial Paralysis.*

Mrs. M., æt. 40, applied at Moorfields in *June*, 1875, complaining that her sight had been failing for about a year. On examining the eyes, Mr. Tay noted "extensive choroidal disease of the central parts; at the circumference of the patches there are isolated spots. The changes are like those in the two sisters formerly seen, and in some others." At this time it had not transpired that the patient was a third sister of the two cases referred to in Mr. Tay's note; on enquiry as to her history, &c., however, she told us that her two sisters, Mrs. G. and Mrs. J., had previously been under my care.

Mrs. M. is a sallow, spare woman, with black hair (just turning gray, regular, well-formed features and a good figure; she is nervous and emotional, and looks care-worn, but appears in fairly good health. She states that her sight began to fail

about a year ago, without any cause apparent to her; the change appears to have been gradual and symmetrical. Her sight is better in the evening than by daylight.

With regard to previous illnesses, she stated that five years ago, and five months after her last confinement, she had an attack of pain and weakness in her left lower limb; there was no swelling of any part of the limb or of any joints, but the pain was very severe and "as if it was being cut to pieces;" the illness lasted three months, and was considered by her medical attendant to be "rheumatic fever," but no other parts than this limb were affected. The limb has remained weak and more or less painful ever since. She had never had anything like it before, nor have similar symptoms occurred again. The confinement referred to had occurred after an interval of nine years from the preceding pregnancy. There is no indirect evidence of syphilis to be obtained. Her husband died six months ago of an accident.

She states that at the age of 18, seven years before marriage, she had an abscess followed by a "fistula" at the anus; there is no history of syphilitic symptoms at that time, and from the frankness with which she mentioned the "fistula," I think that she had no suspicion of my object in questioning her. She has never been considered "consumptive."

Mrs. M. has had four children, the first and fourth are living and reported to have good sight and good health; one of the others was still-born and the other died of convulsions while teething.

The changes in her eyes very closely resemble those in the two elder sisters, but are evidently in an earlier stage. An immense number of small circular spots of choroidal disease enclose the disc and the yellow spot in an ill-defined oval belt. They are of a dull white colour, very closely packed, and in some parts (especially near the disc) are partially confluent. The belt of spots represents only the part where they are most thickly set; all around and within it there are less numerous, but still very abundant, spots, spreading for a short distance on every side and covering the Y. S. region. There is as yet scarcely any pigmentation. Most of the spots are beautifully distinct. When examined with the erect image, it is possible to see a very minute dot of pigment on the centres of some of

them, while an extremely narrow ring of pigment, darker than the neighbouring choroid, often surrounds them. In these respects they closely resemble some forms of minute growths projecting on the inner surface of the choroid as seen in the dissected eyeball, especially the tubercles of acute tuberculosis, and the so-called "colloid" excrescences. It is probable, therefore, that the spots in this patient's eyes are minute elevations of the choroid, though the ophthalmoscopic appearances do not enable us to form any more precise idea of their nature and exact situation in the choroidal tissue. The disc and retinal vessels are healthy in each eye.

The following facts were ascertained from her as to the family history of the three sisters. Her father had what was called very "short" sight, and a brother of his was similarly affected; the defect would appear not to have been myopia, unless extreme and complicated, for she says that both the father and the uncle ultimately became so bad "that they could hardly see to do anything;" it may, however, have been merely cataract; they had no treatment. This uncle was considered "curious" in his manner or intellect. A third brother of her father became insane ("tried to be religious"), and committed suicide; he had been under medical care for mental disorder for two or three months before death. She believes that her parents were not blood-relations; she can give no information as to her grandparents, except than one of them was gouty.

The three amblyopic sisters do not resemble one another specially; the two elder take after their mother, the youngest one is like her father. Their parents had ten children, of whom nine are living and several have families; none of the next generation (nephews and nieces of the patients) are known to have bad sight or any intellectual or nervous defects.

The children are as under:—

1. (f.) Died, æt. 40, of "cancer of the womb."
2. (f.) 60, Mrs. G., the eldest of the three amblyopic sisters.
3. (m.) Living, æt. about 55.
4. (f.) Living.
5. (f.) Æt. 50, Mrs. J., the second amblyopic sister.
6. (f.) Living.
7. (m.) Living.

8. (f.) Æt. 40, Mrs. M., the youngest of the amblyopic sisters.
9. (f.) Living.
10. (f.) Living.

None except the three have any defect of sight.

CASE IV.—*Choroidal disease in Minute White Dots in the neighbourhood of the Disc in each Eye—Commencing Haze of Lenses.*

(Notes by Mr. Waren Tay.)

Mrs. L., æt. 60, single, a cook, came under care at Moorfields, *March 28th*, 1874. She has enjoyed good health.

