

## ORIGINAL COMMUNICATIONS.

## ON THE PATHOLOGY AND DIAGNOSIS OF CEREBRAL DISEASES.

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On a former occasion, I introduced to the notice of this society some Clinical Illustrations of Diseases of the Nervous System; and I then stated my intention, at some future period, to offer some general remarks upon the pathology, diagnosis, and treatment of this class of affections. I now proceed, as far as lies in my power, to redeem that promise, with the aid of such observations as I have subsequently been enabled to make in this very obscure department of practical medicine.

Bearing in mind the limited period allotted to papers like the present, I have no intention to present an elaborate essay upon cerebral diseases; but while grouping together my observations for the sake of clearness of description, I shall carefully avoid availing myself of the works of well-known authors, and confine my illustrations to those cases which have fallen under my own care, and my reflections to those ideas which have occurred to my own mind. In order also to obviate unnecessary prolixity, I shall lightly pass over those subjects which are well understood, and on which little or no difference of opinion exists, and attach a due degree of prominence to those points which have been but little investigated by authors, or on which the opinions of well informed practitioners are divided.

With regard to the PATHOLOGY of cerebral diseases, it must be admitted that the greatest obscurity and difficulty still exist; and it is too frequently a matter almost of impossibility to connect the symptoms observed during life with the appearances revealed after death by the scalpel. But as the term "pathology" includes both classes of phenomena, it will tend to simplify the subject if I confine my remarks, in the first place, only to the appearances observed after death, or, in other words, to the morbid anatomy of the textures.

Before proceeding to the consideration of those alterations of structure which are seen in or upon the encephalon and its membranes, it is of extreme importance to notice the morbid anatomy of the calvarium, which is undoubtedly concerned in the production of many cases of cerebral disease. Independently of those instances of external injury which induce cerebral symptoms, and of which I do not intend to treat, there are morbid changes in the bony structures, occurring spontaneously, which involve serious disturbances of the nervous system.

The following cases will, I think, prove the truth of this position:—

CASE I. A woman in the Islington Infirmary suffered continually from epileptic seizures, and was under my observation for about ten years: the fits were frequent, occurring at irregular intervals, and of a very violent character. In the intermissions between the fits, her health was tolerably good, with the exception of occasional headache; her intellectual faculties were quite unimpaired. She always derived benefit from the local abstraction of blood, and she was therefore on several occasions cupped between the shoulders. Blisters were applied, and kept open in the same situation; purgatives were administered, and a strict antiphlogistic regimen was maintained. Her diet was of the lightest character; no solid food or beer was allowed; and she derived her sustenance entirely from a very moderate allowance of milk, eggs, bread, and thin broth or beef-tea. This treatment was so far successful as to afford her considerable relief; but at length the fits became more and more frequent and severe; typhus supervened, and she died. The following appearances presented themselves at the *post mortem* examination.

The body was plump and well formed, and there was a

layer of fat beneath the skin, about three-quarters of an inch in thickness over the abdomen—a rather remarkable fact, considering the tenuity of her diet. *Head.* The scalp was natural; the skull externally presented no peculiar appearance; and no difficulty was experienced in sawing it through. On removing it, however, and examining it, it was found that there existed a remarkable want of uniformity between the two surfaces of the skull in some parts, owing to thickening of the osseous structure, particularly of the internal table, which, instead of being thin and brittle, was thick and solid. Along the line of the circular incision made by the saw, the skull was of about the average thickness. The os frontis was then sawn through, immediately in front of the coronal suture. Along the line of incision made in the usual process of removing the calvarium, the thickness of the cranium was one line and a half; but the part corresponding to the right frontal eminence was half an inch thick, and the same part on the left side was five lines in thickness. All the prominent bony processes were much increased in thickness and asperity, as the crista galli, the posterior clinoid processes, the bony ridge of the petrous portion of the temporal bone, the ridges on the internal surface of the occipital, etc. The dura mater was congested, the vessels of the arachnoid membrane were also congested, and the membrane itself was opaque and thickened; beneath the membrane there were two or three drachms of serum mixed with blood. The brain was flattened in front, the depression exactly corresponding to the thickening of the internal table of the skull. The substance of the brain was firm, and the grey portion was of an unusually dark colour: but this organ presented no other peculiar appearance. The other organs of the body were carefully examined, but no morbid appearances of importance were observed.

