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*Dr. Syde, with
Dr. Redfern's kind regards*

CASE OF HYDROPHOBIA;

WITH REMARKS

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EDINBURGH:
SUTHERLAND AND KNOX, GEORGE STREET.

MDCCCLI.

CASE OF HYDROPHOBIA;

WITH REMARKS

BY E. MEDDERS, M.D., LONDON.

[FROM THE MONTHLY JOURNAL OF MEDICAL SCIENCE, FOR FEBRUARY 1851.]

EDINBURGH:

HUTCHINSON AND SONS, PRINTERS.

CASE OF HYDROPHOBIA.

THE subject of this case was a female child, living at Blackburn, eight miles and a-half from Aberdeen, and attended during its illness by my friend, Dr Rainy of Kintore, who has very kindly furnished me with the following account of the symptoms and progress of the case, which I can substantiate as corresponding precisely with the statements made by the parents and friends of the patient to myself immediately on the termination of the case.

The child was two years of age, and was bitten by a dog on the 1st of March 1850. Its right cheek was bitten completely through, and severely lacerated; and on the forehead were two other severe lacerated wounds, reaching to the bone. The wounds were carefully washed and dressed by my colleague, Dr Rainy of Aberdeen, who happened to be in the neighbourhood at the time, and they soon healed perfectly. The dog was pursued for a distance of two miles, and was lost sight of in a wood; but he was found next morning at a farm-house in the neighbourhood, apparently in a state of great exhaustion, and was killed by the servants. It was afterwards ascertained that, three days before he appeared at Blackburn, the dog was rabid, and was pursued and fired at in a neighbouring parish. At that time he bit several dogs, which were instantly killed. A dog which was bitten by him, on the same day as the child, is said to have become mad within twenty-four hours.

The child's general health continued good until Friday, March 29th (twenty-eight days after the bite), when an unusual degree of alarm and anxiety were manifested by it; these symptoms becoming so much worse on the Saturday and Sunday, that little doubt remained that hydrophobia was commencing. On offering fluid out of a polished tin can, out of which the child had always been in the habit of drinking, it refused to take it, closing its mouth, and appearing excessively alarmed lest this vessel should be again offered to it; yet, at the same time, and during a period of twenty-four hours from the commencement of the attack, it drank freely out of any other vessel. The state of alarm and anxiety increased steadily; intermittent general spasms came on, and became more and more violent as the disease advanced. The entrance of any person into the room—touching the surface to feel the pulse—even looking at the child, or offering it fluid, caused violent convulsions, with spasm-

dic action of the diaphragm, indicated by pain and constriction in the epigastric and hypochondriac regions. During the first days the intermissions were occasionally of an hour's duration, but later in the disease the spasms occurred every ten or fifteen minutes. There was neither opisthotonos nor other form of tetanic spasm,—for the child lay on its side or clung to its mother during the spasms, or when any one attempted to touch it. Moreover, the intermissions were well-marked throughout. Not a moment's sleep took place during the whole illness, the spasms always coming on when, on the first days, the child attempted to sleep; whilst no tendency to sleep was noticed later in the disease. On the day previous to death, the little patient was at times furious, “wicked,” and attempted to scratch and bite. The pulse during the first and second days of the illness was from 95 to 100 in the minute, feeble, and easily compressed, afterwards becoming more feeble, and occasionally above 130 in the minute. The skin was rough and dry at first, but became soft and moist during the last twenty-four hours. The bowels were confined at the commencement, but there were two free motions on each of the last three days of the illness. The urine was passed regularly, but in small quantity. On the third day after the attack, a reddish blush appeared in the cicatrices, and extended fully an inch around them, but no suppuration occurred. During the last twelve hours considerable foaming at the mouth took place, and the frothy fluid was immediately removed by the attendants. Death occurred in the interval of convulsions, apparently from exhaustion, at half-past 9 o'clock A.M., on Wednesday the 3d of April, the fifth day after the first symptoms were noticed, and thirty-three days after the bite of the dog. During the whole illness, two-grain doses of calomel were given every two hours, without purging or other sensible effect. Two-drop doses of solution of morphia were administered during the last thirty-six hours, between the paroxysms, but without any apparent effect. Not more than twenty drops were given altogether.

