

XX. *The Case of a paralytic Patient cured by an electrical Application, inclosed in a Letter from Doctor Himself, at Riga, to Jacob de Castro Sarmiento, M. D. F. R. S. Translated from the French.*

Read May 17, 1759. ON the 10th of March 1752, a young man 20 years of age, whose name is *Mauve*, in his infancy had a fall, by which his right arm became paralytic, of which he never had the least use from five years old. He was brought to me in order to attempt his cure by electricity; and he was in much the same condition with the patient cured by Mr. *Jalabert* at Geneva; who could not move his right hand in the least, and was afterwards able to help himself, and follow his trade. All the fingers of the paralytic hand were disabled, and the hand was so bent towards the elbow, as to form a right angle; the hand was of a red and blue colour, as if it had been struck with frost. The extensor muscles of the wrist and fingers had an *atrophy*, and the whole fore-arm was shrivled; besides which, all his right side was paralytic, as well as the right arm, at the beginning of his disease; and the right foot was very much weakened.

He approached the electrical tube, and touched it for some minutes; till the *thenar*, *hypothenar*, *anti-thenar*, *indicator*, and the *interossei*, as well as the fingers of the lame hand, suffered electrical shocks one after another.

The spectators were amazed to find, that, at this first trial, the young man could successively extend his *thumb*, *index*, and *middle fingers*, and at length the ring and little fingers; and on the following days his friends observed, that his hand was no longer so rigid as it had been. The good effect of this first essay, and the desire of the patient and his relations, encouraged me to repeat it on the 16th; and I increased the electrical power by the known means of the flagon of water. I stripped his arm, and by turns gave the shock to the *cubitæus externus*, *radius externus*, the *extensor magnus*, the *interossei*, *extensor pollicis*, and the other muscles of the thumb. He complained sometimes, that his hand and arm were numbed and stiff: I therefore caused it to be well rubbed with a towel, by which it became flexible: I made them also rub his hand with a woollen cloth, and continue it some time; and I observed, that this hand, which bent towards the elbow for fifteen years, became straitened out, altho' it fell into its former situation some seconds after. This was the more remarkable, as many applications had been made before by the ablest physicians. The 17th the patient told me, that his hand opened of itself the day before at three different times, and was also straitened out with the elbow; but that it closed and bent up again of itself. The second time that I electrified him, he was more sensible of the sparks, and this day he felt them still more, having made them stronger by Muschenbroek's invention; he could scarce bear them: the numbness of his arm and hand followed as before, which generally happened afterwards upon electrifying him; but he always found him-

himself better upon rubbing, as before. This third time he extended his hand and fingers more than once, without the assistance of his other hand: nevertheless, as he complained of very sharp blows from the sparks, I changed my first method the 18th, and mounting upon a box filled with pitch, I took the tube in one hand, and, by means of a key which I held in the other, I touched him where I thought proper, in order to draw the sparks; but as the shocks were very strong, I placed under the tube two flagons filled with water, making a communication of the water with the tube, by means of an iron wire. In viewing the naked arm, it plainly appeared it was become more fleshy. The night after he slept better than the foregoing between the 17th and 18th, when, tho' he found himself much fatigued all over, his sleep was often interrupted by very sharp pains in the upper part of his arm; which part, nevertheless, I had not touched at all; but he had that day undergone very strong shocks. He also felt great heat in his hand together with these pains, and this heat was felt almost every time after he had been electrified, both in the hand and the whole length of the arm.

On the 19th, 20th, and 21st, some affairs prevented my continuing the operation; but I advised him to exercise his arm every way he possibly could, having observed, that even the muscles of the arm least affected, after so long a time of inactivity, were much weakened; and the patient was gradually capable of taking up his glove from the ground several times successively, and even to put on and take off his hat with the paralytic hand, which he also repeated the following days. On the 22d, I observed, upon the
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the upper part of the arm, near the *deltoid* muscle (which was still very large near the *biceps*) and the *extensores cubiti*, two deep hollows; and the extension of the elbow was made with great difficulty: wherefore I touched him chiefly upon those muscles which cover the upper part of the arm, having increased the electrical power in Muschenbroek's manner; for he seemed to come on but slowly while the shocks were but mild. But I made the necessary dispositions to hinder his being at the trouble of lifting up his arm to touch the tube; I applied it to the hand and arm where I judged necessary; and, on the 23d following, he was able to lift and carry a weight of sixteen pounds and an half.

