A CASE OF CARIES OF THE SPINE CAUSING COMPRESSION OF THE CORD, RELIEVED BY LAMINECTOMY.

By NOBLE SMITH, F.R.C.S. EDIN.,

Surgeon to the City Orthopædic Hospital and All Saints Children's Hospital, London.

THE object of operation in this case was the relief of interference with the nerve functions. The operation was successful, the desired result being attained.

Miss M., aged 31, was seen on September 19th, 1890. About four years previously the spine had been injured in lifting a patient, and subsequently pain and weakness, not only in the back, but in the lower limbs, came on. Three years before the above date the patient suffered so much that a felt jacket was applied, which, however, gave very little comfort.

The case seems to have progressed in a chronic manner, and the walking powers were gradually affected. There was distinct angular projection centred in the tenth dorsal vertebra, as shown in the figure. By means of more efficient me-

Fig. 1.—Appearance of Patient, September, 1890.

Fig. 2.—Appearance of Patient, September, 1894.

chanical support than she had previously had, the pain in the back had been subdued, and a few months later the patient was decidedly better as regards general health, and the weakness in the back. The vertebrae then seemed to be consolidated. A feeling of coldness in the lower extremities, and great difficulty in walking, however, remained. A course of massage (Weir-Mitchell system) and special feeding relieved the symptoms to some extent, but for a very short period. The difficulty of walking after this became more permanent, and in January, 1894, I noted that she was unable to lift the legs forward in walking, and she described her sensations as if weights were attached to the legs. The patient had been obliged to use crutches for the last year, having used a stick before this.

PAIN.

There had been pain of a neuralgic character in the region of the sacrum for several years, gradually increasing in acuteness with periodical attacks of greater severity. When quite quiet the neuralgic attacks were less, but any attempts at walking brought them on. The patient—standing between two chairs, supporting herself on them—could only lift the knee of each leg up about 4 inches, and backward to about the same extent. The knee-jerk was natural, and there was no ankle clonus.

ANÆSTHESIA.

There was dulness of sensation, as shown by the diagonal

shade in the drawing (Fig. 3), and hyperæsthesia, as shown by the dotted lines.

On May 24th, 1894, with the assistance of Mr. Ernest Lane, I performed laminectomy by removal of the neural arches of the eighth and ninth dorsal vertebrae. There was no fat

Fig. 3.—Dotted lines on buttocks show area of hyperæsthesia; shading on thigh shows area of anæsthesia.

Fig. 4.—Shading shows area of anæsthesia on front surface.

over the dura mater, which was congested; and in the upper part of the opening, in the position beneath the removed arch of the eighth vertebra, was found a spongy material like granulation tissue. This was producing some pressure on the cord, and was removed. It covered the dura mater as far as it was exposed transversely, being rather thicker on the right than on the left side. The amount removed was about equal to the contents of an ordinary hazel nut; but, as it could only be taken away in small pieces, this was rather difficult to determine.

The patient made a rapid recovery from the operation. The wound appeared quite healed from the third day after operation, except at the lower part, where a drainage tube had been left in for twenty-four hours. The day following the operation the patient remarked upon the great difference

Fig. 5.—Area of anæsthesia shown by lines of shading, hyperæsthesia shown by dotted line.

in her sensations, having lost the cold feeling which she had suffered from for several years. She gradually recovered strength, and, with a supporting apparatus, began to walk about three weeks after the operation.

A letter from her, dated November 7th, 1894, five months after the operation, states in a graphic way her present condition in comparison with what it had been formerly. She describes the coldness in her lower limbs, which had existed for years, as "deadly coldness." She used to be obliged to have hot bottles at night, summer and winter, and these only gave her very local relief. She states, "Almost directly after the operation I felt warm again, and this has continued since. My digestion, which had been getting steadily worse, improved wonderfully, and I now eat very fairly and feel no

discomfort after meals." She further states that the severe headaches which she had been so constantly troubled with had disappeared. The spasmodic jerking of the limbs, from which she also suffered very frequently, had also gone. The walking powers had been practically quite regained. She can now walk at least two miles without stick or crutch, and with comfort.

