ON A LITTLE-KNOWN TYPE OF AMBLYOPIA
IN CHILDREN.*

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A CHILD is sometimes brought for advice on account of poor sight, often discovered for the first time during early school life. In the hurry of an out-patient department it may happen that the underlying condition is assumed to be one of ordinary ametropia. The relative visual acuity is probably recorded, and atropin is certainly prescribed for home use. Later, a careful estimation is made of the child's refraction. It is then found that the absolute visual acuity, despite correcting glasses, can perhaps be brought no higher than one-third or one-half normal, while the optic discs are greyer than they should be. The ophthalmoscopic condition, in short, is one familiar to every physician as "post-papillitic" or "post-neuritic" atrophy. The atrophic changes, nevertheless, are not complete, and may, indeed, be so slight as to escape recognition in the absence of careful ophthalmoscopic examination. In the cases which it is the more particular object of this communication to describe the appearances are best characterized as those of "incomplete post-papillitic atrophy of the optic disc." They are, so far as I have seen, invariably bilateral, although possibly sometimes more pronounced in one eye than in the other.

Inquiry into the patient's personal history often elicits the fact that when an infant there had been a "cerebral" or "meningitic" illness, marked by such symptoms as "fits," convulsions, headache, vomiting, constipation, retraction of the head, temporary paralysis, squint, unconsciousness, and so forth. On recovery from the attack, sight was found to be partially or totally lost, but has since been more or less regained.

The conclusion is almost inevitable that an infantile meningitis or encephalitis was accompanied by optic papillitis, and that both the general and local condition had to some extent been recovered from. The incomplete optic atrophy seen later by the ophthalmic surgeon, then, is on this view to be regarded as a sequel to a meningitic papillitis.

The type of case indicated rather than described above must be carefully distinguished from two other kinds of temporary blindness which may occasionally arise under somewhat similar conditions. The first, which I have described in the *Reports of the Society for the Study of Disease in Children* for 1902 as "fleeting amaurosis," and the second, "post-eclamptic amaurosis," described by Dr. Henry Ashby and myself in the *Reports* for the following year. The former is met with in infants suffering from basal meningitis, and sight under such circumstances appears to be wholly lost without ophthalmoscopic signs. In the further course of such cases the children sometimes slowly recover both vision and health. It was to this particular class of case that Dr. William Gay¹ proposed to apply the designation "acute cerebral amaurosis of infancy." The second class presents some points of resemblance to that just described, but the essential cause of the amblyopia appears to lie in convulsions, lasting for some hours, days, or even weeks. When the child regains consciousness, he is found to be blind without ophthalmoscopic signs, and as accompaniments may be noted aphasia and hemiplegia of a temporary or of a more lasting type. It will be objected that convulsions are merely accidental complications of many pathological states, and this is doubtless true, but the point upon which Dr. Ashby and I insisted was that the convulsions themselves were the actual cause of the blindness. We suggested in our joint communication that the nerve storm might involve the visual cortical centres, as well as the Rolandic motor centres or the speech centre, and the period of discharge be followed by a period of exhaustion. We published five such cases of what we ventured to call "post-eclamptic amaurosis," in which the patients made a more or less complete recovery.

From what has been said it will be obvious that the distinction between the several forms of blindness mentioned in the course of this paper can be established only

by ophthalmoscopic examination. In acute cerebral amaurosis and in post-eclamptic cases the optic discs show no changes, whereas in the other class they exhibit incomplete atrophy. The distinction, then, can be difficult only when a child is so young as to resist anything like a full ophthalmoscopic examination of the eyes.