I consider that the epileptic attacks in this case were probably due to the thickening of the internal table of the skull, and the consequent abnormal pressure exerted upon the surface of the brain.

CASE II. In the spring of the year 1850, I attended, in conjunction with Mr. Beaman, of Covent Garden, a tradesman who had suffered severely for a long period from a pain in the front part of the head, and who had likewise experienced one or two epileptic fits. When I saw him, he had long been complaining of a fixed pain about the root of the nose, at the part where the nasal bones unite with the frontal bone. He felt his head rather confused, but his intellect was by no means impaired. When he went out to walk, he was often seized with a kind of giddiness, and this feeling increased so much upon him, that he was afraid to walk out alone. The head was not hot, the pupils were natural, the tongue was moderately clean, the pulse was regular, the bowels were open. He was a stout, healthy looking man, and told me that he had never had syphilis, nor had he suffered from any other disease before. The pain of which he complained, however, and the giddiness and confusion he felt when walking out, distressed him excessively, and made him almost tired of his life. As I could discover no disease of any of the great viscera, I could come to no other conclusion than that the cause of his suffering was probably a thickening of the internal table of the skull covering the anterior and inferior surface of the brain, and that the pressure thus produced upon that organ was the cause of the symptoms. I accordingly recommended four leeches to be applied over the root of the nose and lower part of the frontal bone; I also ordered a pill, containing two grains of calomel with four of compound rhubarb pill, to be taken every night, and four grains of iodide of potassium every four hours in peppermint water. I saw him again in a week, and found that he was slightly improved, but his chief symptoms still remained. I diminished the quantity of calomel, but continued the iodide of potassium. In another week he was still much the same, but he had no recurrence of fits. I increased the dose of iodide of potassium to five grains, and continued the small doses of calomel. In another week, his gums were tender, so that he was unable to eat, and he had con-

siderable salivation. I therefore discontinued the calomel. He was not decidedly improved. I continued the iodide of potassium, increasing the dose to six grains. He continued to use this medicine; and during the summer he went out of town, but returned in September without much improvement. I now saw him again, and found that he still complained of the same symptoms; namely, dull heavy pain at the region above indicated, and giddiness and confusion when he went out to walk. The constancy of the symptoms, their localisation, and the absence of any disease elsewhere, confirmed the diagnosis I had first given, and I determined to persevere in the use of the iodide of potassium in augmented doses. I therefore ordered it in doses of seven grains every four hours. The system became at last so thoroughly impregnated with the iodide, that on applying a little sulphuric acid and starch to the urine, it was at once turned to a deep blue colour. This plan was therefore assiduously continued, although I began to have doubts whether it would eventually succeed; and the patient, although very obedient and tractable, began to be tired of the quantity of medicine which he was obliged to take. I ought to mention that this person was in a very good business, which he was compelled to relinquish owing to his illness.

I lost sight of this case after the year 1850; but on inquiring into the particulars a few days since, I found to my great satisfaction, that the plan I had first recommended had been pursued regularly, and that the patient had gradually recovered. He is now (Oct. 1853) actively employed in business, takes no medicine, is well and hearty, and complains only occasionally of a slight recurrence of his old symptoms.

I think I am not assuming too much in believing that this was a case of partial thickening of the skull, and that the long-continued and persevering use of iodide of potassium produced absorption of the thickened part, and thus relieved the disease.

