CASE OF

LOCAL TUBERCULAR DEPOSIT

UPON THE SURFACE OF THE BRAIN.

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At a time, like the present, when the physiology of the nervous system is engrossing so much of the attention of the medical philosopher, every contribution to its pathology is important. Impressed with this conviction, though without the hope of adding any new fact to the records of experience, I am induced to submit to the notice of the Royal Medical and Chirurgical Society, the following detail of an interesting case of local tubercular deposit on the superficies of the brain which lately came under my observation. To the experienced members of the Society, the case may offer little on the score of novelty, however much to myself, and it is therefore not without hesitation that I presume to submit it to their notice.

The patient was a little boy, two years old, a fine intelligent child. His mother, who is a very sensible woman, informed me, he had been a healthy child from the time of his birth: he had suffered

little during dentition—at eleven months old he had twelve teeth, and could then walk alone. Altogether, she considered him a forward child, very active and of quick perceptions. There was one circumstance, however, with which both his father and his mother had been particularly struck, and that was a change in the disposition of the child, which they had observed to have been gradually taking place for more than four months previous to his last illness. From being a happy, placid child, he had become irritable, peevish, and petulant,—impatient of control,—very determined to have whatever he set his mind upon, and not to be driven from his purpose; in a word, to use their own language, he had become a most *obstinate* and *self-willed boy*. So marked, indeed, was this change of disposition in the child, that it had become a subject of serious consideration with his parents, whether it was to be attributed to some latent disease, under which he might be labouring, or to mere infirmity of temper. But as the child continued to eat, drink, and sleep well, and did not appear to be suffering from any bodily complaint, which they could detect, they did not take any medical opinion, but contented themselves with endeavouring to correct, by moral discipline and management, what they were inclined to consider rather as an infirmity of the mind than of the body.

On the 7th of October I was suddenly called to attend him, and he died in about six weeks, on the 15th of November. He had awoke, as usual, between six and seven o'clock in the morning, and

whilst amusing himself with his sister, in bed, and in the act of attempting to turn over, his left hand began suddenly to jerk or twitch convulsively, but the convulsive twitching did not extend beyond the wrist. Alarmed at the sight of this, his mother immediately sent for me. Beyond the continued convulsive jerking of the hand, the child did not appear to be in any other way affected. I found him laughing and talking, perfectly sensibly, and to all appearance, in every other respect, quite well. There was no preternatural heat of skin, no acceleration of pulse, nor any indication of general disturbance. On the application of hot water and mustard to the hands and feet, in about twenty minutes the jerking subsided, and for the remainder of the day the child appeared to be well and in good spirits. I gave him a brisk mercurial purgative,—a grain of calomel every four hours, and applied four leeches behind the right ear. At my second visit in the course of the day, I was told by his mother that the child had fallen down stairs about a fortnight before, but the circumstance had been studiously concealed from her by the nurse, and she was unable to say whether he had fallen upon his head or not. There was no swelling upon the scalp, nor any contused appearance, which I could perceive. She had observed, however, that the child had been more fretful and self-willed from the time of the fall. The day previous to his attack, he had also let rather a heavy box fall upon his left foot, and had cried almost incessantly for three hours after-

wards. The nail of the great toe was quite black, but there was no swelling nor tenderness to the touch.

At nine o'clock on the following morning the jerking returned, and extended to the elbow joint, but subsided in the course of half an hour, on the application of the mustard and water as before. On the 9th he had a slight return at seven o'clock, but so slight that I was not sent for. From the periodic nature of the attack—the local character of the symptoms—the absence of fever and constitutional disturbance, I was induced to suspend the calomel, and commenced giving six grains of the sesquicarbonate of iron every four hours. The next day passed without any return of the jerking, but I observed an imperfect paralysis of the hand and arm. The child too gave evidence of constitutional disturbance. He was irritable and fretful, with a quick pulse, hot skin, dry tongue, great thirst, and other symptoms of general pyrexia. He complained too of pain about the head, and frequently applied his hand to the right temple. I withdrew the iron, gave a sharp purgative, saline medicines, applied an evaporating lotion to the head, and resumed the calomel. On the 11th, at four o'clock in the morning, he had an attack of convulsive jerking, and another about three o'clock in the afternoon, a very severe one, which was not confined to the hand and arm, but involved the whole of the left side and lower extremity in convulsive agitation, with twitchings of the eye and angle of the mouth.

The attack lasted two hours, leeches were applied to the right temple, a blister to the nape of the neck, and the other measures continued. During the next two days, the 12th and 13th, he had two fits each day of a still more severe character. Towards the termination of the fits, and they each lasted two hours, he cried and even screamed violently, but throughout their continuance he was sensible, and could at times be soothed by kind attentions from his parents. The fits were followed by profound sleep for several hours, and the side was left partially paralysed. At one o'clock in the morning of the 14th, I was called up in consequence of a more severe attack than any he had previously had, and which lasted for nearly three hours. The convulsive agitation affecting the whole of the left side, from hand to foot, was violent. At times he screamed out, and then again was quiet: during the whole paroxysm he knew every one around him, but eagerly clung to his father, as if in dread. The head was shaved, and ice applied. About noon on the same day, I had the advantage of a consultation with my friend Dr. Todd, of King's College, just as another fit had subsided, which had been attended with this peculiarity, that the convulsive motion, contrary to its former course, had begun first in the foot, and from thence had gradually extended up the side to the arm and hand, leaving the leg paralysed and helpless. I had the benefit of Dr. Todd's assistance in the future treatment of the case. He agreed in the opinion which I had formed, that the child

