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paralysis of the motor oculi**

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these various paræsthesiæ; excitement, worry, debility, fatigue and exposure to hot or confined air.

The relief of nervous phenomena due to ocular defects by the use of accurately adjusted correcting glasses is almost too well known to refer to.

I must, however, make one exception to this statement, and that is in respect to the treatment of insufficiency of the recti muscles. My opinion is that correcting prisms, when properly used, are much more often curative than is generally thought.

In the first place adjuvant medicinal treatment is very often utterly neglected. Experience teaches me that sufferers from insufficiency of the ocular muscles are seldom if ever well. An anæmic condition is often present; a neurasthenic, debilitated state from overwork, worry, excesses, confinement, etc., is very common; dyspeptic ailments are often seen, while the various paræsthesiæ, from which the patient suffers, induces a frame of mind, certainly despondent and hypochondriacal and often bordering on the melancholic.

For the anæmic condition I prescribe iron with bitter tonics, nux vomica, quinine or quassia and perhaps a laxative as belladonna, rhubarb or aloes in small doses.

In the neurasthenic and debilitated state an anæmia is often present and must be treated. Other tonics than iron seem at times indicated, and phosphorus, cod-liver oil, and occasionally alteratives such as arsenic, mercury or iodide of potassium seem beneficial. Laxatives are often needed and mild vegetable ones should be employed.

Plenty of digestible, nourishing food is needed in all these conditions, but in none more than in this state of neurasthenia, which so often means only malnutrition. Supplemental meals should be insisted upon if needed and, unless contraindicated, some alcohol in the form of milk punch or egg nog should be added to the dietary. At bedtime particularly, is this indicated, to help relieve the partial insomnia from which these patients often suffer. This insomnia is sometimes quite marked and annoying and demands special treatment. Chloral and the bromides should generally be avoided, the former because of its irritant action on the eyes, and the latter of their debilitating effects.

Our chief reliance should be upon simple measures, such as food or alcohol, or both at bedtime, and these failing, mild narcotics, such as assafoetida, camphor, valerian or cannabis, should be tried, opium being reserved for rebellious cases.

Dyspepsia occurs alone or with the foregoing condition; the most common form seen in these cases being the acid and flatulent variety. The most prompt relief is obtained from a diet rather free from starch and sugar, and the use of dilute nitro-hydrochloric before or an alkali after eating or both. A condition of intestinal dyspepsia often calls for carminatives and laxatives which, as a general thing, should be gentle and vegetable. Rhubarb, aloes or podophyllum in small doses, assisted by belladonna should suffice.

The melancholic tendency of these patients is very often relieved by treating the anæmic, neurotic or dyspeptic condition so often present at the same time. When general treatment fails, correction of the existing ocular defect often completes the cure. Occasionally, the depression is so marked as to call for a mild cannabis and opium course.

A rheumatic element sometimes crops out, often in

conjunction with the neurasthenic state, and it should be met by the oil of wintergreen, the salicylates, alkalis or counter-irritation.

Instability of the circulatory apparatus, so often seen in these cases, should be met by general tonic treatment and digitalis.

The patients, therefore, presenting themselves with an insufficiency of the recti muscles, are carefully examined and then put upon appropriate medicinal treatment as outlined above, each case being studied by itself. Sometimes a few days of this treatment will appreciably lessen this weakness of the recti muscles, particularly if rest be super-added.

When, after two or more examinations glasses are ordered, the refractive errors, if there are any, are properly corrected, while prisms, representing about three-quarters of the insufficiency in the case of the interni or externi, and equal to the entire insufficiency in the case of the superior or inferior recti, are added.

The amount of the insufficiency varying with the general health and strength, examinations of the recti should be made from time to time, when if the patient's general condition fails, the insufficiency will increase, and perhaps demand stronger prisms. While, if health and strength be regained, the insufficiency will rapidly lessen and disappear in favorable cases, rendering a discontinuance of the prisms possible.

This latter has been the result in at least three-quarters of my cases.

With respect to medicinal treatment, almost the same remarks will apply to those cases where errors of refraction only exist. All will attest that these errors of refraction often produce no symptoms until the nervous resistance or general health break down. Then all of a sudden a hypermetropia or astigmatism which has for years lain dormant, will suddenly give rise to most distressing symptoms.