CASE III. In August 1853, I attended a man who was brought into the Islington Infirmary, and who complained of pain in the head, over the os frontis. In this case, there was decided thickening of the root of the nasal bones, and of the inferior and nasal part of the frontal bone, perceptible to the sight and palpable to the touch. I could obtain very few particulars of this man's history, as he was of the class of persons called "tramps", who wander about from place to place, obtaining their living partly by begging and partly by stealing, exposed for the greater part of their life to the vicissitudes of wet, cold, and hunger. I considered this to be a case of undoubted thickening of the bones, causing pressure on the brain, and I tried the same system as that which is recorded in the last case. I put him upon a course of iodide of potassium, four grains being given every four hours in infusion of gentian. Although this plan was perseveringly pursued, it was not attended with success, for the man gradually became insensible and lethargic, remained quite unconscious of surrounding objects and impressions, and finally died comatose, after having had a copious discharge of blood from the nostrils. On a *post-mortem* examination, it was found that the nasal bones, and the lower and nasal part of the frontal bone, were much thickened; and on the surface of the brain corresponding to this region, there was an abscess of about the size of a filbert.\*

While alluding to the diseases of the bony structure in connexion with cerebral symptoms, I would allude to a want of symmetry of the two sides of the cranium, which I have occasionally observed in cases of cerebral disease.

\* In a discussion which took place at the Westminster Medical Society, in 1848, Dr. Cormack, in alluding to the causes of puerperal convulsions, took occasion to notice the views of Bokitansky, who has described the growth of intra-cranial osteophytes during pregnancy. Dr. Cormack then proceeded to argue that not only might such adventitious growths give rise to convulsions in the puerperal state, but their persistence might also account for epileptic seizures at subsequent periods; and farther, that in both sexes, and in non-puerperal states, epilepsy might be caused by bony growths pressing upon the brain. These observations are recorded in the *London Journal of Medicine* for January 1849.

Thus, in a case of suicidal mania, terminating fatally in a very short time after most violent paroxysms, in 1851, I found that the two sides of the skull were unsymmetrical in a very marked degree, and the skull looked as if it had been subjected to pressure, which had caused its walls to be compressed unequally. As an example of this want of symmetry, it was particularly observed that the part of the skull which, according to phrenologists, is placed over the organ of destructiveness, was prominent on the left side, and depressed on the right; while the right frontal region was prominent, and the left depressed. And in a case which I examined a few weeks since (Oct. 1853), and in which the patient died suddenly, apparently from effusion of serum in the brain, I observed the same want of symmetry between the two sides of the skull. The left frontal region was depressed, the right elevated; while the temporo-occipital region was projected on the left side, and depressed on the right.

I do not lay much stress on these cases, but I think that they deserve to be recorded; and it is possible that other cases may be found in which similar deviations from symmetry may prove to be associated with disordered cerebral manifestations.

The morbid anatomy of the cerebral membranes is involved in very great obscurity, the most violent symptoms during life leaving often very few traces observable after death; and, on the other hand, appearances usually described as morbid are found unconnected with any cerebral symptoms during life. I have been in the habit of examining the brains after death in all cases whenever practicable, whether the patient had exhibited cerebral symptoms during life or not; and by a comparison of a few of these cases, it will be seen that the appearances observed are very unsatisfactory; and that, without a knowledge of the case before death, the investigator might be easily misled in endeavouring to trace by the scalpel the causes of the fatal event. It is certainly of very great importance that the morbid appearances in the cerebral membranes should be accurately and strictly defined, and that vague description should be banished altogether from this department of pathological anatomy. When we find writers professing to explain, for instance, the pathology of insanity, and telling us that, in a hundred cases, two-thirds exhibited disease of the arachnoid membrane, such disease consisting in "effusions on its surface", "effusions beneath its surface", "more or less opacity", etc., we are tempted to inquire whether these can be properly considered as morbid phenomena at all; or, at any rate, whether they might not be discovered in the heads of any hundred persons taken indiscriminately from a general hospital. The error committed by such writers is, no doubt, due to the fact that, being specialists, they examine only the heads of persons who have suffered from some one form of disease; and the *post-mortem* appearances are afterwards adduced in support of their "foregone conclusions".