The *Post-mortem Examination* was made by myself with the greatest care, in the presence of Drs A. and G. Rainy, twenty-seven hours after death, and the appearances were as follows:—

Body tolerably plump; abdomen distended with flatus; countenance expressive of great distress. A deep radiate cicatrix indicates the position of the wound on the right cheek; and two cicatrices, 1 inch and 1½ inch long respectively, adhering to the frontal bone, show the position of the other wounds.

Head and Spine.—Cranial integuments healthy; calvarium removed with great difficulty, owing to adhesions of the dura mater along the line of the sagittal suture, and in the position of the anterior fontanelle, which is yet open to the extent of three-fourths of an inch. On the external surface of the dura mater of the spinal cord, opposite to the 4th, 5th, and 6th dorsal, to the 12th dorsal, and two upper lumbar vertebræ, a thin layer of extravasated and partially coagulated blood exists, but every other part of the membrane appears healthy. The pia mater of the brain and cord appears slightly increased in vascularity. The posterior sub-arachnoid space, at the lower part of the cord, contains an ounce and a-half of clear serous fluid, and a small quantity of similar fluid exists at the base of the brain. The substance of the brain and cerebellum present larger and more numerous bloody points than usual; the lateral ventricles contain half a drachm of clear serum; the velum interpositum is considerably congested; but all the other parts of the encephalic and spinal mass are perfectly healthy, as shown by microscopic examination of every part presenting the slightest appearance of softening or other disease. The medulla oblongata, and the origins of the cranial nerves, especially of the fifth and eighth pairs, were subjected to a most careful microscopic examination, but not a trace of disease could be detected.

Neck and Chest.—The pharynx, fauces, tongue, salivary glands, larynx, and trachea, have been carefully examined, but show no evident traces of disease.

The papillæ circumvallatæ appear a little larger than usual. No vesicles exist under the tongue. Pleuræ healthy; lungs both crepitant throughout; lower lobes of both slightly congested; bronchi contain a reddish frothy fluid. Heart and pericardium healthy.

Abdomen.—Two reddened spots, about the size of the end of the little finger, exist on the mucous membrane of the back of the stomach near the œsophagus. The stomach contains two ounces of dark fluid like coffee-grounds. The small intestines are distended with gas, and the ileum contains a large quantity of very dark-greenish matter of considerable consistence. Along the whole length of the small intestine the solitary glands are of large size, closed, and they project considerably, appearing to be in equal number in the jejunum and ileum. The patches of Peyer are not unusually prominent. The large intestines are healthy, and contain dark feculent matter in small quantity. The liver appears very large, but cannot conveniently be weighed; it is of a pale yellow colour, mottled, and has all its cells full of very large oil globules, as in an extreme state of fatty degeneration. Pancreas healthy. Spleen small, firm, and healthy in structure. Kidneys pale but healthy. Bladder contains three and a-half ounces of very turbid urine.

Remarks.—The very decided madness of the dog which caused the wounds in the subject of this case,—the complete inoculation which such extensive wounds on a part not covered with clothes were calculated to produce,—the total absence of the slightest suspicion that the disease owed its origin to the influence of the imagination, or to any other cause than the bite of a rabid dog,—the gradual and insidious commencement of the symptoms after an interval of perfect health and the healing of the wounds,—the occurrence of redness in the neighbourhood of the injuries,—the steady, determined, and dreadful increase in the intensity of the symptoms as time wore away,—the inexpressibly horrible nature of the symptoms themselves, and their termination in death without the indication of any physical change capable of producing or explaining them, alike lead to the conclusion, that the disease was the most horrible of all human afflictions—hydrophobia. The certainty attending the nature of the case rendered me doubly anxious to make a careful examination of the body, and I was enabled to do this under the most favourable circumstances by the kindness of my friends, Drs A. and G. Rainy. The post-mortem appearances most worthy of notice are the slight congestion of the pia mater of the brain and cord, the more considerable congestion of the velum interpositum, the quantity of the fluid in the posterior sub-arachnoid space, and at the base of the brain, and the slight extravasations outside the dura mater of the cord in two circumscribed spots. The thinness of the clots of extravasated blood, and their existence outside the dura mater, preclude the idea of their having been in any way concerned in the production of the symptoms. It is impossible to state with certainty how they were produced, but the conjecture that they resulted from the convulsions appears liable to fewer objections than any other. What influence may have been exerted by the slight congestion of the pia mater of the brain and cord, of the velum interpositum, and of the substance of the cerebrum and cerebellum, it seems quite im-