She could still see to read. Her sight began to fail about twelve months before she came under care. In both eyes, on ophthalmoscopic examination, a number of very small white spots were to be seen, apparently behind the retinal vessels. In the right eye they were chiefly present on the real inner side of the disc; in the left on both sides. Probably there were slight ones all round. In the inverted image it was very difficult to see them. The lens in each eye was slightly hazy and with here and there a line in it. She had worn glasses for twenty years. There was no trace of hæmorrhage anywhere, nor any change at the yellow spot in either eye. The spots were in groups in a circle around the disc, passing between it and the yellow spot. In the right eye the margins of the disc seem to shade off, but the vessels can be seen clearly. There is venous pulsation.

CASE V.—*Symmetrical disease of Choroid in central parts of Fundus in a Man æt. 60—Minute White Spots—Commencing Opacity of Lens—No obvious cause.*

(Notes by Mr. Waren Tay.)

John L., æt. 60, came under care March 23, 1874, at Moorfields. He seemed an intelligent man and told us that he had noticed a dimness of both eyes just alike for six weeks. He had had excellent sight previously. He had had pains in the tips of the shoulders and down the muscles of the arms. He could see $\frac{20}{70}$ with both eyes open. He was ordered grey powder and quinine three times a-day. A week later he had much pain in his arms.

It is noted that his mother and all her family were subject to cataract; one of her sisters was operated on successfully. One

of the patient's brothers, now æt. 65, had cataract in one eye, and was operated on 17 or 18 years ago successfully at Moorfields. He fancies something is now "dropping down" from the other eye. The patient has had two daughters, the younger of whom had "bad eyes." He has four sons who have no defect of sight. He used to drink much and smoke when young; he was rather wild, but never caught any venereal disease. He had never had any swelling of feet or ankles, but has been liable to "lumbago." He had jaundice 11 years ago, for three weeks, with numbness of the two middle fingers of the right hand coming on regularly for an hour in the morning. When the jaundice came out the numbness went off. The pains in the shoulders did not come on till his sight failed; he mentioned them as very troublesome. In the fundus of each eye there were a number of small spots, some of a glistening white, but the majority of a faint white colour. They all seemed on a level posterior to the retinal vessels; they were of irregular size and shape, and were chiefly situated above and below the disc. In the *right eye* they were fewer in number and distinct from another; there were none visible at the periphery, nor at the yellow spot. In the *left eye* they were much more numerous and were fused together, showing a tendency to form patches above and below the disc; there were a few at the yellow spot, and some faint ones in the periphery. There was a slight central opacity at the posterior pole of the lens.

In *May* 1875 the ophthalmoscopic appearances had not materially changed, and his sight was the same as before, the right being rather the better of the two. The sight is very defective, and he cannot see anything smaller than 20 J. with any glass.

CASE VI.—*Central Choroido-Retinal Disease in small white spots in a Woman of* 62—*Failure of sight, six months—Incipient Cataracts—Deafness—Choroidal Disease of an earlier date at Periphery—No Albuminuria.*

Mary Anne J., æt. 62, applied at Moorfields in *January* 1873. She was in good health. Her sight had been failing for six months. She had been somewhat deaf for three years, but for six or seven months this had increased, and, on admission, she was very deaf indeed. The urine (tested a few days later) was pale, clear and free from albumen.

On ophthalmoscopic examination a number of very small white spots were found to be scattered widely over the central part of the fundus, being especially numerous in the yellow-spot region. Near the yellow spot in the right eye they had become partly confluent and formed a large white patch. The spots varied much in clearness of shade, some being of a glistening white, others of various somewhat duller white tints; they also differed in size to some extent and were not all circular; the duller coloured ones were especially noted to have somewhat ill-defined borders. Many of them were distinctly behind the retinal vessels and none were proved to be in front. Those near to the yellow spot were, as a rule, of a brighter white than those elsewhere. There was not the slightest pigmentation of any of the white dots. In each eye the optic disc was perhaps slightly pale and hazy, but these appearances may have been due to the incipient general haze of the lenses which was observed on oblique illumination. At the extreme lower part of the periphery in each eye were several round patches of old choroidal disease; atrophic choroid with some pigment accumulation.

CASE VII.—*Central Choroido-Retinal disease in a Man of 74; small white spots—Failure of sight several years—Deafness—Incipient Cataracts—No Albuminuria—No evidence of Syphilis.*

Benjamin P., æt. 74, was admitted in *January*, 1873. The sight had been failing in his right eye for four or five years; and in the left two or three years. He was very deaf and had been so more or less for many years. His wife said that in other respects he was in good health. About 30 years previously, and before marriage, he had had some eruption on the face and head which had caused the loss of much of the scalp hair and produced a number of small acne-like scars on some parts of the scalp. There was nothing to show that this eruption was syphilitic, nor was there anything confirmatory of that suspicion in the history which his wife gave of their childrens' health.

The pupils were inactive. *Ophthalmosc. exam.* showed commencing cataracts and a number of well-defined white spots in the fundus of each eye at the yellow-spot region. These spots were

more numerous in the right than in the left eye, but had the same general characters in each. By careful inspection it was not difficult to see that they were of two varieties—(1), very small circular bright white dots probably situated in the deep layers of the retina; (2), spots for the most part rather larger and less regular in outline than the former, and of a duller tint; sometimes abruptly defined, in other cases showing somewhat diffused borders, for the most part unpigmented but sometimes inclosed by a thin collar of black pigment. These were undoubtedly seated in or on the choroid. It was difficult to feel certain whether they were deposits, or spots of partial atrophy; it was certain that they were not of the same character as those abruptly defined circular patches of atrophy, seen in old cases of disseminated choroiditis, which look as if bits of choroid had been punched out. The urine was found to be quite free from albumen.