As a counterpart to this, we see cases in which correcting glasses, worn for months, are finally discarded as unnecessary, the nervous strength and general health having been sufficiently restored to allow the patient to ignore strain produced by an ocular defect.

Medicinal treatment is of extreme importance in this class of cases also, and is, I think, too commonly ignored. The general line of treatment is the same as in cases of insufficiency, less reliance being placed upon special tonics such as strychnia and more upon a general tonic course.

A CASE OF RECURRENT PARALYSIS OF THE MOTOR OCULI.¹

BY O. F. WADSWORTH, M.D.

THE case which I wish to report appears to belong to a class characterized by a very distinctly defined group of symptoms. At intervals varying in length both in the individual cases and the same case, there occurs paralysis of all the branches of one oculo-motor nerve. The duration of the paralysis also varies. Always, it is the same nerve that is affected, the other nerves remaining free. In most cases, possibly in all, the attacks are preceded, or, at least, accompanied by headache, confined to the corresponding side of the head, and chiefly localized in the frontal region.

Pauline and Frances, twins, were born of healthy

¹ Read before the American Ophthalmological Society.

parents, both of whom are still living and well. There were five other children in the family, two older, three younger than the twins. With the exception of a girl, the second after the twins, who died at eleven months of "congestion of the brain," all were healthy. In June, 1874, when the twins were nearly three years old, both had scarlet fever, and both had a discharge from the ear. Both seemed to recover well and to be healthy for some time afterward, although in both a slight discharge from one ear continued, and Pauline had occasional headaches.

Although Frances is not the one whose case I present, it may be of interest to follow briefly her history, as it seems to have a bearing on the etiology of the other case. In September, 1877, when six years old, three years after the attack of scarlet fever, she began to complain of headache. The headache returned more frequently and was of longer duration till the following December, when she had a convulsion. Three weeks later convulsions recurred, and the attacks became more frequent until, finally, they occurred almost daily. About the middle of March, 1878, after a convulsion, she complained that she could not see. A week later, March 21st, she was admitted to the nervous department of the City Hospital. On the same day, I found well-marked optic neuritis and many white spots around the macula in both eyes. May 13th, Dr. J. Orne Green found the left membrana tympani much thickened and drawn in. She remained in hospital eleven weeks. The headaches and convulsions ceased, and the discs became atrophic. Sight did not return. I saw her again February 24, 1879, in the out-patient department. She had had an occasional headache since leaving the Hospital, but was otherwise, excepting her blindness, well, well nourished, of good development, rosy-cheeked. She could only distinguish light from darkness. The pupils were large; the optic discs presented the appearance of atrophy following neuritis. Since that time, I learn that she has been well, free from headache, and has had no discharge from the ear. She is now a pupil at the Perkins Institution for the Blind, in South Boston.

Pauline, the subject of the oculo-motor paralysis, after the scarlatina in the summer of 1874, had attacks of headache every month or two; in the early part of 1878, headache for several hours each day during three weeks. The monthly or bi-monthly headaches continued, and, on February 24, 1879, being then seven years old, she was brought to the hospital, with her sister, having suffered from headache daily for two weeks. The headache was referred to the right supra-orbital region; was said to commence every day about noon, to intermit about three, and to recur about five and then continue some four hours. There was vomiting on the first two days. Appetite impaired; dejections and micturition normal; tongue clean; general appearance good; a slight discharge from right ear; swollen glands behind each ascending ramus of jaw. Dr. Green examined the ears, but my notes state only that he found inspissated pus in the right. The right eye was quite normal, its refraction nearly emmetropic; the left eye highly myopic, with a regular crescent of one-third to one-half the diameter of the disc.

March 29, 1880, she was seen again. Meanwhile, headache every month or two, usually ushered in with vomiting, and lasting one to three days. When free

from these attacks, she had appeared perfectly well. She was at this time suffering from headache which had lasted a week, the pain referred, as always, to the right supra-orbital region. There was vomiting at the beginning of the attack. She moaned in her sleep. Tongue clean; dejections regular; pulse 100, temperature 98.8°. Five or six days after this attack began, ptosis and divergence of the right eye was noticed.

There was paralysis of the right motor oculi. In other respects, the condition of the eyes as before. Dr. Green again examined the ears, but my notes only describe the condition he found in the left. Its membrana tympani was much drawn inwards and opaque from swelling, and there were several spots of ecchymosis. Its hearing was very fair.