A PRELIMINARY NOTE ON AN EPIDEMIC OF PARALYSIS IN CHILDREN

(ONE HUNDRED AND TWENTY CASES).

By ANDREW MACPHAIL, B.A., M.D., M.R.C.S.ENG.,
L.R.C.P.LOND.,

Professor of Pathology and Diseases of Children, University of Bishop's College, Montreal, Canada.

DURING the past two months, through the intervention of Dr. C. S. Caverley, President of the Board of Health, and his colleague Dr. H. H. Swift, I was able to make some observations upon an epidemic of paralysis in children, which occurred in the State of Vermont. The epidemic commenced late in June, increased in July, and culminated in August, and though new cases are cropping up the malady has now almost abated. I obtained the notes of 91 cases out of 120 which were affected.

At first the belief was held that the outbreak was one of cerebro-spinal meningitis, and there were several cases presenting the characteristics of this disease. But on examination it appeared that such cases were very few, and in many there were no symptoms at all beyond paralysis. There was a general absence of retraction of the head, and flexing of the trunk. The sensory symptoms were not prominent, the headache was chiefly frontal, and, beyond some slight delirium of the ordinary febrile type, there were no psychical manifestations. The cutaneous symptoms were absent or unimportant. While in many cases there were indefinite rashes, in only one were there petechiæ, in none herpes labialis, mottling, purple spots, or the other undoubted cutaneous manifestations of "spotted fever."

The sequelæ and complications were also different. There was no account of pleurisy or pericarditis, and only in one case pneumonia. Neither the auditory nor any of the cranial nerves were permanently affected. The eye symptoms were wholly of central origin: no ophthalmia, no conjunctivitis, no keratitis, no permanent impairment of vision. From an examination of the records of all the epidemics of cerebro-spinal meningitis, and an estimate of such authorities as Randolph, Wilson, Niemeyer, Knapp, and Kreitmair, it would appear that the eye symptoms alone are sufficient to differentiate the present malady from cerebro-spinal meningitis. Indeed, Hirsch affirms that "conjunctivitis is almost always a constant condition."

I will set down brief notes of a few cases typical of groups into which the series seemed to fall.

CASE I.—S. C., a boy, aged 5 years, complained on June 17th of headache, chiefly frontal, with nausea and vomiting. The temperature was 102° F., and the pulse 115. This continued for twenty-two hours, and was succeeded by a soreness in the arms and legs, loss of reflexes, with gradually increasing paralysis, culminating after twenty-four hours in a complete powerless condition of both lower and both upper extremities, which still persists.

CASE II.—A. B., a delicate girl, aged 12 years, with a slight left lateral spinal curvature, fell sick of an attack resembling indigestion, with coated tongue and marked constipation. Gradually, without alarming symptoms, paralysis supervened, and in two days both arms and legs were useless. After five weeks there is no sign of improvement. In this case there was a real arthritis, quite as intense as in an ordinary attack of acute rheumatism, the pain not merely "supposed to be in the joints." (Gowers.)

CASE III.—A boy, aged 7 years, on July 4th, had a temperature of 103° F., and a pulse of 120. After three weeks the temperature suddenly dropped to 97°, and the pulse to 50. The knee-joints now became painful and swollen, as well as the elbow and shoulder. Paralysis of the left upper and left lower extremities followed, and still persists.

CASE IV.—In this case the preliminary symptom was double vision. A girl, aged 11 years, suddenly developed this condition, and for three days was slightly unwell. Next morning she was unable to get out of bed on account of complete paralysis of the left arm and leg. Fever, with delirium, followed for four days, when the symptoms abated, and now the limbs show some improvement. In this case the menstrual function was established during the progress of the disease.

In other instances there were no premonitory symptoms, and, without warning, the children would "stumble," and,

on examination, one or other of the limbs would be discovered in a paralytic condition.

