ON ESERINE AND PILOCARPINE IN GLAUCOMA, AND ESERINE IN OCULAR NEURALGIA.

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a. Eserine in Glaucoma.—The importance of estimating aright the value,^{*} or otherwise, of any remedy in this terrible malady is so great, that no apology is needed for the following practical remarks and relation of cases. I have for several years made use of eserine in the treatment of glaucoma; and much has been written on the subject by ophthalmologists in all parts.

As to the value, in certain cases of acute glaucoma, of eserine, there can be little doubt.* Several such have been recorded. It is, however, difficult to judge beforehand as to the precise case that will benefit by this drug. I apprehend, therefore, that, in this acute affection, its employment will be limited to those cases where, either from unwillingness on the part of the patient to submit to iridectomy, or other reason, the immediate performance of the operation is forbidden. Experience teaches the importance of not placing too strong reliance in the efficiency of the drug to the fatal postponement of the operation; and it seems to me particularly important to urge this, as those, not seeing much of eye-diseases, may be tempted, observing the very satisfactory results occasionally recorded, to resort to the use of eserine when operative measures should have been considered.

The following cases illustrate the good resulting from the employment of eserine.

CASE I.—W. R., aged 49, applied at the Sheffield General Infirmary on January 24th. It appeared that on the evening of the day but one previously (thirty-six hours), he had suddenly experienced severe pain in the left eye, extending into the forehead and temple, with very marked diminution of sight. When seen, he was still suffering acute pain. The cornea was "facetted"-looking, and the refractive media turbid. Tension = $+T_2$. He could see little more than shadows. His condition was unmistakably that of acute glaucoma. For, about three weeks previously, he had noticed "colours" round a flame, and thought his sight was not so good as formerly. He was taken into the operating theatre, with the object of performing iridectomy; but, I believe in consequence of his declining to remain as an in-patient, it was not done; and he was allowed to go home, with a one per cent. solution of eserine to be dropped into the eye four times daily. Three days later, he appeared with a cheerful face, stating that the intense pain subsided the same night that he commenced the instillation of the drops, and that vision had returned. He could now read Jäger 1; Tension, T_7 . February 3rd. Vision was = $\frac{20}{x1}$, the eye still being under the influence of eserine. February 10th. He was allowed to discontinue the drops. February 17th. His condition was quite satisfactory.

It should be added that, three or four months before the onset of this glaucomatous attack, he had been struck over the eyeball with a large piece of metal; the case may possibly, therefore, be considered "traumatic".

The result in the foregoing case is similar to what has happened before in my own experience, and in that of others; and some, at all events, would seem to have received permanent benefit.

In chronic glaucoma, the effect of eserine is more uncertain and less beneficial than in the class of case to which I have here just referred, and one will be very often disappointed in its use. On the other hand, the cases which I record further on show that it not uncommonly is of value, in some in material visual improvement, and in others in apparent arrest of the progressive character of the disease. I have noticed, also, an enlargement of the field of vision in a case otherwise benefited by its use. Here, also, there seems to me no very definite guide as to the cases it is likely to benefit, beyond that it appears essential that its myotic effect be well produced; but it does not, on the other hand, improve anything like the number of cases in which this indication is fulfilled.

CASE II.—E. H., aged 53, was admitted an out-patient, at the Sheffield General Infirmary, August 15th, 1879. The right eye commenced to fail in the previous January. There was no pain. His sight was much worse lately. Iridescence had existed three or four weeks. When seen, he read Jäger 10. Tension = $+T_2$. There was cupping of the discs.

In the left eye, there were merely perception of light and marked cupping of the disc. Eserine drops were ordered. On August 26th, he read Jäger 2; tension was reduced. On September 16th, he read a good deal of Jäger No. 1. On October 14th, the drops were omitted. On the 28th, eserine was again ordered; he read Jäger 4. On November 5th, he read Jäger 2; tension was noted as normal; the drops were omitted. On the 25th, he read Jäger 2, easily. Several months later, his condition was equally good.

