MYERS (T. H.)

# The Prognosis of Pressure-Paralysis.

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# THE PROGNOSIS OF PRESSURE-PARALYSIS.

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At the present time, when surgeons are so eager to operate upon the spinal cord to relieve pressure-paralysis, it is important, if possible, to establish the prognosis of cases left without operation.

I have limited myself to a consideration of the pressure-paralysis of Pott's disease, and the cases studied are all those which presented themselves at the New York Orthopedic Dispensary up to the beginning of the present year, which have been kindly placed at my disposal by Dr. Shaffer. A number far too large to tabulate, hence my statements must be general ones.

Of these 1570 cases, 218 were sooner or later paralyzed; 16 from disease of the cervical vertebræ, 12 cervico-dorsal, 105 from dorsal disease above the eighth, 40 from lower dorsal, 19 dorso-lumbar, 18 lumbar, and 9 unspecified.

The average duration of the paraplegia of these cases, in which it was noted, and which were known to have recovered, as estimated from the onset of the symptoms until the patient walked well, was in the cervical region 12 months, in the upper dorsal 9½ months, in the lower dorsal 6 months, and in the lumbar 8 months. The longest duration in the cervical region was 24, in the upper dorsal 48, in the lower dorsal 12, and in the lumbar 24 months. I wish here to mention another case of cervico-dorsal disease, though its termination is not known, which was beginning to improve after a paralysis of five years' duration; the paralysis of the sphincters having disappeared, and the child walking, though with ataxic gait.

It is interesting to note that of these 218 cases, 85 became paralyzed while under treatment (5 of these were in the cervical region, 53 in the upper dorsal, 21 in the lower dorsal, and 6 in the

lumbar); and that in these the average duration, calculated in the same way, was less than that already noted, viz.: in the cervical region but 5 months, as against 12 months; in the upper dorsal but 7, as against $9\frac{1}{2}$; in the lower dorsal 5, as against 6; and in the lumbar but 3, as against 8 months.

Eighteen of these 218 cases had repeated attacks of paralysis, usually the result of injury, acute disease, or lack of the proper attention to the braces. These subsequent attacks were of neither greater nor less duration, nor did they vary in severity, as a rule, from the original attacks, and they were recovered from equally well. Two cases had 4 attacks, and a number had 3 with good recovery. All cases, however, were not so fortunate, and I found 2 recorded where the patient had passed through 1 and 2 attacks, and finally died paraplegic.

The interval between the attacks varied from a few months to $4\frac{1}{2}$ years.

A late onset of paraplegia sometimes occurs. In one of these cases it first appeared $7\frac{3}{4}$ years after the onset of the disease. The average duration of the disease, however, before the onset of paralysis, I found to be in the cervical region, also in the upper dorsal, 13 months, in the lower dorsal 15, and in the lumbar 18 months.

I found no cases where the bony lesion was below the motor area involved. Paralysis affecting the upper extremities was recorded in only 7 cases. Of these, 3 were not treated at all, 1 died after an operation on a cervical abscess, and 3 were cured.

Some cases recover without treatment; these records show 13 such.

That the character of the kyphosis does not affect the paraplegia is very well shown in two of these cases, where the improvement in the paralysis was coincident with well-marked increase in the kyphosis.

The first indication of paraplegia is the exaggerated knee-jerk. This occurs sometimes a considerable time before the loss of motor power, and persists also after recovery from the latter. Weakness is the next symptom; the patient complains of getting tired easily. In most cases this is accompanied, as we should expect from the pathology, by pain or paræsthesia, but it was surprising to me that many cases became bedridden without complaint of any accompany-

ing pain. The motor paralysis usually attacks both lower extremities at once. In some cases, however, one limb is affected before the other, or more severely; in still rarer cases but one extremity is attacked, or the paralysis affects the upper extremities as well.

Ankle-clonus is noted much less frequently than increased knee-jerk. Usually this symptom disappears much earlier also. The superficial reflexes, unless well marked, are, I think, in children, unreliable. Spastic rigidity of the limbs and anæsthesia are later symptoms, indicating a very considerable degree of pressure. The muscular twitching movements which are sometimes observed early are due to irritation of an abnormally sensitive reflex arc, which may be theoretically either central or peripheral. This exaggeration of the reflex action makes it difficult to determine, in some cases, whether there is anæsthesia or not, as the muscular movement resulting from a pin-prick seems closely to resemble a voluntary act. A child may, besides, be cognizant of the grosser movements of the limbs, though insensitive to painful impressions.

Paralysis of the bladder, almost exclusively in the form of incontinence, is noted in these cases much more frequently than rectal paralysis. I have seen the statement that cases in which the bladder was paralyzed for three months would probably never recover. In my cases which recovered, several were paralyzed for two months, and two between three and four months.

The first evidence of improvement is cessation of pain (where it exists), then diminution of the clonus, with a gradual return of power to the affected limbs. The exaggeration of the knee-jerk often persists months after the patient is able to walk well. In one case it was present nine months after. In cases of repeated attacks of motor paralysis it sometimes almost bridges the interval between the attacks, though this is by no means universally so, and I hesitate to say more than that it is taking a risk to let a case with exaggerated knee-jerk walk. A patient with ankle-clonus should never walk. The presence or absence of abscess seems to make no difference in the prognosis of the paralysis. A sudden onset, or sudden relief from pressure-symptoms, not associated with traumatism, I think is due, in some cases, to rupture of an abscess into or from the spinal canal. I have seen two beautiful specimens of the former accident.

The prognosis of paralysis depends upon the extent of the cord

lesion, which, we have found, is independent of the extent or character of the kyphosis, the rapidity of the onset, and the duration of the disease, but is dependent somewhat on the location. I know of no perfectly certain indication of the extent of the cord lesion. It is most accurately determined by the atrophic condition of the muscles whose nutrition is controlled by the affected region of the cord, by the electrical reactions of these muscles and their nerves, and by the condition of the reflex arc at this point.

The duration of the sensory symptoms, as of the motor symptoms, even the paralysis of the rectum or bladder, is simply confirmatory.

The prognosis is, in general, very good. Of the 218 cases, though 55 per cent. only are *known* to have recovered, 26 per cent. (none included in the recoveries) were not treated at all, and at once passed from observation; 3 per cent died of intercurrent disease, and the termination of the remaining 16 per cent. is unknown.