The best instances of diseased conditions of the cerebral membranes are those observed so frequently in children who die of the malady termed hydrocephalus. In the fatal cases of the acute form of this disease, an abundance of fluid is poured out into the ventricles and into the theca vertebralis; and besides this abnormal effusion, there are very frequently observed masses of coagulable lymph, especially about the base of the brain. Both phenomena are clearly due to inflammatory action; for the heads of children whose brains have not been diseased do not exhibit such conditions. But in adult years, although the symptoms of meningeal inflammation may be very distinct during life, we do by no means uniformly discover after death appearances which are at all in proportion to the violence of the attack. Indeed, it is very difficult to understand why an inflammation, involving only the slender web-like membranes covering the periphery of the brain, should excite such a violent commotion in the mental and physical powers, and should so frequently terminate in death, while a large tumour or an extensive abscess in the substance of the brain may exist for a long period, without materially de-

ranging the system or shortening the patient's life. But such are undoubtedly the facts; and, mysterious as the explanation may be, it is certain that the delicate film on the surface of the brain is endowed with more exquisite sensibility than all the rest of the encephalic structure. In cases of diseased membranes, it is very difficult to ascertain the exact membrane which is involved; and the arachnoid membrane and the pia mater are so intimately adherent together, that their respective inflammations are almost undistinguishable. It is a curious fact, that although the arachnoid is a serous membrane, like the pleura, the pericardium, and the peritoneum, it is by no means usual (except in the case of children, above alluded to) to find exudations of plastic lymph *between its opposite layers*. The appearance usually observed is an effusion beneath the arachnoid; and this circumstance seems to confirm the view of Rokitsansky, who is inclined to regard the pia mater as the chief seat of disease.

The following are, I think, illustrative cases on this point:—

CASE IV. A woman, 68 years of age, is suffering from acute rheumatism in the wrists; the disease attacks first one wrist, then the other; it is treated in the usual manner. She is bled; warm fomentations are applied to the joints; calomel, colchicum, and purgatives are administered. Suddenly, the pain quits the joints, and cerebral symptoms appear; the head is hot, the pulse rapid, the mind is wandering; in the course of twenty-four hours, coma supervenes, and the patient sinks. An examination of the head is made after death, and nothing is revealed beyond the effusion of some limpid fluid in the subarachnoid space, and a vascular appearance of the arachnoid membrane, due probably to inflammation of the pia mater, seen through its transparent texture. The arachnoid membrane is not thickened, and the brain itself exhibits no morbid appearances.

CASE V. A respectable and steady man, in the middle class of life, about 35 years of age, suffers from dyspeptic symptoms, which, however, do not seem of a very severe character, and are treated in the ordinary manner. He becomes, however, gradually worse; his mind begins to be confused, and he takes to his bed; his head is hot, and his pulse is full and strong. A copious bleeding is practised with some degree of benefit, and the blood is bled and cupped; calomel is then freely administered, but he becomes worse and worse; coma supervenes, and he dies. An examination of the head is made; but nothing is found, after the most careful investigation, but an effusion of transparent lymph beneath the arachnoid membrane.\*

Now if we compare these cases, which I think are undoubted instances of cerebral meningitis, with others in which no cerebral disease appeared to exist during life, we shall often find in the latter copious effusion beneath the arachnoid, with decided thickening of that membrane.

CASE VI. A woman, aged 34, was admitted into the Islington Infirmary, labouring under hypertrophy of the heart, with disease of the mitral valves, apoplexy of the lungs, and general anasarca; but without any cerebral symptoms. She died about a week after her admission, and a *post mortem* examination was made. It was found that the morbid appearances in the chest corresponded to the symptoms during life; and the following was the account given of the condition of the cerebral organs. The scalp, skull, and dura mater, presented no peculiar appearance. The arachnoid membrane presented an inflamed appearance, owing to the minutely injected vessels of the pia mater being seen through it; it was also thickened in

a few places. A large quantity of thin serous fluid was found beneath this membrane, also in the ventricles, and in the vertebral canal.