At the end of February, 1887, Pauline came again to the Hospital. She was now fifteen, well grown, and apparently healthy. Her headaches had diminished in frequency; for the last few years, she had had three or four each year, lasting from one day to two weeks, the more severe ones being accompanied by complete ptosis of the right eye and dilatation of the pupil. She had noticed no diplopia at these times, and no special change in the position of the eyeball. She stated that the ptosis and dilated pupil always continued till the headache was over, and then gradually passed off, so that at the end of a week or ten days they had entirely disappeared. The latter statement was probably incorrect, and I shall refer to it again. She had just recovered from a headache of two weeks' duration, accompanied by vomiting. There was a moderate amount of ptosis of the right eye, and nearly complete paralysis of all the other muscles, external and internal, innervated by the right motor oculi. Moderate divergence. The external rectus and superior oblique acted normally. Fundus of both eyes as before. She was seen again twice, at intervals of two or three days.

March 4th, there was a little more movement of the eye inward, upward, and downward; a little more action of the pupil and of the ciliary muscle. R., V. = $\frac{2}{3}$. L., with -14 D., V. = $\frac{2}{3}$. Field normal. She promised to come again but did not.

April 24th, I visited her at her home. There was still a slight droop of the right upper eyelid, decided impairment of movement of eye upward, moderate impairment of movement downward, and inward. The pupil did not react fully, and power of accommodation was imperfect for her age. She was, however, conscious of no defect of motion in the eye, nor aware that the pupil was affected. This was eight weeks after cessation of the headache, and it is probable, therefore, that previous paralyzes had not passed off completely, as she had stated, especially as her father had observed that her eyes usually appeared not quite straight. That she should never have been troubled by diplopia is not surprising in consideration of the great myopia and imperfect vision of the other eye.

I was unable to see the mother, who was away at the time of my visit, but the father was positive that the attacks had diminished in frequency of late years, the last severe one having been in the previous July, an interval of seven months. Another fact of much interest I first learned from him, that with each severe attack, toward the end of the period of headache, there was a free discharge of ill-smelling fluid from the right ear, staining the pillow, and requiring syring-

ing for some days. At my request and representation of the importance of treatment of the ear, she visited Dr. Green on May 6th. He found a large polypus completely filling the right meatus and removed it, but after two or three visits she ceased attendance.

These cases apparently occur but rarely. I have found but fifteen reported,² with one exception already collected by Mauthner, although very possibly some publications during the last year have escaped my search. And of these fifteen, several are very meagerly reported, two in such a way that it seems by no means certain that they properly belong to this category. On the other hand, with one exception, reported by Gubler in 1860, (Mauthner has recently published notes of a case seen in von Graefe's Clinic in 1864), the earliest observation published was in 1882, so that it is probable that the number of reported cases will increase considerably in the immediate future.

The sex is not mentioned in one of the doubtful cases; of the remaining fifteen, including mine, four were males, eleven females.

In the two cases I have regarded as doubtful the side is not given; of the other fourteen, in seven the right, in seven the left motor oculi was affected.

The age at which the paralysis first appeared is not given in three cases, including the two doubtful ones; in one it occurred at eleven months, in one at eighteen months; the latest date, with one exception, is fourteen or fifteen years. The exception is a case briefly referred to by Buzzard,³ a woman of thirty, "subject for years to paroxysms of facial tic, recurring about every fortnight, and concentrated more or less definitely in the ophthalmic division of the fifth nerve." Within the last year or two each attack had been followed by partial paralysis of the oculo-motor, the paralytic condition lasting for a few days. One of the attacks he observed.

The varying length of the intervals between the attacks has already been noticed. In the case just cited it was shortest—two weeks. In von Hasner's case the attacks recurred every month, and although preceding by two years the establishment of the catamenia, after their appearance were coincident with them. In most cases the interval was not a regular one, and lasted from a few months to a year. In Gubler's case there were two intervals of three years, then one of sixteen years before the last attack, which was followed a fortnight after its commencement by death.

The period of headache varied, even in the same patient, in one case from one day to several weeks. And a similar difference appeared in the duration of the paralysis. Although the patients often are said to have stated, as in my case, that the paralysis passed off completely in the intervals, there is, I believe, in no case the definite statement that its entire disappearance was observed by the reporter. On the other hand, in several instances, evident remains of the paralysis were observed to persist between the attacks.

