

TRICEPS, BICEPS, AND FINGER CLONUS.

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Theoretically, there is no reason why clonus of the triceps and biceps muscles should not be obtained when the tonicity of these muscles is increased, but such phenomena probably have not been described. The different text-books on nervous diseases (Gowers, Oppenheim, Mills, Strümpell), and Sternberg's¹ work on the tendon reflexes make no mention of the phenomena.

Triceps clonus was first obtained by me in the following case:

J. N., aged fifty-seven years, was admitted to the Philadelphia Hospital, April 1, 1903. At present he is in the insane department. Diagnosis: General paresis. History of syphilis and alcoholism was obtained. The symptoms began two and a half years ago. He has ideas of grandeur, hears voices, stumbles over syllables. He has some tremor of the lips, and Argyll-Robertson pupils, and the left pupil is larger than the right. The tendon reflexes are markedly exaggerated, and ankle and patellar clonus are obtained on both sides. He has no sensory changes, and no bladder nor rectal disturbances. Tapping the right triceps tendon above its insertion into the olecranon, produces a distinct clonus of that muscle, which is easily exhausted.

Triceps clonus was obtained more typically in a second case, and is fully described in the following report:

W. K., aged sixty-six years, was admitted to the service of Dr. William G. Spiller, in the Philadelphia Hospital, July 30, 1903. His father died with hemiplegia. The patient had not contracted syphilis, but was alcoholic. Four years ago he had a right-sided hemiplegia with aphasia. At present he drags the right leg when walking. The lower distribution of the right seventh nerve is paralyzed. The right upper limb is contrac-

¹Sternberg, M. Leipzig ü. Wien., 1893. "Die Sehnenreflexe und ihre Bedeutung."

tured at the elbow and wrist, and the fingers are flexed. The right knee is also contracted, but all these contractures can be overcome on forced passive movement. The tendon reflexes are very much exaggerated on both sides, more so on the right side. He has ankle clonus, but no patellar clonus. Babinski's sign is present. There is complete right-sided hemianesthesia for all forms of sensation. Incomplete hemianopsia is present. Atrophy is present in both sides, and is more marked on the paralyzed side.

The patient holds his paralyzed arm close to the chest, the forearm being flexed at a right angle to the arm, the hand being supported by the sound limb. On tapping the triceps tendon above its insertion into the olecranon a distinct clonus of the triceps muscle is produced, lasting at times three to four seconds. It is hard to count the vibrations with the eye or hand, but the number varies between twelve and twenty. Excitement increases the clonic movement, and at these times tapping even with the finger over the body of the muscle almost as high as its upper insertion, in fact a slight jar over any portion of the forearm or arm, will bring on the clonus. Indeed, the patient says that at times, while resting quietly, clonus of the triceps muscle will be produced independently of any stimulation.

The clonus consists in rapid extension and flexion of the forearm upon the arm, the triceps muscle stands out prominently, and in the rapid up and down movement of this muscle its tendinous insertions can easily be made out.

By striking the biceps tendon near the elbow joint with a percussion hammer, there is produced at times a clonus of the biceps muscle, causing flexion and extension of the forearm upon the arm. This is not nearly as constant as the triceps clonus, and can only be brought out on excitement. The resulting clonic vibrations are comparatively slow, there being from five to seven in two to four seconds.

Sometimes percussion over the biceps or triceps tendons will bring both clonus of the triceps and biceps muscles, the triceps clonus outlasting the latter. Again, striking the triceps tendon will at times bring on a clonus of the wrist besides the triceps clonus.

Clonus of the fingers is rarely found. Gowers² says that in an increased excitable state of the flexors of the fingers, a contraction, and sometimes by maintaining the increased tension, a clonus can be obtained. Sternberg merely mentions the possibility of finger clonus. No other mention of such a condition was found in the text-books referred to.

W. M., aged fifty-seven years, was admitted May 30, 1903, to the service of Dr. C. S. Potts, in the Philadelphia Hospital. He had right-sided hemiplegia, which developed twenty-six years previously. The man is chair-fast. The right upper limb is contracted at the elbow and wrist, and the thumb is turned inward, and the fingers are clenched. The right leg is contracted at the knee. All the tendon reflexes are increased. There are no sensory changes. Atrophy is more marked in the paralyzed side. Wrist clonus is not obtained on suddenly extending the tightly clenched fingers, the hand being held, but there is resulting clonic vibrations of the fingers upon the carpo-metacarpal joint. The movements are rapid, consisting in a flexion and extension, are easily exhausted, but soon return, the number of vibrations never being more than from five to seven, and lasting from one to one and a half seconds. Sudden extension of one finger or two fingers will not produce the clonus, but sudden extension of three or of all the fingers will.

I am indebted to my chief, Dr. William G. Spiller, for the privilege of reporting two of these cases, and to Dr. Potts for the privilege of reporting the third.

²Gowers, Sir W. R., 3d ed., p. 23, "Diseases of the Nervous System," vol. I.