CASE I.—*Imperfect Sight, due to an Attack of Meningitis or Encephalitis, entailing Optic Atrophy (Incomplete).*

Helena C., 11 years, brought to the Ophthalmic Department of the Evelina Hospital, London, on November 26th, 1907, on account of poor sight. No personal or family history of syphilis. No family history of defective sight. R.V. = $\frac{1}{2}$ and No. 1 Jaeger. L.V. = $\frac{1}{2}$ and No. 1 Jaeger. Pupils 4.5 mm., responsive to light (direct and indirect action) and to convergence. Fields for white showed insignificant concentric contraction. A week later, the eyes then being under the influence of atropine, with the total hypermetropia corrected (plus 0.5 D.), the vision of each eye could be brought to $\frac{1}{2}$ vi letters. There was post-papillitic atrophy of each optic disc, somewhat more marked on the right than on the left side. A history was obtained to the effect that at 7 years of age the child suffered for some seven or eight weeks from very severe headaches, as well as from bouts of vomiting, and that she was ill in herself.

CASE II.—*Amblyopia, Nystagmus, and Feeble-mindedness in a Lad; History of Meningitis.*

George B., 10 years, admitted to the Queen's Hospital for Children, London, E., on April 9th, 1908. Although he might be described as "feeble-minded," yet he was clean in his personal habits and not viciously inclined towards other children. R.V. = $\frac{1}{2}$ and No. 12 Jaeger. L.V. = less than $\frac{1}{2}$ and No. 12 Jaeger. Pupils equal and active to light. Slight lateral and rotatory nystagmus. Refraction (estimated under atropine):

R.V. $\frac{1}{2}$ + 0.5 90° $\frac{1}{2}$; L.V. $\frac{1}{2}$ + 1.0 60° $\frac{1}{2}$. Optic discs in a state of incomplete post-neuritic atrophy. Their colour was dirty greyish-white, their edges a little ragged, and the lamina cribrosa was not visible. Knee-jerks plus. No ankle clonus. ? Babinsky. No ataxy. No stigmata of hereditary syphilis. The history was as follows: At two years of age one night the child developed what was described as a "screaming fit," and on the next day there was a definite "fit," which lasted twenty minutes. Since that time the lad has been subject to "shivering fits" and to "facial distortions" every few months.

CASE III.—*Amblyopia, Nystagmus, Squint, and Feeble-mindedness; Meningitis three years previously.*

Albert H., aged 7 years, was first seen at the Ophthalmic School at Hanwell on February 21st, 1893. He was bad-tempered and feeble-minded, and his speech was difficult to understand. Nystagmus was present. The sight was defective, but the lad was certainly able to count fingers at a distance of 20 ft. Both optic discs were incompletely atrophic. Upon inquiry, it was ascertained that about three years before the lad came under my notice, at a time when he was about 4 years of age, he complained of headache, lost the power of walking, and developed a marked tendency to vomit. His head was held stiff, his left eye squinted inwards, and there was a discharge from his right ear. The lad remained under my observation until he was 12 years of age. On July 18th, 1898, the sight in his right eye was equal to about one-half normal and that in his left eye to about one-fifth of the normal. The left eye tended to diverge. Fixation was imperfect. Colour blindness was present. The state of the optic discs was as noted previously. What I took to be a large haemorrhage undergoing metamorphosis was present in the central region of the left fundus oculi.

CASE IV.—*Incomplete Optic Atrophy and Convergent Squint three months after an illness diagnosed as Meningitis.*

Arthur J. M., aged 18 months, was sent to me on January 18th, 1894, by Dr. C. E. Adams, of West Norwood. The history was that three months before coming under my notice the baby became ill, was drowsy, and did not care for his food. The condition gradually became worse. The child suffered from pain in his head, was convulsed five or six times a day, his neck was stiff, and his head retracted. There was, however, no vomiting. The right eye squinted inwards. The sight, which was good before the attack, seemed to fail in the third week of the illness. The latter, diagnosed by Dr. Adams as meningitis, lasted about two months and a half. The patient was the sixth child, and was born at term after a natural labour lasting twelve hours. When I examined Arthur J. M., he was found to be fairly well nourished, with all his teeth except two. The anterior fontanelle was not widely open. The right eye had a large convergent squint, seemingly due to paresis of the external rectus muscle. The pupils dilated rapidly to homatropin. The optic discs were sharply defined and somewhat white. The child retained just sight enough to move about without running into the furniture of my consulting room.