CASE VII. A woman, aged 64, of a sickly constitution, suffered from hypertrophy of the heart and pneumonia, of which diseases she died, but without exhibiting any cerebral symptoms during life. A *post mortem* examination was made, and the diagnosis of the thoracic diseases was confirmed. The following were the appearances observed in the head. The scalp and skull presented no morbid appearance. The dura mater was congested, and the sinuses were full of half-coagulated blood. The vessels of the pia mater seen through the arachnoid were highly congested, and injected to their minutest ramifications. The arachnoid membrane was thickened at the vertex, where it presented an opaque, pearly appearance, owing to the effusion of serous fluid beneath it. The quantity of serous fluid was upwards of three ounces. There was a little fluid in the ventricles; their lining membrane was congested, and the choroid plexuses were œdematous.

I might multiply cases of this kind to an indefinite extent, as I have notes of many *post mortem* examinations, in which the same appearances have been observed. I confess that I formerly laid so much stress upon the phenomena usually described as characteristic of meningeal inflammation, that I carefully noted all cases where the arachnoid membrane was thick and opalescent, and where there was serous effusion beneath it; and I considered that these appearances were due to the existence of arachnitis during life. I am now convinced, however, that all these appearances may be observed, without the necessary pre-existence of any inflammation of the membranes at all, at least in the sense in which that term is applied. I believe that the thick and tough condition of the arachnoid membrane is a very common occurrence, especially as age advances; and that the effusion beneath its cerebral layer is often to be considered either as a *post mortem* change, or as caused by the same laxity of the extreme vessels as gives rise to passive exudations of serous fluid in the pleura, the pericardium, the peritonæum, and in the general subcutaneous areolar tissue.

Now I believe these observations to be of great importance, because there is too great a tendency in the present day to jump at conclusions, and, in the department of pathology, to consider as pathogenetic phenomena appearances which are not truly morbid at all.

If it be asked, then, what are the appearances observed after death, in cases which have died of meningeal inflammation, I reply that they are by no means necessarily well marked. If, indeed, the arachnoid *alone* be the seat of disease, then we should expect to find what we do occasionally find; namely, the results of serous inflammation, the thickening of the membrane, and the *effusion of plastic lymph between its opposed surfaces*; but this is comparatively rare; and in the more common case of subarachnoid inflammation involving the pia mater, the appearances after death may be very inconspicuous. Nor can we wonder that such is the case: for inflammation of the pia mater is *not* followed by effusion of plastic lymph, and the only appearances which we can expect to find would be increased vascularity and the effusion of limpid fluid. But, at or after death, the minute arteries are usually emptied, even although inflammation may have existed during life. Thus, if a person were to die while he was suffering under an attack of conjunctivitis, we might find the conjunctiva very slightly injected, or perhaps not all; and, indeed, if a person faints, during an attack of conjunctivitis, the membrane is pale while the fainting continues. It is, therefore, by no means extraordinary that inflammation of the pia mater should leave very few traces after death, more especially when the course of the disease has been rapid, and the inflammation has not had time to induce disorganisation of the adjacent tissues.

It is necessary, then, to be extremely cautious in forming our judgment in cases of meningeal inflammation; and a correct result can be attained only by comparing carefully

\* I have selected these two out of a number of cases, because I think there can be no doubt in any reasonable mind that they are instances of cerebral meningitis. In the first case, it is distinctly obvious that the inflammation was transferred from the fibrous surfaces of the joints to the cerebral membranes, or, in other words, was an example of what has been called *metastasis*. In the second case, again there is distinct evidence of inflammation within the head, and I think the cupping and bluing of the blood afforded very strong proof that a membranous structure was involved. In the obscurity which attended the case during life, this circumstance struck me as affording the proper clue to the diagnosis.

the symptoms observed during life, with the appearances revealed after death. I believe that the following rule is in accordance with observed facts; namely, if a patient, who is not suffering from albuminuria, have a hot head and a hot skin, vomiting, squinting, delirium; if the blood which is drawn be buffed and cupped; if the patient become comatose and he dies; and if after death there be found increased vascularity of the pia mater, and effusion beneath the arachnoid membrane, then the case is most probably one of meningitis, although the effusion be but small, and the vascularity not remarkable; but if there be an absence of all cerebral symptoms during life, then, even although there be thickening of the arachnoid and effusion beneath it, these appearances do not necessarily indicate meningeal inflammation, nor are we justified in considering them as morbid phenomena.