I repeated the operation on the 23d, 24th, and 25th. He was extremely sensible of the slightest shocks on the last day, so as to excite compassion in all that were present. Besides which, during the time that his arm was electrifying, I observed certain protuberances in those places, from whence I drew the sparks, like those which professor Jallabert had seen in his patient; but in these two days they became very large, and, upon rubbing the arm, the skin peeled off: notwithstanding they diminished on the following days, altho' the shocks were made more powerful; which is the more remarkable. The *deltoid* muscle, which, on the 22d, was observed to be so large, became much less; and the hollows, which were between this and the *biceps* and *extensores* of the elbow, were filled up; but, upon bending the elbow, there remained still a preternatural rigidity.

On the 27th, the patient gave several proofs of the advantage he had gained by the electricity, in the pre-

sence of several persons: he opened and shut the fingers of his right hand without the assistance of the other: he could stretch out and bend the *carpus* and *metacarpus* at pleasure: he took up from the ground his glove and other things, and a weight of $16\frac{1}{2}$ lb. above three feet, moving it backwards and forwards at the same time; and he could have employed more strength with the affected arm, than was sufficient to hold up the weight, without any inconvenience.

We then stripped both arms, and found, that, as to the external appearance, the paralytic arm was become more like the other; and the hand and fingers were better covered with flesh than before. Besides, several muscles of the arm, especially those of the fore-arm, were fuller; the blue and red colour of that hand disappeared, and it was now like the other. But the extension of the elbow was yet a little difficult; nor were the fingers yet sufficiently flexible; and therefore it was somewhat troublesome for him to lay hold on, and keep, any thing in his hand. On the 28th, he performed all those proofs before some professors and doctors of the academy with success. They viewed his arms and hands, and the change that was brought about was evident. I afterwards electrified his arm and hand; but principally the extensors of the elbow, the great extensor, and the interosseous muscles, and also the *indicator* and muscles of the thumb. The 29th he told me, that the arm sweated continually from the day before, which happened several times after being electrified; and that the sweat would often continue till next day. On repeating, this day, my operation,
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he sweated all over his body; and having returned home, he felt as if a number of globules of blood flowed up his affected arm, which made so strong an impression upon him, that it frightened him; but having stripped his arm, no sort of alteration appeared.

On the 31st of March, he was able to take up a glass of beer in the paralytic hand, to hold it steady, and put it to his mouth, drinking to the health of all the company one after another; and since that time he helps himself at table with his right hand. When he came to me on the first of April, he lifted from the ground, almost three feet, a weight of 33 lb. in the presence of several persons, which he was not able to do before, tho' he had tried several times. On this day the arm was electrified again in the parts that required; but as the sensation in this arm was nearly equal to that of the other, he was no longer able to undergo the shocks, for an hour, as he used to do; tho' he was very sensible of the advantages gained by the electrical operation: however, he fainted away, and therefore we were forced to forbear a little. Besides this, he was often subject to a looseness; which Noguez at Geneva was also. On the 4th of April in the evening, I exposed the paralytic arm once more to the electrical sparks; and as there always were some persons by at the operations, there was this time a Frenchman present, who had a megrim. He underwent the shock twice, according to Muschenbroek's method; and came to thank me next day for having cured the disorder of his head. On the 5th of April, I again electrified my patient, and the sensation was now nearly recovered in the paralytic arm, which was restored to a healthy condition. He extended his

his fingers, and contracted them at pleasure, could move the *carpus* and *metacarpus* at will; he took off his hat, and put it on, and had gained so much strength in his hand and arm, that he raised a forty pound weight to the height of three feet from the ground.

Such was the state of my patient after having electrified him fourteen times from the 10th of March, almost an hour each time. I did not touch his foot, which was a little paralytic from the beginning, having never been very troublesome to him.

From the 5th to the 27th of April, he was electrified eleven times more; during which time the strength of his arm still increased: he not only raised above 40 lb. weight with his right hand, moving it backwards and forwards at the same time, but he wrote his name, *Andrew Mauve*, with a craion, with the same hand, which he had not been capable of moving for fifteen years before.

John Godfrey Teske.