CASE III.—Mary E. S., aged 39, widow, was admitted as an out-patient at the Infirmary on September 26th, 1879. Inflammatory attacks commenced in the right eye, which was now blind, two years ago. The left eye began in a similar manner, somewhat later. At the time of her coming to the Infirmary, the tension of the left eye was increased ($+T_1?$); sight was impaired, though the exact visual acuity was not recorded. She had complained of pain at times, and had observed "coloured rings". The right eye possessed merely perception of light, and was occasionally painful. No operation on either eye was performed. On November 14th, eserine was prescribed. The vision in the left eye had become more affected (Jäger 16). The drops were prescribed at first for both eyes; but, in consequence of the pain in the head which they produced, their use was restricted afterwards to the left, then to the right, and lastly to the left again. The improvement of vision in the left eye is thus shown. On November 18th, she read Jäger 18; on November 21st, Jäger 4; on December 6th, Jäger No. 1; on March 26th, 1880, Jäger 2. Tension was normal. At this date, the eserine was entirely discontinued. On April 9th and July 9th, her condition was the same. On August 16th, she read Jäger 2 easily, or a newspaper. Twelve months later, she again came under my care for recurrence of pain, etc., in the right eye, which eserine had previously relieved. The condition of the left eye remained quite satisfactory.

The cases just related are evidence of the value of eserine in chronic glaucoma. They are recorded, not only because the results are excellent, but because the length of interval subsequently was enough to testify to the lasting effect. In both cases, moreover, I have reason to believe that, had any relapse occurred, the patients would have presented themselves at my clinique. I can recall several other cases, in which benefit has also accrued. I am aware that other observers have questioned the utility of this drug at all in chronic glaucoma; and, whilst my experience would lead me to differ from such an opinion, it compels me to admit that, in very many cases, its use is unattended with any benefit whatever. Here, however, operative procedures—sclerotomy or iridectomy—do not produce such happy and brilliant results, as the latter operation so frequently does in acute glaucoma; and a little delay for a trial of this drug is not fraught with such terrible risks as in cases belonging to the acute class.

The following is an example, though not with such good visual results as the preceding ones, of the efficacy of the drug in permanently arresting the glaucomatous process.

CASE IV.—John W., aged 58, came under my observation on July 6th, 1877. Vision in both eyes was seriously impaired. The right had gradually become so for a considerable time; while the left had been somewhat affected for twelve months, and was now becoming much worse. There had been no inflammatory attacks. With the right eye he saw fingers indistinctly; with the left he read Jäger 14. The tension of the right was $+T_2$; of the left $+T_2$. Both discs were cupped. On July 9th, the right eye was iridectomised. On July 31st, he read Jäger 20 with the right eye. On August 17th, the left read Jäger 16. Eserine drops were prescribed; the right eye read Jäger 18. On the 21st, the left eye read Jäger 10; tension was less. On the 24th, he made out some of Jäger 8. He said he had not noticed "coloured rings" so distinctly since he used the drops. November 20th. He still read Jäger 8. The eserine had been continued, except for an interval of a fortnight, until now; it was discontinued to-day on account of the conjunctival trouble it had occasioned. On March 5th, 1878, he had not used eserine since the last entry; vision was the same. On February 12th, 1882, I found the patient suffering from phthisis, and too ill to be examined; but he assured me that he did not think his eyes had become worse than when I saw him last, nearly four years ago.

b. Pilocarpine in Glaucoma.—In September 1880, I was desired, one Sunday afternoon, to visit a lady aged about 70. I found her suffering from all the symptoms of acute glaucoma, which had apparently commenced the day before. Vision was reduced to little more than shadows. Tension = $+T_2$. There was violent pain. Iridectomy was declined. No eserine was easily procurable, and I therefore ordered the use of pilocarpine in the form of "discs" (Savory and Moore). In the evening, after the employment of the drug twice, she expressed herself as much relieved. A few days later, the attack had passed off, and vision was completely restored. This good result continued until the middle of January this year (1882), when she again came to me with another acute attack.

* An acute case of glaucoma quite recently under treatment, where the exciting cause was atropine used for purposes of refraction, markedly exemplified the value of eserine in reducing the glaucomatous symptoms.