With four exceptions, it is distinctly stated that pain resembling megrim accompanied the attacks. Of the exceptions, Gubler's patient was seen only some days after the paralysis was established; the case is reported very briefly, but it is said that the man had all his life been subject to violent attacks of megrim.

² Since this case was read a case has been reported by Hinde and Moyer in the New York Medical Record, Sept. 24, 1887.
³ Clinical Lectures on Diseases of the Nervous System, p. 164.

Weiss's case is also very briefly reported (the patient was of little intelligence and unfamiliar with the German language); nothing is said of pain. The other two are the cases classed as doubtful. These were reported in a discussion which followed a report of a case by Snell.⁴ In one, by Ormerod, it is not clear that there were ever more than two attacks; the patient was an elderly woman; the Argyll Robertson symptom was present, but the knee-jerk not wanting. It is stated that there was pain in the region of the supra-orbital nerve, but nothing to suggest megrim. Of the other, by Beevor, we learn only that he "had seen a similar instance in which exposure to cold winds were (*sic*) assigned as the cause." Perhaps both these cases had better have been omitted from the list.

Only in one case, that of Thomsen, was there observed contraction of the field of vision during the attack, and here the concentric contraction was found in both eyes, although of much less amount in the eye free from paralysis. This case was complicated by epilepsy. The man was thirty-four years old; the recurrent paralysis began at the age of five; the epilepsy first appeared at thirteen years, and followed directly a fall from a ladder which produced temporary unconsciousness.

The course of the disease is extremely variable. In some cases the duration of the paralysis and the intervals between the attacks seem to have continued the same; in some the attacks became more, in others less severe; in some again the periods of freedom became longer, in others shorter. There is no instance of permanent relief, perhaps because the time of observation was not sufficiently prolonged. Three cases terminated in death.

Different interpretations of the cause of the affection have been given. Some have considered it a purely functional disturbance, analogous to ordinary migraine. Others have supposed a tumor or inflammatory process at the nucleus of the nerve. Others again a pachy- or lepto-meningitis, an anomaly of the vessels, or a tumor at the base.

It seems to me very difficult to admit the theory of a purely functional disturbance, especially in view of the partial persistence of the paralysis noted in several cases between the attacks. There are also difficulties in the way of an assumption of a disease-process at the nucleus, lasting for many years, extensive enough to involve all branches of the nerve, subject to frequent exacerbations, and yet never affecting any other nerves, either of the same or opposite side. A basal origin appears more probable.

The results of autopsy in the three fatal cases also point to the base as the seat of the trouble. Gubler's patient died after a short illness with delirium running into coma. A plastic exudation surrounded the right motor oculi. There were other lesions, but this was the one which seemed best to explain the paralysis.

Weiss's patient died of tuberculosis of the lungs. The right motor oculi was flattened, gray, and showed a tubercular enlargement at the point where it issued from the crus cerebri. The granulations did not extend into the brain substance.

Thomsen's case passed from his observation and died about a year later of gangrene of the lungs. The end of the case was reported by Richter. There was a fibro-chondroma of the right motor oculi, which

⁴ Lancet, I, 938, 1885.

doubled its size, but had developed in such a way as to separate the nerve fibres without destroying them.

In my own case the history points pretty distinctly to a direct connection between the aural disease and the paralysis of the third nerve. There can scarcely be a doubt that a meningitis was set up by the aural disease in the twin sister. It seems here not unreasonable to suppose an exudation or thickening over a limited portion of the dura, which makes pressure on the motor oculi whenever a re-excitation of inflammation in the ear with retention of pus induces an increased vascularity or swelling. And when it is remembered that the third nerve penetrates the dura some little distance farther forward than the fourth and sixth, it is seen that such a limited thickening might readily be situated so as to affect the third nerve alone.

CASES OF BURNS, WITH SPECIAL REFERENCE TO COMPLICATIONS, SEQUELÆ, AND TREATMENT.¹

BY JAMES E. CLEAVES, M.D., OF MEDFORD.