CASE V.—*Nystagmus, Squint, and Incomplete Post-papillitic Atrophy of the Optic Discs five months after an Attack believed to be Meningitis.*

Majory B., 21 months, first seen on May 6th, 1908. She had been healthy until towards the end of the first week in December, 1907, when she was convulsed for twenty-four hours and became "stiff." Power was then lost, first on the right and then on the left side of her body. No vomiting. The head was markedly retracted. The baby was "quite paralysed" for two weeks. Her temperature was 105° F. for several days on end.

* Read at the provincial meeting of the Society for the Study of Disease in Children held at Birmingham on June 20th, 1908.

Enemata were necessary on account of obstinate constipation. Inflammation of both lungs and bronchitis then supervened and lasted for seven days. During recovery from pneumonia the child is stated to have gone completely blind, but this symptom probably preceded the onset of the lung mischief. After the illness had lasted for some weeks the baby began to recover her sight, the first object she saw being a tan shoe lying at the foot of her bed. Further improvement took place during the voyage from the Cape to England, which began on April 6th, and has continued since arrival in this country towards the end of April. The baby's eyes were first noticed to squint and to roll about when sight began to be regained.

On Examination.—Pupils 3 mm., with but slight response to light. Slight rotatory nystagmus. Optic discs pallid. Notices objects fairly well. Child walks fairly and talks well. Power over legs (lost during illness) almost regained.

The cases show that an attack of meningitis (or encephalitis) may entail, as permanent evidence of its former existence, (1) incomplete optic atrophy, (2) nystagmus, and (3) paresis of one or more of the extrinsic muscles of the eyeball. These symptoms, it will also be seen, may occur as isolated or grouped phenomena. In the last case to be quoted paresis of the extrinsic muscles was the only evidence of a former meningitis.

CASE VI.—*History of Meningitis at Six Months, followed by Paresis of Abduction in both Eyes.*

Donald W., aged 6 years, brought on June 2nd, 1906, on account of defective sight. Vision was almost normal on correction by suitable glasses of the compound hypermetropic astigmatism that was present. The fundi showed no departures from the normal. The movements of the external recti muscles were obviously defective, so that the outward excursions of the eyes were neither full nor well maintained. On seeking for a cause for this anomaly (which clearly might represent a congenital defect), it was ascertained that, when about 6 months old, the child had been ill for three weeks, suffering from vomiting, incessant moaning, rocking movements of the head, and a high temperature (over 105° F. on several occasions). His father, a medical man, thought the attack was one of meningitis, a view concurred in by another experienced practitioner who was called in. But when recovery took place the symptoms were put down to influenza.

In conclusion, I desire to state plainly that the present communication lays no claim whatever to originality. The existence of cases such as those I have described has been known for many years to some observers, although, so far as I am aware, they have not yet found their way into textbooks either of general medicine or of ophthalmology. For example, Mr. Edward Nettleship published¹ in 1883² a communication "On Cases of Recovery from Amaurosis in Young Children." Of the 19 cases of which notes were given in that important communication, Nos. 6 and 9 appear to belong to the group I have ventured to describe on this occasion. In a later contribution³ the same distinguished observer requoted two of the cases alluded to in his former paper.

REFERENCES.

- ¹ *Royal London Ophthalmic Hospital Reports*, vol. xiii, 1893, p. 404.
² *Transactions of the Ophthalmological Society of the United Kingdom*, vol. iv, 1884, p. 243. ³ *Royal London Ophthalmic Hospital Reports*, vol. xi, Part VI, July, 1887.

MEDICAL INSPECTION OF SCHOOLS.

SOME NOTES ON ORGANIZATION.

