

## AFTER-CARE OF POLIOMYELITIS.\*

Lecture given by G. H. Hembrow, F.R.C.S., Eng., Hon. Surgeon Out Patients, Alfred Hospital; Surgeon, Austin Hospital, Melbourne.

Infantile paralysis is brought about by a germ which attacks the motor cells of the spinal cord, completely destroying some and damaging others. Many of the damaged cells recover after the acute attack has subsided. For the purposes of the after-care of infantile paralysis we speak of three stages:—

- (a) The tender stage
- (b) The recovery stage.
- (c) Residual paralysis—when no further improvement in the strength of the muscles is likely.

Several factors are of importance in the recovery of an infantile paralysis case, and they are:—

1. Rest.
2. Prevention of deformity.
3. Exercise.

Two factors which hinder recovery are:—

1. Fatigue.
2. Stretching of paralysed or weak muscles.

### RESULTS OF TREATMENT.

Many people think that infantile paralysis is a disease which is not curable, yet, within two years, in a very severe epidemic in 1931, out of 200 paralysed cases 75 per cent. of the children could be regarded as normal, and 10 per cent. only could be regarded as being cripples.

We may define a cripple as one who cannot by reason of some disability follow the normal course of life as regards education or earning a living.

Infantile paralysis is, therefore, a hopeful disease as regards the ultimate outlook.

When the child is received we first investigate the case, and find out what muscles are paralysed. It is often thought that when a muscle is paralysed it is totally disabled; this is not so. Total disablement is uncommon; what the child has is partial paralysis or paresis, the reason being that the nerve supply of a muscle arises from the spinal cord, not by one nerve but from many, with the result that the muscle obtains its nerve supply from anterior horn cells scattered over a wide extent of spinal cord. As infantile paralysis often affects only a small area of the cord, only a certain amount of the muscle is weakened. The child must, as a rule, have a very severe amount of paralysis to affect the total muscle.

How can we determine accurately the amount of weakness in a muscle? We can use gravity as a measuring stick. By the use of this constant force we may immediately classify the muscle into two groups—(1) The muscle cannot act against gravity; (2) it can act against gravity. Each group can be further subdivided. When a muscle cannot act against gravity, we eliminate the force of gravity gradually by turning the patient till we find a position in which action is produced. Gravity is eliminated as regards the muscle action when the line of action is horizontal. If still no action is obtained, we now bring gravity to the aid of the muscle by asking the muscle to act in a downhill direction, increasing till movement is obtained. A code of numerical values is used to denote the position at which the muscle acts and in this way a "Muscle Action Chart" is constructed.

If the muscle can act against gravity, we apply resistance and note the amount taken until the normal task expected of the muscle is obtained.

The completed muscle chart forms an accurate record.

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We can tell whether the muscle is progressing and at what rate. The muscle chart is revised monthly.

### TREATMENT.

*Rest.*—During the tender stage it may be presumed that there is still some inflammation of the spinal cord and little can be done to help the spinal cord to recover, except rest. Any paralysed muscles must be rested to avoid fatigue and stretching. To do this the whole child is splinted and not just the paralysed parts. Children when not in bed are fully active. They cannot be made to take care of a limb when up and about, so the whole child has to be rested. You cannot rest part of a child as the child will wriggle and twist; even if only one muscle is affected it is wise to put the whole child into splints. The position used is a neutral position, that is, a position half-way between the extremes of movement.

The Thomas Splint has been chosen as the most suitable apparatus in which to rest, and it forms a very efficient and comfortable splint. The child could be put in a plaster, but children grow very rapidly, and it would be frequently necessary to make a new plaster, but the Thomas splint can be made adjustable, and can be altered as the child grows.

The splint is the child's greatest friend, the instrument used for the prevention of deformity, but, of course, great care must be taken to see that the splint fits the child perfectly.

When there are paralysed abdominal muscles, it is necessary to prevent stretching of the abdominal muscles, and for this we provide the child with a cloth corset.

In some cases the pull of the unaffected muscles is much stronger than that of the weakened muscles, and this tends to turn the limb so that a deformity appears. To prevent this the limb is fitted with a small plaster splint to keep it in a normal position.

*Prevention of Deformities.*—Most of the attention given a child suffering from infantile paralysis is designed to prevent it getting deformities and the reasons for this are as follows:—

Deformities may cause more disability than paralysis. If a limb is kept straight it can be used later, but if it gets twisted into some abnormal position its usefulness is lessened. No matter how greatly paralysed a child is it can be made to walk eventually if kept straight. Deformities are more often easily prevented than cured.

In recent times deformities have been reduced to a minimum, but in former days about 75 per cent. of the cases were left with a deformity. Deformity may stretch weakened muscles so that those which would otherwise have recovered will not recover.

### CAUSES OF DEFORMITY.

*Imbalance.*—Muscles are always balanced by equally strong muscles, and when the balance is upset deformity occurs. By noting the muscle strength we can prevent deformities from occurring by alterations in the splint. A muscle may only be 5 per cent. paralysed, but slowly and surely imbalance will tell and deformity occur. The masseuse's task is to watch the muscle balance, preserve it, and prevent any deformity.

*Gravity.*—Gravity may produce deformity, e.g., Foot Drop. Precautions must be taken in sick people to prevent this. Bedclothes must not be allowed to lie on the feet.

*Habits.*—Habitually used muscles become well developed and thus stronger than those on the other side of the joint. In the case of a child, who has only one paralysed arm, if this arm only is splinted the child will reach over and use the good limb. In time this will cause over-development of certain muscles and deformity. We must be particularly careful that a child does not develop any bad muscular habits.

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