She now consented to operation, and was iridectomised with a satisfactory issue.

I will merely add that, in other cases, I have noticed that pilocarpine has been borne with comfort, where pain, after the use of eserine, has been complained of.

c. Eserine in Ocular Neuralgia.—The cases to which I refer, as those of ocular neuralgia, are characterised by severe pain in the eyeball and periocular region, and extending, it may be, over the brow in the course of the fifth nerve. There is always some hyperæmia of the ocular surface, and there may or may not be photophobia. In neither of the cases I relate presently did I satisfy myself of any increased ocular tension. The pain, in its darting, shooting, and periodical character, resembles neuralgia.

I am not yet able to satisfy myself as to the *modus operandi* of eserine in these cases; but its value in the two instances to be here recorded was unmistakable.

1. Some time since, a schoolmaster, aged about 35, consulted me under the following circumstances. He was suffering severe ocular and periocular pain, of a shooting and stabbing character—worse at some times than at others—and which for some days had rendered sleep well nigh impossible. There was some increased vascularity of the ocular surface. Vision was not affected, but effort with the eye was barely possible, and it brought on exacerbations of pain. He greatly feared that this was, as it were, the commencement of an attack similar to one he had suffered from some years previously; and which, notwithstanding a variety of treatment, had lasted for several weeks. Quinine, and then strychnine, were now prescribed without benefit. The sleepless nights and darting pains continued. He was next directed to place a gelatine disc of eserine, inside the lid, two or three times daily. The next day, he came to tell me of the almost immediate relief he had experienced. A disc had been inserted in the afternoon, and another in the evening, and he had enjoyed a comfortable night. He was desired to continue the use of the eserine; and, though in a day or two he was perfectly well, he determined to have the discs near at hand should a return of the malady ensue.

2. The next case, coming under my care shortly after the one just related, was that of a servant girl, aged about 21, sent to me by her mistress. In addition to the pain of the character and situation described in the foregoing case, there was more ocular congestion; the lids were tightly closed, and the photophobia had caused her to protect the eye with a bandage. Here the use of the eserine discs was directly prescribed, the result being equally successful—though the effect was not so immediate as in the previously recorded case.

VARIOLOUS AFFECTIONS OF THE EYE: THEIR PATHOLOGY AND TREATMENT.

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It is very singular that our writers on ophthalmic medicine and surgery—men of great ability, experience, and observation—should give so scant and imperfect a description in their works, otherwise comprehensive and elaborate, of the affections of the eye in small-pox. This, doubtless, arises from the fact that chances of observation in this particular disease seldom occur to them; while it is still more singular that extensive experience gained in our metropolitan and provincial small-pox hospitals, as well as by those experienced in epidemiology in different quarters of the globe, should contribute little or nothing to its literature, to elucidate its pathology and treatment.

It was in the year 1837 that Mr. J. F. Marson, of Highgate Small-pox Hospital, related his experience of these affections, in his 1,500 cases of small-pox, before the Westminster Medical Society. Although it is a valuable contribution, as far as the clinical observations are concerned, it falls far short of the requirements of the present generation of medical men, as, during the lapse of the last forty years that have expired, the anatomy and physiology of the eye have made such rapid strides as to bring our knowledge of them to a point of exactness. The only other descriptions of these affections in the English literature, so far as I can know, are those given in the works of Dr. W. Mackenzie (1854) and Mr. J. Soelberg Wells (1873). Although they are excellent in many respects, they are wanting in preciseness of their clinique and pathology, I presume from their want of observations; while Mr. C. Macnamara, in his work on the *Diseases of the Eye* (1872), makes no mention whatsoever of variolous corneitis—an affection that is the principal cause of loss of sight in this exanthematous disorder, especially among the unvaccinated and uncivilised communities of the globe. He

alludes to the subject of the ulceration of the cornea, I believe wrongly, meaning the former sequela of the disease. I have contributed this paper, fully anticipating that it may draw the attention of those who are far able to treat the subject, and who have had much more extensive experience, to throw better light on it.