CASE VIII.—*Central Choroidal (or ? Retinal) disease in small white dots in a Man of 64—Slight Albuminuria.*

John B., æt. 64, a labourer, applied on *March* 18, 1875. His complexion was pale and sallow, and his face somewhat puffy; he said that his legs swelled, and were more swelled in the morning than later in the day. He had never had rheumatic fever and never been dropsical.

On ophthalmoscopic examination some small white spots were found in the fundus on the nasal side of the disc (none on the yellow-spot side). They were arranged in a curved line. They were very white. One of them was crossed by a retinal vessel, but there was some difference of opinion as to whether they were seated in the choroid, or in the deep layers of the retina.

His urine contained a small quantity of albumen, just enough to give a definite reaction.

CASE IX.—*Central Retinal Disease in minute white dots in a very senile Man of 48, in bad health—Failure of sight, two months—Deafness—Slight Albuminuria—Old rupture of Choroid in other Eye.*

William C., 48, a carpenter, applied on account of failure of his right eye in *July*, 1875. It had been failing for about two

months, and he could only see letters of 18 J. with it; pupil active and of ordinary size. The other eye (left) had been defective ever since he received a kick on the corresponding eyebrow by a horse in childhood; with it he could barely see letters of 20 J.; pupil rather dilated and scarcely dilates more when covered. He is a stoutish man, but is feeble and bent, looking at least 10 years older than he is; memory bad, manner confused. About four or five years ago he went out for some months to the West Coast of Africa to build a house; he had "fever and ague" there and brought the disease home with him. Although he got rid of the fever six months after his return home (three—four years ago), he has never been strong since, and he says he has aged very much since going to Africa. For the last year and a half he has been somewhat deaf, and this gets worse. He has had no headache, only "a little dulness about the forehead" since his sight failed. The pupils did not dilate widely under atropine. In the right eye we found numerous minute very white dots in the fundus between the disc and the yellow spot, and involving the yellow-spot region to some extent; they were apparently in the retina. There was also some greyish opacity of the retina along the large vessels. No changes elsewhere. In the other eye (defective since the kick) there was a very large area at the yellow-spot region where the choroid was atrophied and the exposed sclerotic partly obscured by abundant pigment; changes probably resulting from an extensive rupture of choroid with hæmorrhage from its vessels, caused by the injury.

A few days later his urine was tested and found to contain a small quantity of albumen. At the end of *August* he was no better. Iodide of potassium had been given.

CASE X.—*Central Choroidal Disease in small white spots—Slight failure of Sight one or two weeks—No Albuminuria—Patient perhaps remotely Syphilitic.*

Ellen H., 38, a widow for the last 12 months, found her sight failing slightly for a week or two before admission on *June* 28, 1875. Her sight was found, on trial, to be nearly perfect, and her complaint of slight dimness was at first referred to hypermetropia. The defect was, however, not remedied by any glasses; and, on ophthalmoscopic examination, it was found that in each

eye a large area in the central part of the fundus was occupied by numerous, small, round, yellowish-white spots. They occupied each yellow-spot region, and extended also in the form of an ill-defined broad belt inwards around the optic disc; their arrangement thus much resembled that in Case III already described. The spots were not sharply defined at their edges, nor were they of a glistening bright white, but rather yellowish-white; from these characters there seemed no doubt that they were choroidal and not retinal. There was no albumen in the urine (tested a few days later). At the end of *August* she considered her sight to be better, and could read 1 J. She had taken the iodide.

The woman showed no outward evidences of syphilis; and, although she said that her husband had been unsteady and that she believed he had had venereal disease after marriage, she was not aware that she had ever had any local or general symptoms of the disease. The history of her children rather tends to confirm her belief that her husband had the disease after marriage (? between the 1st and 2nd pregnancies).

Her 1st child died at æt. 18 months, later than the usually fatal period in infantile syphilis.

The 2nd died at two months of "teething."

The 3rd still-born.

The 4th died at 10 months of "teething."

There was, however, no history of syphilitic symptoms in any of them, nor did it appear that she herself had ever suffered.

The last of the series differs in some important features from the others, more especially as regards the age of the patient and the probability of syphilis. It resembles them, however, in respect to the ophthalmoscopic appearances, and thus I have thought it well to print it in juxta-position.

It is only right that I should state, in concluding my report, that I was indebted to my friend and colleague, Mr. Waren Tay, for much more than the mere notes of the first cases. The patients were under my care, but it was he who made the ophthalmoscopic examination, and drew my attention to the peculiarities presented. I have failed to find in our standard works and atlases any description of similar cases. The disease is not improbably a well characterised and important form of senile amaurosis.