was suffering from irritation of the membranes, or, more properly to speak, inflammation of the surface of the brain, and further offered it as his conviction, that the superficial inflammation, which was inducing the convulsions, was excited by the presence of tubercle, an opinion which the *post-mortem* inspection fully verified. Three grains of true James' powder were added to each dose of the calomel, and given every four hours as before, half a drachm of strong mercurial ointment was ordered to be put into each arm-pit night and morning, and the ice to be steadily applied. About half an hour after Dr. Todd was gone, the child had another fit, the most severe of all. The attack began as usual, first in the hand, and gradually extended upwards. The leg for some time remained perfectly still, extended and rigid, whilst the upper parts of the body on the same side were in a state of violent agitation. At length it partook of the same convulsive motion, and the whole of the left half of the body was dreadfully convulsed. During the paroxysm there were occasionally slight remissions in the violence of the agitation, attended with alternations of screaming and silence, with a perfect knowledge of every one around him. From this time to the 22nd, an interval of a week, he had no return of the fits. Occasional jerkings of the hand and foot were observed, and at those times, and more especially at their beginning, the child appeared to be in great dread, and clung eagerly to his parents. The paralysis was not persistent; but he was dull and

heavy, sleeping many hours at a time, yet perfectly sensible when awake; very anxious to take food, and most determined to have whatever he took a fancy for. He had a quick but weak and irritable pulse, with a dry, hot skin, and great thirst. The calomel and James' powder and mercurial ointment had been regularly persisted in, but without any appearance of salivation. On the 22nd he was seized with a kind of cramp or spasm—now in the hand, then in the foot,—at other times in the calf of the leg, muscles of the thigh or side, and from which, during its continuance, he seemed to suffer dreadfully. The violence of the pain, as in ordinary attacks of cramp, which it most closely resembled, was in some degree relieved by active friction. He was afflicted in this way for three or four days, when these spasms subsided, and left him with decided symptoms of effusion. The pupils, however, were not permanently dilated. They would be so for hours together, and then become contracted. The heat of the scalp, which had been great from the beginning of the constitutional irritation, was now not above the natural standard. He was dull and heavy,—in a state almost approaching to coma,—taking little if any food, and often sick. For some time he continued in this state, and appeared gradually sinking, when he was again seized with screaming fits, and afterwards with convulsive motions in the right arm and leg. The convulsions began in the arm and leg with a jerking motion, very much

in the same way that he was first affected, when the whole side of the body afterwards became agitated.

Sometimes the convulsive action extended to the left side. The arms and legs on both sides would be drawn up, and become rigid and convulsive, the head at the same time drawn backwards. He had attacks of this kind with slight intermissions throughout the day before he died, screaming violently at intervals. The head was hot—face flushed—pulse hurried—pupils dilated—eyes squinting and turned inwards,—insensible to light—eyelids constantly open, and only at times recognising the persons about him. On the subsidence of one of these attacks he gradually sunk, at a quarter past four o'clock, on the morning of the 15th of November.

I was assisted in the *post-mortem* examination of the brain by Dr. Todd and Mr. Bowman, of King's College, and I am indebted to the kindness of the former distinguished physiologist for the following account of the morbid appearances.

The scalp was pale and bloodless, like the rest of the body, which was much emaciated. The dura mater healthy. The vessels on the superficies of the brain were tinged with dark blood, but there was no subarachnoid effusion. The arachnoid cavity was natural. On the surface of the right hemisphere of the brain, under both the arachnoid and pia mater, there was a deposit of tubercular matter,

in patches of irregular shape and size, but the whole occupying a surface of about two inches square. The deposit was most abundant on the surface of the convolutions, it nevertheless descended into the sulci between them,—a circumstance which proved its connection with the deep surface of the pia mater. The cortical substance of the brain in contact with the tubercular matter was reddened and greatly softened, and, on microscopic examination, evinced a nearly total destruction of the tubules in it, a great enlargement of the proper globules of the gray matter and of the pigment granules which adhere to them. The softening extended a slight way into the subjacent white matter. On the edge of the left hemisphere, corresponding to the diseased patch of the right, a slight tubercular deposit had taken place in a similar manner, producing a red softening of the gray-matter in contact, but not occupying more than half an inch square in surface. The ventricles contained more water than natural—about double—and did not collapse when laid open. The cerebral substance throughout, excepting at the diseased part, was firmer than usual at the patient's age. This firmness was no doubt owing to the compression of the fluid, which probably at an earlier period of the disease was more abundant.

I have now submitted to the Society a plain narrative of the case, and it is one in which I have been personally much interested. To attempt a critical analysis of the symptoms in connection

with the morbid appearances, would involve me in a labyrinth of conflicting opinions, but I may be permitted to make a few cursory remarks. And first, it seems reasonable to infer that the fall which the child had, if not the blow upon the toe, had operated as an exciting cause in setting up diseased action about the tubercular deposit, and that the local affection, the simple twitching of the hand and jerking of the arm, was the consequence of such action. Admitting this, the extension of the irritation of the membranes thus induced would lead to the constitutional disturbance which followed, and to the increase of the convulsive agitation.

It is, I believe, generally admitted that irritation of the membranes and cineritious substance of the brain, is attended with convulsions, without decided or persistent paralysis, and that it requires the medullary matter to be involved to render the paralysis permanent. My own observation, so far as I have had an opportunity of investigating this interesting subject, accords with this opinion. In the present case, the paralysis was not persistent until after the violent attacks of cramp, and from this time may probably be dated the implication of the medullary substance in the inflammatory process. Admitting the justness of the view, that red softening of the brain is the result of chronic inflammation of its substance, persistent paralysis was not to be expected until the inflammatory action had involved the medullary substance.

On comparing the two hemispheres, the diseased portions and parts adjacent, the left presented evidences of more recent inflammation than the right, and this was to be expected from the history of the case.