In variola, the complications of the eye are principally confined to the eyelids, conjunctiva, and cornea. Other structures are apt to suffer by the extension of the inflammation, but it is of unfrequent occurrence in the hands of a practised physician. That suppuration and disorganisation of the eyeball does now and then occur from incipient and rapid inflammation, I do not doubt; but when one sees more of this practice, the more he is convinced that the loss of sight, due to permanent opacities of the cornea, partial and total staphyloma, or otherwise, arises from want of care and proper treatment on the part of physicians in hospital practice, owing to the severe pressure of work in an epidemic, and negligence on the part of the patients both at hospitals and at home.

Eyelids.—Pustules on the cutaneous aspect of the eyelids are not so frequent as on the other parts of the face, especially the cheeks, nose, and its surrounding parts. They are very frequently seen at the edges of the eyelids, between the eyelashes, causing a good deal of irritation and pain, destroying the hair-bulbs, and thus producing the permanent loss of eyelashes, called madarosis. If they are within the margin of the palpebral conjunctiva, they may obliterate the openings of the Meibomian glands, and cause a stoppage and alteration in their secretions. They may cause entropion. The formation of pustules on the cutaneous surface of the eyelids is accompanied with much swelling, which is soft and cedematous. But it is seen usually with that of the face in severe cases of small-pox, frequently confluent, and without any pustules on them, at the commencement of the eruptive stage. It generally lasts till the eruption has advanced to the pustular stage, and then subsides with that of the face. It causes the closure of the eyelids during this period. Again, the vitiated secretions in the Meibomian glands and discharges from the pustules on the edges of the eyelids glue them together, so that the eyes cannot be opened for days, especially when accompanied with swelling. But at last, when the disease subsides, the eyes are opened again, uninjured. It is in this way that we hear talk of persons being blind in small-pox for so many days, and recovering their sight. In severe cases, the edges of the eyelids are rendered irregular, and liable to inflammation and excoriation from slight causes, which produce ophthalmia tarsi (Mackenzie).

Treatment.—The eyes should be bathed with warm water two or three times a day. When there is a good deal of swelling, warm fomentations do well. It must be our constant endeavour to prevent the eyelids from sticking together, in order to ascertain the injury to the inner parts. This can be effected without any difficulty, by dropping a drop or two of pure castor-oil in each eye after bathing. Unguentum cetacei or cold cream might also be used with advantage. As soon as the vesicles are maturing, they should be opened up from side to side with a fine flat needle to prevent further suppuration and destruction of the surrounding structures. I have seen nitrate of silver stick applied on the outer surface of the eyelids to cause subsidence of the swelling, with no benefit. Besides, the operation is attended with irritation, pain, and disfigurement. In the entropion, the eyelashes ought to be removed to prevent irritation of the eyeball.

Conjunctivitis Variolosa.—Inflammation of the conjunctiva in small-pox stands next in point of frequency to that of the mucous membrane of the mouth, pharynx, and respiratory tract. It occurs in about 8 per cent. of the total cases, both mild and severe, vaccinated and unvaccinated, and at all ages. Variola is not unfrequently an exciting cause of conjunctivitis in children of scrofulous diathesis, and in them it is most obstinate and difficult to cure, sometimes lasting from four to ten and twelve weeks. In them it runs on to granular lids; and the detection of the first traces of the inflammation of the cornea require a careful watch. It not uncommonly occurs during the first five or six days of the eruption. It is stated by some that vitiated secretion of the Meibomian glands, pent up during the closure of the eyelids, when they are swollen, is its exciting cause. But I am not prepared to verify this statement, as I have seen conjunctivitis in cases without swollen eyelids. In many cases it is local, and situated between the lesser canthus and the cornea, in the shape of phlyctenular conjunctivitis; and I have often thought that these phlyctenulæ near the circumcorneal zone, might be the variolous eruptions. By analogy of observation, we know that the eruptions on the mucous membranes of the mouth and pharynx are first to mature and heal; as these formations last but two or three days, leaving the conjunctival inflammation behind, I am led to believe that there might be some modification of the characteristic eruption. I have seen about five or six cases of the variole on the ocular conjunctiva, and one on the sclero-corneal junc-