

## A CONTRIBUTION TO THE THERAPEUTICS OF SPASTIC PARALYSIS.<sup>1</sup>

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THE etiology and pathology of this affection have been so fully elaborated that I shall make no attempt to discuss either one of these points, but will present for your consideration a few cases by way of illustration. The treatment I have adopted is what is known as the "Orthopedic Treatment," and, as the neurologist generally refers the management of these cases to the orthopedic surgeon, it may be of interest to the gentlemen present to know just what can be accomplished.

CASE I.—A girl seven years of age, referred to my clinic by Dr. Hogan of New York, in April, 1887. She was very irritable, cried on the slightest provocation, was totally unable to walk or to stand alone, but could with assistance manage to get across the floor in a scissors-like kind of gait. She would balance herself on her toes and balls of the feet, and make an attempt to walk by bringing the feet forward, one foot overlapping the other, the thighs, of course, being in marked adduction and knees in flexion. She had begun even this kind of walk only a year or two previously. She was the only child living out of six. Two of this number were still-born. This child was born at full term, and was thought to be perfect. When five months of age she had convulsions lasting three or four days. When the convulsions subsided it was thought that she was totally blind. She lay in a kind of stupor for nearly three months, and had a slight convulsion at the end of this time. Six months later her sight began to return.

Under chloroform, I divided the Achilles tendons subcutaneously, the adductors of the thighs and the ham string tendons on each side. The adduction was further overcome by force, knees straightened, and the feet placed in position of slight calcaneus. I placed the child in a wire

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cuirass, the leg portions of which were abducted. She was taken to her home in Harlem, and several doses of opium were required to make her comfortable. She was kept pretty snugly encased in the wire cuirass for six weeks. On removing her from the apparatus, the ham strings were found not fully stretched. Posterior braces were applied, extending from the thighs to the calf, and with these I succeeded after a month or two in overcoming much of the contraction, nearly all. At the time of the operation I ordered potassium iodide in increasing doses taken in milk or vichy. She reached forty grains three times a day within a month. During the summer I had the mother employ massage as best she could, and forcible stretching of the adductors and ham strings. The feet were in very good position.

In the fall of 1887 she was walking about unassisted. Her excitability had diminished about seventy-five per cent. When last seen, about six months ago, she was able to walk several blocks, got her heels well down to the ground, and the in-knee was very slight.

CASE II.—My friend, Dr. Bunker, of Brooklyn, referred a boy eight and a half years of age to me on December 11, 1885. He suffered then from an acute synovitis of the left knee, but I found on examination that this was a typical case of spastic paralysis, or contraction. The synovitis was treated by rest and compression to the parts, and in a month he was cured of this. I saw him some months later. No relapse had occurred, but his limbs were much distorted at hips, knees and ankles. I suggested a course of treatment for him, but it was not until the 14th of October, 1889, that he was placed under my care for treatment of his spastic condition.

Both feet were in marked equino-varus, so that he stood on the outer borders of the feet. The adductors of the thigh were in moderate spasm, but would yield quite readily to a little force. The leg flexors were tense and quite resistant. By employing all the force he would submit to, I could extend the legs to 175°. Beyond this point, however, marked reflex spasm was excited. The Achilles tendons on both sides were tense.

On the 14th of December, under ether, the tense bands in popliteal space were divided subcutaneously on both sides; the knees were fully extended, but not hyper-

extended; the tendo-Achillis on right side was divided, and foot forced into position of hyper-flexion; the tendo-Achillis on left side was also divided, as well as several bands of plantar fascia; the foot was placed in position of calcaneo-valgus. I found it unnecessary to divide the adductors. He was put up in plaster of Paris from the hips down to the toes. On December the 8th a note was made that he had suffered very little since the operation, complaining only occasionally of pain in the knees. After two or three weeks in this position, I was able to extend the legs still further, and, after retaining them in an over-corrected position for a few weeks longer, I had a masseur take charge of the case under my direction. This treatment was continued for about a fortnight three times a week. On the 21st of April, 1890, I made a note that he could flex the foot up to the normal extent voluntarily; that he was walking a few steps alone; could voluntarily extend his legs to 175°; they could be passively hyper-extended. I had him wear club-foot shoes to keep his feet in good position by night, and had the ordinary leather shoes built up on the outer side for use by day.

On the 29th of May, present year, I received the following note from Dr. Bunker: "You should know that Charlie Miller (the patient whose case I am now reporting) goes without crutch or stick, walks out with the girls, and plays lawn tennis."

CASE III.—On the 20th of June, 1889, my friend, Dr. Gray, of New York, referred to me a case of talipes equinus (spastic), in a girl five years of age, living in Brooklyn. She had begun to walk about a year previously, but had gained very slowly. She walked like a prancing horse, was very excitable, and had very little control of her emotions. There was no adduction of the thigh, very little contraction of the leg flexors; speech very imperfect. The Achilles tendons were short. They were both divided, and feet put up in position of over-correction. She progressed without any special incident worthy of note, and on the 2d of August she was able to stand with heels squarely on the floor, and could walk without braces or shoes very much better than she could at first. She wore club-foot shoes for several months, and, in February of the present year, the club-foot shoes were removed, and she was provided with a

stout pair of leather shoes. On the 29th of May, present year, I made a note that she was walking very well indeed, and that her inco-ordination was comparatively slight.

CASE IV.—A boy eight years of age was admitted to the Hospital for the Ruptured and Crippled, October 10, 1889. Diagnosis: spastic paralysis. The history given was this: That before he was a year old the mother noticed that his limbs were inclined to cross and that he was unable to sit alone. When four years of age he began to walk a little, but the limbs were so badly distorted and his inco-ordination so great, that he required assistance. Even then he did not get his heels to the floor. The right side was more distorted than the left.

A few days after admission I put him under ether, divided the adductors, ham strings and Achilles tendons, and put him up in plaster of Paris, with thighs well abducted, legs extended and feet flexed beyond 90°. The case progressed slowly, plaster was not removed for four or five weeks, and then an excoriation was found over the sacrum. It was necessary after removing the plaster to apply knee braces and to support the feet with apparatus without any joint. On the 30th of January he was discharged from the hospital, barely able to stand alone and unable to walk. He went into the country, and his mother was instructed very particularly about the management of his limbs. He did unusually well. I saw him about a month ago, and was surprised to find how straight the limbs were and how he had improved so far as his inco-ordination went. The Achilles tendons were of normal length, muscles were developing, and, while I am unable to give his condition at the present time, I feel confident that he will be able to walk and get about with comfort.

The cases just reported are a small number of those I have treated in this way for several years past, and, while many fail to get the benefit that these here recorded have received, I am confident that many have been enabled to walk and get about without assistance. It is necessary after dividing the tendons to keep the feet in normal position for two or three months after the operation. The tendons are apt to lengthen, and calcaneus has in some instances resulted. The relief given to the nervous condition in many of these patients is most marked.