I pass over the pathology of inflammation of the substance of the brain, of congestion of the brain, of hæmorrhage within the brain, and of softening of the brain, because the time will not allow me to enter fully into these subjects, and because the pathology of the membranes is the subject which now most urgently demands consideration.

The diagnosis of cerebral disease is a point of very great difficulty, but of immense importance; and, although in numerous cases all treatment is unavailing, yet we are frequently enabled to effect the most beneficial results by appropriate therapeutic means. I have already shewn that formidable symptoms and rapid death, may be caused by a superficial inflammation of the brain, while a deep seated organic disease may excite perhaps no symptoms at all, and may destroy the patient only after a long duration. Again, it must be remarked that the different forms of insensibility are very nearly allied in their general appearance, and yet spring from causes wholly distinct, and require very different treatment. Four persons, for instance, are lying in a police station-house in a state of total insensibility; and yet their stupor, which is the symptom common to all, arises from opposite causes. One is a woman suffering from hysterical coma; a second is a man who is *dead drunk*; a third is poisoned by opium; a fourth is labouring under the advanced stage of inflammation of the membranes of the brain. The first is restored to consciousness by the copious affusion of cold water to the head; the second sleeps off the effects of his debauch in a few hours; the third is cured by the administration of emetics, and the use of the stomach pump; the fourth may be recovered by a large blood-letting. Yet if any of these remedies be applied to the wrong cases, the most deplorable results would ensue: a large bleeding in the hysterical case or the case of intoxication would aggravate the symptoms tenfold in the first, and change the temporary stupefaction into the sleep of death in the second case; the affusion of cold water, and the administration of emetics, would accelerate the fatal event in the case of meningitis. Although these cases are grouped together for sake of distinctness, the occurrence is not an imaginary one; and such instances, though not perhaps occurring all at once, are frequently observed in practice.

Again, two persons, rather advanced in years, drop down insensible, without any previous warning; but one is suffering from softening of the brain; the other labours under vascular congestion of the same organ. Wine, brandy, ammonia, and ether, may possibly restore the one; a copious bleeding is the proper and perhaps successful treatment for the other.

Once more; two persons are delirious and unmanageable; but one suffers from inflammation of the substance of the brain, the other from delirium tremens: the first shall derive the most marked benefit from bleeding, purgatives, calomel, and the local application of ice; the second shall be tranquillised by large doses of opium.

Nor must it be forgotten that the most terrible symptoms indicating brain disease may exist without any structural derangement of that organ at all, and may be due to disease of remote parts. Obstruction in the renal tubes may give rise to symptoms precisely resembling apoplexy; teething in children and abdominal irritation may produce the

most frightful convulsions. It is most essential to distinguish cases of *centric* from those of *eccentric* origin; and the life of the patient too often depends upon the accuracy of the diagnosis. The following is a case in point.

CASE VIII. A child, nine months old, delicate from birth, contracts the whooping-cough, and soon after becomes the subject of well marked and long continued convulsive attacks. The eyes are rolled about in all directions, and a squint is frequently observed; the thumbs are drawn in towards the palms of the hands: the child takes no notice of the objects which formerly interested it. The motions are offensive; the pulse is rapid, and occasionally intermittent. The symptoms continue; the convulsions increase in violence; the pulse sinks; and the sufferer seems to be in imminent danger of being carried off in one of the fits. The child is carefully examined: the head, although hot during the continuance of the fits, is cool in the intervals; the eyes, although irregularly rolled about, are not much affected when turned to the light, and the pupils are neither contracted nor dilated in a morbid manner, but contract on the approach of light, and expand when it is withdrawn. The tongue is not very foul, *and there is no vomiting*; the pulse, when examined in the intervals between the fits, is steady, but rather weak; the bowels are irritable; the gums are examined, and some points of teeth seem to be struggling through the gums. *The child is not suffering from organic disease of the brain*; leeches are not to be applied to the head, and calomel is not to be administered. The gums are freely lanced; the breast-milk, on which the child has been living, is withdrawn, and well selected artificial food is substituted; chloroform is inhaled to moderate the convulsions; rhubarb and soda are given at regular intervals; hydrargyrum cum cretâ is occasionally administered; and weak brandy and water is sometimes ordered when the exhaustion is urgent. No improvement is observed for some time; the fits are still very violent, especially after the ingestion of food; but, after a time, the convulsions become less frequent and more slight, and finally disappear altogether.

