TWO CASES OF PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS.

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THE elder patient, E. P., is the second child, and the younger patient, G. P., the fourth, in a family of eight. Except a baby, a few weeks old, they are the only males. The sisters are all healthy. The parents are both 36 years of age, and were married at 19. The father is healthy, and is not aware of any similar affection ever occurring in any relative on his side. The mother is also healthy, but she had a brother, the eldest male of the family, who is said to have been affected in the same way as the patients, and died at 17.

E. is stated to have been a fat and heavy child. He cut his teeth late, and did not walk until he was eighteen months old. At the age of twelve months he began to lose power in his right upper limb, and at two years, although he had been urged to use it by the expedient of tying up the other hand, this limb was noticed to be smaller than its fellow. When he came to be taught writing he had to use his left hand for the purpose, and he has written with his left hand ever since. He had a "swinging" gait from the first, and could never run. At 5 he began to tumble about, and was so unsteady in his walking that, as his father expressed it, "a puff of wind would blow him down." When down he could not get up again without some help; this given, he would assist himself by putting his hands on his knees. In going upstairs he would crawl if without banister or other object to hold by, and in descending he would slip himself down on his buttocks. At 7 he could not bring his heels to the ground. Until 9 he walked on his toes, and since then he has been unable to walk at all. At no period had his calves attracted attention. Except a mild attack of scarlet fever twelve months ago, he had had no acute illnesses.

G. walked at fourteen months, and he could walk and run well until four years old. He then began to "waddle and turn

his toes in," and he soon showed the same peculiarities of gait and locomotion that his brother had done. At 7 his calves were noticed to be large and "on one side." He is said to have had about this time an attack of fever, from which he did not recover for two or three months; but it was without any apparent influence upon the course of the paralytic affection. After having been for a while in a Cottage Hospital near his home, he was admitted an in-patient into the Bath Royal United Hospital on August 10th, 1880.

The description of G. P.'s state at this period was to this effect: He was an intelligent, healthy-looking boy, 9 years of age, 4 ft. in height, 3 st. 12 lbs. in weight; was only now cutting his upper central incisor teeth. He walked with a peculiar rolling gait, moving his body from side to side, with his shoulders and head carried back and legs apart, as if to maintain his equilibrium. On stripping him it was observed that he had an incurvation of the lumbar spine, which disappeared in the sitting posture. His calves were enlarged, measuring $9\frac{1}{2}$ inches each in circumference, and they were remarkably firm, especially the right one. He had difficulty in bringing his heels down to the ground. When placed on his face on the floor and requested to get up, he raised himself first on his elbows and knees, then, with both his hands, pushed his body backwards, extending his knees until it was supported by his hands and feet. He then placed one hand on the one knee and the other on the other, and gradually worked his hands up to his hips, and thus he at last gained the upright posture. Besides the sural muscles the vasti externi were enlarged, the glutæi were prominent, and the erectors of the spine stood out. On the other hand, the latissimus dorsi and serratus muscles were atrophied, causing apparent projection of the inferior angles of the scapula, so also was the sterno-costal portion of the pectoralis major. The deltoid muscles were not appreciably wasted, but all the other muscles of the arm were slightly so. The muscles of the forearm were not affected. His sensation was nowhere impaired, but to the tap on his patellar tendon there was no responsive jerk.

E. P. was admitted an in-patient a month later. He was 14 years of age, about 5 feet in height, and 4 st. 8 lbs. in weight. He had the look in his face of robust health, and was of fair intelligence, but was so helpless that he could not raise himself in bed, nor when set up could he maintain the sitting posture without support. His dorso-lumbar spine in this posture was observed to be distinctly curved, the convexity being backwards, and there was in addition a slight lateral deviation of it to the right. Excepting the erectores spinæ, which projected somewhat below, all the muscles of the