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As so many medical men are now about commencing the medical inspection of schools, it may be interesting to give a few notes as to the methods to adopt on starting. There will be a large amount of clerical work, and it is therefore highly important that medical men should make use of all modern business methods which will simplify the work and save time and labour.

The Board of Education has suggested the adoption of a card index system, and my experience of working a card system leaves no room for doubt that it is the most suitable. At each school a box or drawer will be required to hold the cards. These are generally made of oak of the "single drawer" kind. If, however, a more economical alternative be desired boxes of white wood covered with cloth can be used. Boxes of japanned tin or steel, similar to deed boxes, have also been placed on the market. These have covers on the folding-door principle, and are about half the cost of oak cabinets. Still cheaper are small cardboard boxes, which would do for small rural schools. These

cabinets are generally made in full size to hold about 1,000 cards and about half size for about 500 cards. The latter size will be most suitable in an ordinary elementary school. My experience is that all rods or duplex rods are quite unnecessary, as the cards keep in their places perfectly without them. In each cabinet guide cards which have a projecting tab, lettered alphabetically, are placed, and it would be an advantage if other cards with tabs numbered for each standard or class were used.

Cards.

Probably the most useful size is the 5 in. by 8 in. The large card (10 in. by 6 in.), issued as a specimen by the Board of Education, is too large, and very greatly increases the expenses of cards and cabinets. In choosing a card it ought to be remembered that thin, specially-made linen-stock cards are best. These are very tough, and are far preferable to the thick cards sent out as specimens by some firms. The choosing of cards is a very important matter, as they have to be in use during the whole period of the school life of the child. Besides this, a thick card takes up so much more space, and larger cabinets will be required. Any of the large card index firms will show the kind of linen-stock card best adapted for this work, and the extra cost of having a good card is well worth it. It is well to have two colours, or white and some colour, to distinguish boys from girls.

The Board of Education has issued a schedule of medical inspection, which they state is the minimum required from the school medical officers. It would be wise, especially in the first year, to follow closely all the details on this schedule, especially as it is highly important that there should be uniformity of medical inspection throughout the country. But in the form of the card considerable changes could be introduced with advantage.

I have drawn up a card which is reproduced here (p. 143) on a reduced scale. The card itself is 5 in. by 8 in., and may have the right hand top corner cut off. This is a little wrinkle adopted by the medical officer (education) of the London County Council, Dr. Kerr, and allows the cards to be arranged in proper order, as a card upside down or misplaced could readily be seen. This card varies very considerably from the specimen sent out by the Board of Education, but it is based on long experience of working a card index system.

The name (with surname first) should be placed at the top of the card, and on the right of the same line the exact date of birth. In looking over the cards the name of any particular child can then be seen at a glance, and similarly those of children born in any particular year.

As children move about from one school to another, besides being transferred from the infant school to the school for older scholars, it is necessary to have several spaces to record transfers, and a record of the date of leaving would also be useful.

It is highly important that the medical officer should have a record of attendance, if possible, during the whole school life of the child. With the improving average attendance of the last few years it may be taken as a broad general rule that bad attendance is oftenest caused by ill-health or by bad home conditions. A complete record of the attendance will therefore be of great assistance. Possibly also such a record where the child has been in several schools may save the teachers from hunting up old registers.

As there are spaces for twelve years, enough in most cases to cover the school life of the child, it is better to place the height and weight record immediately below the attendance rather than on the other side of the schedule, which only allows for four records to be taken. If height and weight are to be of any use in showing the growth of the child they ought to be recorded at least every year, and where possible this ought to be done. In any case if only done at the four inspections it can be recorded under the appropriate year. These additional data would not entail very much extra work, but would be of great value in the records.

With regard to the personal health columns, it is necessary to record illnesses after admission as well as previous to admission, and medical officers will probably have their own ideas as to which diseases to include. Those additional ones which I have included in the specimen card, all have direct bearing upon the child's fitness for school work.