In a case like this, if the practitioner were to be guided only by the more prominent symptoms, namely, the convulsive actions, he might infer that cerebral inflammation existed; and a treatment based upon that view would undoubtedly accelerate, if it did not cause, the death of the patient.

CASE IX. On the 1st of September of this year, I was called to see an infant, a fortnight old, who was said to be suffering from constant convulsions, which had resisted all ordinary methods of treatment. On examining the history of the case, I found it to be the following:—The lady, who was the mother of the infant, was rather weak, nervous, and hysterical; and, during the early part of her pregnancy, she received a great mental shock from her husband betraying some well marked symptoms of aberration of mind, of which, however, he soon completely recovered. Her labour was a tedious one, but was not marked by any other peculiarity, unless it be deserving of mention that the gentleman who was to have attended her in her confinement was out of town at the period, and she was obliged to accept the services of another practitioner. She recovered rapidly from her confinement; indeed, she thought herself so well, that, contrary to the advice of her medical attendant, she was out of bed in a week. About this time, the infant began to be convulsed, which caused her very great alarm. When I first saw the case, I found the infant convulsed very frequently, but sleeping in the intervals: the eyeballs were thrown about in various directions; and the thumbs were drawn in towards the palms of the hands. I found, however, that the head was not hot; that there was no vomiting; that the tongue, so far as I could see it, was not foul. The skin generally was cool, and slightly moist; the pulse was 120, and regular; the child took the breast-milk with avidity; the motions were yellow, and without any disagreeable odour. On turning my attention to the mother, I found her in a very weak and nervous condition, and walking about the room, although only a fortnight had

elapsed since her confinement. Her pulse was very weak, her face pale, her breasts flabby, her milk thin. I therefore directed particular attention to her state. I recommended her to go back to bed; to drink milk, and occasionally bottled stout; to eat mutton chops; to take quinine; and, as far as possible, to keep her mind at rest. For the baby, I recommended only a little powder of soda and rhubarb to be given occasionally, as I felt convinced that the convulsions were *eccentric*, and not caused by any disease of the brain or spinal cord. I also recommended milk and water with sugar to be occasionally given to the infant. When I next visited the cases, I found that the mother was already better, her pulse stronger, and her mind more composed; but the infant still had convulsions. I now recommended the mother to discontinue nursing; and, as there was a person in the house who had a good breast of milk, I directed the infant to be applied to it, and saw the child drink with avidity. I made no other alteration in the treatment. Three weeks afterwards, I was again requested to visit the case; and the mother, who was much better, considered the infant's condition as hopeless, as the convulsions had continued ever since my former visits, but not quite so frequently. But, after again carefully examining the child, I assured her that it would in all probability recover, and recommended change of air both for mother and infant. I also recommended a mixture for the child, containing a little tincture of assafoetida, with magnesia, to be given at regular intervals. I did not see the case again; but I am informed by the medical gentleman who had the charge of the case, that my original view had been correct; that the convulsions gradually became less and less frequent, and less violent; that both mother and child went to Brighton; and that no farther medical attendance was considered necessary.

Now, I do not by any means assert that cases like those just recorded are free from danger, or that we are justified in giving a decidedly favourable prognosis; for in very young infants, and in children during dentition, the very violence of the functional disturbance may carry off the patient at once, or wear out the powers of life by its long continuance; but I holdly declare that a correct diagnosis will save many patients whom an incorrect one would destroy. The routine system of applying leeches, giving calomel, and administering purgatives, however useful in cerebral inflammations, is destructive to the patient in functional disorders of the brain; and, in these latter cases, the use of mild alteratives, and strict attention to diet and regimen, will often effect a cure.

