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TWO CASES OF A PECULIAR TYPE OF
PRIMARY CRURAL ASYMMETRY.

BY

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Association.*



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TWO CASES OF A PECULIAR TYPE OF
PRIMARY CRURAL ASYMMETRY.¹

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It has been well known for some eighteen or twenty years that the lower extremities of some individuals, otherwise normal, differ in length, and that occasional cases occur where this difference is considerable. The question has been studied with reference to shortening after fracture of the femur, and also as to its bearing on the etiology and treatment of lateral curvature of the spine. In a previous paper² a simple method of examination was described by the writer, and thirty-four cases were recorded where the difference in the length of the extremities had been found to be more than a quarter of an inch; in six it was an inch or more. The left leg was shorter in thirty cases; the right, in four. About half the cases had permanent curvature—that is, a curva-

¹ Read at the fifth annual meeting of the American Orthopedic Association, Washington, D C., September 22, 1891.

² Primary Crural Asymmetry, The Medical Record, April 26, 1884.

ture which did not disappear when the pelvis was levelled. Considerable stress was laid on the importance of pelvic obliquity as an etiological factor in many cases of curvature.

In calling attention to these results Dr. F. Beely, of Berlin,¹ remarked that there was an apparent difference in the height of the iliac crests in many early cases of true lateral curvature due to rotation of the pelvis and shoulders or head, before much spinal deformity was apparent, and that in such cases as he had examined there was no actual difference in the length of the extremities.

It is certainly true that where there is much rotation of the lumbar spine it is often difficult to be sure one is levelling from corresponding points on the iliac crests; then, if in the standing position the pelvis is rotated on a vertical axis passing through or near one acetabulum, as it sometimes seems to be, the opposite iliac crest and anterior iliac spine will be lower, even if there is no difference in the actual length of the legs. In many cases of lateral curvature the pelvis is carried obliquely in sitting and standing from the effect of the malformed vertebral bodies and disks. The patient sits more heavily on one buttock, and in walking may carry the knee slightly bent, on the side toward which the pelvis slopes. It is certainly easy to make mistakes, even if care is taken in the observations; and it would be well, as Dr. Beely suggests, to employ both levelling and the tape for greater certainty, as I did in the cases to be related. I am now

¹ Centralblatt für Orthopädische Chirurgie, July, 1885.

inclined to think that pelvic obliquity alone is not so often the cause of true lateral curvature as I then supposed, for the reason, among others, that I have seen cases in which the lumbar spine rotated away from the short side instead of toward it, and also because one finds cases of such large difference in the length of the extremities without rotation, as in the examples to be related.

CASE I.—A lady, 23 years of age, came from the South in March, 1890, to consult me about the shortness of the right leg. She said she was in good health and could walk several miles; but her physician told me she did not walk far on account of tiring easily. She knew of no sickness during childhood, except measles at the age of 2 years. When she was 8 years old it was noticed that her back was not straight, and at 14 that there was a slight peculiarity in her walk. Only the past winter had she noticed that her right leg was short. This patient was of sallow and delicate appearance; she walked with a slight limp, and the pelvis very markedly tilted to the right. She said her short leg—the right—was the stronger of the two, and that she was in the habit of standing on it, bending her left knee. Examination showed complete absence of any trace of present or previous affection of the joints, muscles or nerves. Joint mobility was normal, the knee reflexes active, and the muscles were fairly developed, those of the right leg being distinctly larger and firmer. The right calf measured $12\frac{1}{2}$ inches, the left $11\frac{3}{4}$ inches. The distance from the anterior superior spine of the ilium to the internal malleolus measured on the right side 29 inches, on the left 31—a difference of two inches in favor of the left leg. A part of this difference was below the knee, for as the patient sat with the soles on the floor there appeared to be a difference of about an inch in the height of the knees. Measurement from the head of the tibia to the internal malleolus revealed a difference of $1\frac{1}{8}$ inch in favor of the left; and from the great trochanter to the knee-joint

$\frac{3}{8}$ of an inch. Standing with the hips and back exposed, the pelvis was seen to be much tilted to the right, and a book two inches thick placed under the right foot levelled the pelvis, and very nearly straightened the back. There was no abnormal rotation or deformity of the spine, and no true lateral curvature, but merely a natural compensatory bending when the difference was not made up. The *left* foot was smaller and slightly shorter than its mate. The arms were apparently equal in length from the acromion to the end of the middle finger. I have no note of the fact, but I have a distinct impression that this patient was right-handed.

CASE II.—A large, well-developed girl of 15 was brought to me from Western Pennsylvania in June, 1890, for advice in regard to her left hip. Between the ages of 6 and 18 months she had had four attacks of convulsions attributed to teething. After that she was well, except for the ordinary children's diseases and a fall on the forehead at 6 years of age. She had never had symptoms of paralysis of the eyes, face or limbs, and had never walked lame till recently. For six months it had been noticed that the left hip was smaller, and she had had a slight limp or peculiarity in walking for six months past, especially when fatigued. For two months she had had a slight headache and had tired easily; for a month her appetite had been less good than usual. She had no backache and slept well. This patient was rather nervous and quick in her movements, but was well nourished, and seemed to be in good or fair health. Her height was fifty-nine and a half inches in her stockings. There was little or no abnormality in her gait, but standing with her back exposed the left iliac crest was seen and felt to be about an inch lower than the right. A book one inch thick placed under the left foot made up the difference and straightened the spine, which had no abnormal rotation. The distance from the ilium to the internal malleolus measured $30\frac{1}{2}$ inches on the right side; $29\frac{1}{2}$ on the left. When the patient sat, the right knee was higher, and the measurement from the top of the tibia to the internal malleolus was five-eighths of an inch greater

on the right side. The left (short leg) was more muscular and measured slightly more around the calf and above the knee. The knee reflexes were normal. This patient sewed with her left hand, but did everything else with her right hand. Her mother thought she was originally left-handed; the girl thought she was right-handed. There was no well-established case of left-handedness in the family. From the tip of the acromion to the end of the middle finger, the right arm measured three-quarters of an inch more than its mate.

The cases are of interest because of the large difference observed with no assignable cause; the absence of true lateral curvature; the fact that the short leg¹ was decidedly the larger and stronger, and that rather more than half the shortening was demonstrated to be below the knee. Both patients experienced relief by using the proper amount of cork on the shoe of the short side.

¹ Mr. Chas. Roberts in the *Lancet* for April 27, 1878, says: "The limb possessed of the least muscular development will be found the longer of the two."

