

there may be a varus, or valgus with pronation, making the deformity that of club-foot or of flat-foot, according as the spasm affects more powerfully the tibial muscles or the peronei. There may be club-foot on one side and flat-foot on the other. The adductor muscles almost invariably show evidence of marked spasm, so that the knees are kept closely approximated and can be separated only gradually and by the exercise of considerable force. A spastic condition of the hamstrings will probably also be observed, causing more or less flexion of the leg upon the thigh. The child's efforts to stand and walk present a striking picture. Being unable to get the heel down, he stands upon the toes and anterior part of the foot, the knees are bent somewhat by the flexors of the leg, and the spasm of the adductors causes knock-knee, or may even cross the legs giving rise to cross-legged progression. Any effort to use the affected limbs causes an increase of the spasm, and while the contraction may be temporarily overcome by manual manipulation, or by the use of apparatus, it returns instantly as soon as the opposing force is removed. This is specially evident in the case of the adductors; by gentle continuous effort the surgeon may separate the patient's thighs, but the moment the pressure is removed they spring together again, unless the patient has trained his adductors to hold the knees apart by strong voluntary effort. In many cases the muscular spasm produces constant rigidity of the affected extremities, in others there are exacerbations of spasm, or spasm and relaxation may alternate, so that the extremities twitch and jerk uncontrollably, causing the patient much discomfort and even distress. While the lower extremities are most commonly and most severely affected, the upper extremities often participate, and it is not at all unusual for both legs and one arm to be involved, the other arm remaining quite under the patient's control and being capable of performing manipulations requiring fine muscular co-ordination. The muscles of the trunk and face also may manifest the spastic condition.

As a rule the patients are very nervous and sensitive, and any excitement or agitation increases their disability by augmenting the spasm.

The most practical aspect of the subject is the therapeutic. It is well within the bounds of truth to say that a very large proportion of these cases are either left untreated or are treated inefficiently. Practitioners everywhere recognize the difficulty, not to say hopelessness, of treating many of the lesions of the central nervous system, and knowing that poliomyelitis and spastic paralysis are due to an organic defect in the spinal cord or brain, the conclusion is too readily formed that the case is incurable and treatment useless. It is perfectly true that the lesions giving rise to poliomyelitis and to spastic paralysis are located in the central nervous system and cannot be greatly influenced by treatment of any kind; nevertheless, the effects of these lesions can be treated, and to a certain extent prevented, and often with a very