possible to determine in the present state of our knowledge; for, whilst in amount it appears to fall very far short of a congestion capable of influencing the nervous centres to any material extent by compression, we must not forget the lesson taught us by the pathology of those cases of cerebral apoplexy in which no trace of congestion or effusion is found after death. Moreover, congestion appears by no means a constant occurrence in hydrophobia, as it was absent in Dr J. A. Sidey's case¹, examined by Professor Bennett, and in many instances occurring to M. Gendrin, and others. In the cases of Dr Lucas² and Dr James Struthers³, Dr W. T. Gairdner found slight congestion; but neither he nor Professor Bennett could detect any change of structure in the nervous centres, or eighth pair of nerves, though we may be satisfied that they used every existing means for that purpose.

In the present instance, I was led to the careful microscopical examination of every suspicious part of the nervous centres, and especially of the eighth pair of nerves, by the suggestion of Dr Bennett, in his excellent article on Hydrophobia in the "Library of Medicine," but the structure of every part appeared perfectly healthy. Such results, in several instances, after the use of our most important means of research by different individuals, point to the imperfection of our knowledge, too plainly to be misunderstood. We are still in great darkness regarding the normal action of the nervous centres, and it is, therefore, extremely improbable that we shall be able to comprehend their diseased actions as long as this state remains. Yet it is the duty of every one who is furnished with the opportunities, to add to the number of carefully conducted pathological inquiries; for, as physiological and pathological phenomena and laws mutually explain each other, the inquiry may be successfully carried on in both directions at the same time. At present we know nothing of the structural characters of the nervous centres after death from rabies, in the lower animals, though the disease is so common: we have not even ascertained the absence of any lesion capable of being detected by our present means of research. This is, therefore, a very important part of the inquiry; for, if a structural lesion causes the fearful symptoms of this disease, there cannot be a doubt that it is capable of being detected in the lower animals as readily as in man; and if the symptoms occur without a material change, this, too, may be ascertained with equal satisfaction by the same method. I may here remark, that I shall feel greatly obliged for any opportunities of examining animals recently dead of hydrophobia, which may be afforded me by those into whose possession they may happen to fall; and that, should such examinations accumulate and appear of sufficient importance, I shall not fail to lay the results before the profession. But it is not at all improbable that no

¹ Monthly Journal, vol. xi., p. 506

² Ibid, vol. ix., p. 936.

³ Ibid, vol. xii., p. 9.

structural lesion whatever exists in this and in many other nervous diseases, for there is much more than matter to be attended to, and every observable phenomenon is doubtless of the utmost importance. We have scarcely achieved more in the examination of purely vital actions than to ascertain the existence of a vital force, energy, or principle, which has hitherto eluded our grasp, and is yet most powerful in determining the action of various forms of matter. Matteucci and others have opened up a vast field of research in the observation of several of the most wonderful phenomena of organization, and have abundantly proved to us that there are yet many volumes of the book of nature, the perusal of which we have not commenced. It is, indeed, already shown that a peculiar force is manifested in animals in the physiological actions of the nervous and muscular systems, and that, though this force resembles electricity, yet it is perfectly distinct from it. How possible, then, does it appear, that an increased or perverted action of such a force upon the tissues of an animal body may give rise to the whole phenomena of alarming and destructive diseases, and yet leave their structure without a single evidence of material change?