The following may be taken as types of the fatal cases:

CASE V.—S. O., an Italian boy, aged 4, on July 21st became sleepy and complained of headache. He was found to have no fever, but a pulse of 45, slow, hobbling in character, and intermitting every fifth beat. This continued for four days, when a slight improvement was noticed. Internal strabismus occurred, but the child made a complete recovery, so far as symptoms were concerned, on the seventh day. He was then allowed to divert himself in the hot sun, when all the original symptoms returned—headache, squint, halting pulse, and drowsiness. This was on August 31st; by September 1st he was worse than at any previous time, but yet had no fever. Next day the knee-jerk was absent, but the plantar reflex was retained, as well as the cremasteric. The legs now became paralysed, and by September 3rd the paralysis was general, the eyes half closed, the pupils dilated and unequal; the temperature was 105° F. The child died at 3 o'clock the same afternoon.

CASE VI.—H. A., a Swedish child, aged 20 months. On August 31st it was stricken with fever, 103°, and the pulse rose to 120. The restlessness was extreme, the child moaning and tossing its limbs, but quite conscious. The head was slightly retracted and the pupils contracted unevenly. Next day the general symptoms were improved, but the child continued restless and in a highly excitable condition. On September 2nd the fever had disappeared, but the restlessness increased, with chronic spasm, strong grinding of the teeth, and paralysis of the left leg. Next day the temperature rose to 104°, the spasm increased, and general paralysis supervened. The child died in the afternoon.

In view of the fact that in many cases of cerebro-spinal meningitis the lance-shaped coccus, similar in all respects to the pneumococcus which Cornil and Babes regard as the cause of both diseases, has been found, it is worth remarking that pneumonia was present in only one case.

CASE VII.—E. F., a boy aged 4, was affected on August 8th, after a slight preliminary illness, with paralysis of both legs, and two days later developed pneumonia. Both conditions subsided, and now the child is in a fair way of recovery.

In a few the onset was accompanied by symptoms of transient spinal meningitis. Gowers believes that such condition must be regarded as a coincident effect of a common cause. I have also notes of six cases in adults, of which three were fatal, in two the paralysis persists, the other, a man aged 70, recovered. The ages were 19, 24, 27, 35, 36, and 70 years.

CASE VIII.—B. J., a lad, aged 19, complained of pain in the head and back. The pulse was 100, and the temperature 102° F. The fever subsided on the fourth day, the pulse fell to 56, and all pain had disappeared. The right arm now became paralysed, and by next morning the pulse was at 38, and the temperature 97°; the extremities were cold. Complete paralysis developed during the day, and in the afternoon the young man died.

The muscles in every marked case showed the degenerative reaction in a characteristic manner. The loss of faradic irritability was observed, and in many cases absolute, while the reaction to the constant current was increased. The muscles were variously affected. In some cases the whole arm was paralysed, in some only the intrinsic muscles of the palm, but the combinations of the different groups affected were endless. After an exhaustive tabulation of the muscles and groups affected, I was unable to discover any combinations which seemed to preserve any definite order. In the legs the extensor group was injured most frequently, and sometimes there was a functional association. The paralysis in every case was motor, and the only disturbance of sensation was hyperæsthesia.

The distribution of the paralysis was as follows, reduced to percentage:

Left arm alone	...	...	...	2.0 per cent.
Right arm alone	...	...	...	4.0 "
Both arms alone	...	...	...	2.0 "
Right leg alone	...	...	...	7.0 "
Left leg alone	...	...	...	20.0 "
Both legs alone	...	...	...	45.0 "
Left leg and left arm	...	...	...	8.0 "
Right leg and right arm	...	...	...	3.0 "
Both legs and left arm	...	...	...	2.0 "
Both legs and both arms	...	...	...	4.0 "
Right thigh...	...	...	...	1.0 "

The infection was confined to a definite area, fifteen miles long and twelve in breadth, with the range of the Green Mountains on the East, but no natural boundary on the other sides. The city of Rutland is in the centre of the area. It would be hard to discover a region in which a disorder had less licence to become epidemic: the whole district lies upon a series of terraces, and increased safety did not come with elevation. Indeed, four cases occurred on the very ridge of the Green Mountains, at an elevation of 1500 feet, and the line of the four dwellings extended over half a mile. The water supply was different in each of the four cases, namely, from springs out of the mountains. The range referred to