BRYANT'S remark, so often quoted in surgical treatises, that "half the cases of burn admitted into a hospital die, and half of those that die do so within the first three days," whether proved to be true or not, certainly carries with it some hint at the gravity of such cases. Of course, in a general practice, one meets with fewer, and, as a rule, with less severe cases than are seen at a hospital. Now and then, cases more or less severe, or characterized by more or less embarrassing complications, come under the care of the general practitioner, and the importance of the subject grows, as the increase in causes brings greater liability to these accidents. Without claiming to bring to your notice anything peculiar in the following cases or methods of treatment, it is the purpose of this paper to refer to cases illustrating, in a small degree, some of the complicating features of severe burns, and to speak briefly of treatment applicable in these and similar cases.

CASE I. A feeble lady, aged seventy years, was badly burned about the whole front of the right arm and right breast, from her clothes taking fire. The burn was especially severe near the axilla and over the breast. From her age and general weakness, her system was in such a condition that the shock from this burn of comparatively small size was very severe. When seen first by me, she was in a state of marked prostration, with very feeble pulse, and with alternate attacks of chilliness and fever. The pain of the wound was very great, and, for its relief, morphia was used subcutaneously, while brandy and beef-tea were given as stimulants. Warmth from hot-water bottles and blankets was applied externally until reaction came. This case illustrates the fact evident in all severe cases of burns, that the early treatment must be of a constitutional, rather than of a local nature. The wound itself may be left untreated for the time being, but immediate attention is required in severe cases to allay the patient's pain, and to lessen the violence of the shock. The time of the infliction of a burn is one of the chief periods of danger; according to Heath, fifty per cent. of the fatal cases terminating during the period of shock. Pain is a most constant symp-

¹ Read before the Massachusetts Medical Society, June 7, 1887, and recommended for publication in the Journal.

tom in burns, unless they be of such a serious character as to blunt the sensitiveness of the patient's nervous system by the violence of the shock of the accident. In the case under consideration, reaction came on at the end of the first day, with moderate fever, the temperature being, part of the time, at 102°. The wound was first treated with carron oil, and later, poultices with carron oil upon them were applied to hasten the sloughing. On the eleventh day, the patient began to complain of chilliness and of pain in the right lung, and to have a slight cough. On examination, the pulse was found to be 120, temperature 103°, and, at the base of the right lung, were the characteristic evidences of pneumonia. The attack developed with little warning, and was of a mild type, although adding to the general prostration occasioned by the discharging wound on the arm and breast. In this case the poultices were made larger, so as to cover the right side of the chest, and stimulants were given freely.

Pneumonia and bronchitis, as well as inflammations of other viscera, are not infrequently complications of severe burns involving the chest or a large part of the body surface. The internal organs have to take upon themselves the work of the destroyed skin as an excreting organ, and also have a larger amount of blood than usual sent to them, so that congestion and inflammation result. These inflammations are usually of a low type, coming with obscure symptoms during the period of inflammation and suppuration in the wound. Erichson, in observations of fatal burns, found the brain affected in thirty-three out of thirty-seven cases, the thoracic viscera in thirty out of forty, and the abdominal viscera in thirty-one out of forty-two cases.

In Case I, after sloughing, there was a large ulcer, which healed by granulation, surgeon's adhesive plaster being used to compress and restrain the granulations.

At present time, four years after the accident, there is persistent neuralgia about the right arm, and the cicatrix at the front of the axilla is much thicker than at other parts of the burned surface, and the arm is considerably restrained in its outward and upward movements. The patient's age, however, renders any surgical operation for restoring motion impracticable.

In similar cases suitable for operations, where bands of cicatricial tissue cause severe deformity, as about the joints or chin or neck, the bands may at times be cut, or plastic operations for replacing the cicatricial tissues by normal tissues from neighboring parts are sometimes called for. An interesting report of such cases was published by Dr. C. B. Porter, in the *Boston Medical and Surgical Journal* in 1878, and, at its close, were given the following suggestions for plastic surgery:

"(1) Dissect out, if possible, all cicatricial tissue. (2) The pedicles should be arranged so as to get the largest supply of arterial blood possible. (3) Flaps thick with adipose tissue do well, and the fat is absorbed, and the flap gradually assumes the character of the surrounding skin. (4) Compression of the parts operated upon prevents a collection of blood underneath, and hastens the union of the flap to the parts beneath."

CASE II illustrates in a marked degree a complication which is very common in severe cases of burns; namely, the congestion of the kidneys, as shown by the presence of albumen in the urine. This patient,