back were seen to be in a more or less advanced state of atrophy, and on the right side particularly; the upper dorsal region was remarkably flattened, and the transverse processes of the vertebræ could be readily felt through the integuments. The weakness of the neck muscles was such that his head constantly tended to fall forwards. The latissimus dorsi, as apparent from the thinness of the posterior fold of the axilla, was all but gone, and the anterior fold and front of the chest bore similar testimony concerning the pectoral muscles. The sterno-mastoids were of fair size, but their clavicular portions were indistinct. The masseters were enlarged. The muscles of the abdomen seemed to be normal. His thoracic respiratory movements were diminished, his abdominal increased. The deltoid on the right side appeared to have gone, the head of the humerus being seen and felt as though quite subcutaneous. On the left side the shoulder was slightly more rounded, and the posterior fasciculus of the deltoid was distinct. Notwithstanding this difference he could elevate the right upper limb a very little, but the left not at all. The triceps of the right arm was much atrophied, and the biceps, which itself was thin, was somewhat contracted, so that the elbow could not be straightened. The extensors and supinators of the right hand and wrist were wasted, and the power of movement of the same was correspondingly impaired. Of the left upper limb the triceps was not so attenuated, and the muscles of the hand and forearm were in rather better condition. The right hand was smaller than the left, but there was no shortening of the right humerus or bones of forearm. As before mentioned, he was left-handed; but he did knitting well, and this was his chief pastime; his penmanship was indifferent. He could just extend in the slightest degree his left leg, otherwise he was almost totally unable to move his lower limbs. The thighs and legs were fixed in flexion, the left thigh, in his usual posture, being adducted towards its fellow, and the feet were contracted in talipes equino-varus with prominence of astragalus. The quadriceps extensor muscles of both limbs were much atrophied, but the adductors of right showed fair size. The glutæi were moderately plump. The hamstrings and Achillis tendons were in tense contraction. The calves measured 10 inches each in circumference. Irritability to faradisation was more or less impaired in the affected muscles, also voltaic irritability, except in the biceps of the right arm, where it was increased, contraction taking place first at the positive pole on closing the circuit. The patient's sphincters were unaffected, so also was his sensibility, whether general or special. He had some tendency to mottled appearance of his arms and legs.

The two lads remained in hospital between four and five months, but their condition varied so little that there was really nothing of sufficient importance to record. They took phosphorus in pill for some six weeks of the time, but in neither one case nor the other was there any manifest result. They came again under observation, indeed, were readmitted into hospital, in July 1881. G. had gained two inches of stature, but he was now distinctly unable to bring his heels down to the ground; he was only 3 st. 11 lbs. in weight. E. also had lost some weight, being only 4 st. 7 lbs. It was at once remarked of the latter that he sat up better. They now took cod-liver oil, and, while the general condition of both improved, that of E. seemed especially to do so; his skin became sleek and more free from mottling on his limbs, and he developed signs of puberty. By November 15th, when they were again discharged, some noteworthy changes had occurred. G.'s weight was now 4 st. 6 lbs., his right calf measured $11\frac{3}{4}$, and his left $11\frac{1}{4}$ inches; his inability to bring his heels down to the ground was such that he walked tiptoe; he could not now get up from the floor without help; his erector spinæ muscles had become indifferent in size; he had now decided wasting of his deltoids, and the muscles of his forearms were affected to a slight amount. E.'s weight at this date was 5 st. 3 lbs., his height being still about 5 ft. (he could be measured only part by part); he could now in some degree maintain the sitting posture without support; his head did not tend so much to fall forward, though if it only slightly lost the position in which he kept it he could not prevent its dropping; on the other hand, he could not now elevate either upper limb, and the biceps of his right arm was more contracted, also he could no longer extend his left leg, but was quite powerless in both his lower limbs; his calves measured right 10, and left $10\frac{1}{4}$ inches. E.'s photographs were taken at this time, but G.'s at the period of his first admission.

P.S. March 1882.—I am informed that G. can now no longer walk. The male child last born is sixteen months old, but as yet presents no evidence of being similarly affected. I hope to have the opportunity of seeing these cases from time to time, and will take the liberty of supplementing the foregoing record should occasion arise.