As I have confined my remarks chiefly to diseases affecting the skull and the cerebral membranes, and to those disorders which may be mistaken for them, I shall conclude with a summary of the chief points of diagnostic importance.

1. When a person suffers from constant and dull pain in the head, with or without convulsions, the pain being limited to a certain region, the external surface of the head being cool and the pulse regular, the digestive system not much or not at all disturbed, and the intellect unimpaired; if any thickening of the bony structure can be perceived, or if the patient has suffered from syphilis, it may be conjectured as probable that there is thickening of the skull, and that the symptoms are due to that cause. In such a case, a moderate diet should be enjoined; leeches may be occasionally applied; the bowels should be kept gently open; but I think our chief reliance should be upon the internal administration of iodide of potassium in increasing doses, and continued for a long period.

2. When there is pain and heat of the head, vomiting, nausea, want of appetite, foul tongue, derangement of bowels, rapid and full pulse, squinting, delirium, thirst, and subsequent coma, and if the blood drawn be buffed and cupped, there can be little doubt that the case is one of meningeal inflammation.\* In such a case, there is no time

\* I think it is hardly necessary to state that I am supposing the patient to be free from previous disease of other organs; for I purposely exclude these cases of pseudo-cephalic inflammation which may be due to fever, albuminuria, uterine diseases, etc.

to be lost; the warm bath must be used in the case of a child; cold must in all cases be applied to the head; leeches are always necessary: calomel is to be freely administered, and alterative aperients must be given at the same time. By the adoption of such measures many valuable lives may be saved.

3. When the head is cool, the pulse moderate, the tongue clean, the motions healthy, *then*, although there may be the most violent and long continued convulsions, squinting, drawing in of the thumbs towards the palms of the hands, and all other symptoms indicating deranged action of the nervous centres, there is nevertheless an absence of serious centric disease. We may here reasonably hope for a favourable termination by the use of ordinary hygienic means; such as lancing the gums, if the patient be undergoing the process of dentition; attending to the quality of the breast-milk in very young infants; correcting any ascences in the primæ viæ; change of air, and the judicious use of stimulants and tonics; and the adoption of all such other means as are calculated to improve the powers of the system in general.

It cannot be urged in too strong terms, that the mere existence of convulsions, however alarming they may appear, does not indicate, *alone*, a serious disease of the brain; these movements are merely the external manifestations of cerebral irritation, and are often caused by circumstances comparatively trivial. On the other hand, it must be remembered that, at all periods of life, the cerebral membranes, especially the pia mater, are apt to take on inflammatory action; and that, slight and web-like as this membrane is, and insignificant in appearance as are the lesions which it exhibits to the scalpel or to the microscope, yet upon its integrity or its unsoundness often depends the brightness, the perversion, or the obscurity of the intellect; and that an inflammatory disease of its texture is one of the most frequent causes of death. The most energetic treatment often fails to rescue the patient from the grave; but it is nevertheless of paramount importance to detect the malady during life, and, if possible, to arrest its progress.

8 Torrington Square, November 1853.

## AN INQUIRY INTO THE RELATIVE MERITS OF THE INTRA- AND EXTRA-PERITONEAL METHODS OF HERNIOTOMY.

By JOSEPH SAMPSON GAMGEE, F.sq.

WHILE working in the Florence Hospital, two years ago, I expressed surprise to my friend Dr. Palamidessi, the assistant clinical surgeon, at finding that, in operating for hernia, no attempt was ever made in that institution to reduce without opening the sac. Hence arose a discussion on the merits of this plan, which resulted in the doctor promising that he would put it to the test when a fitting case presented itself: he accordingly did so, but not without the propriety of his practice being called in question. At this juncture, he called upon me to furnish him all the evidence in my power in support of the extra-peritoneal operation. To comply with this request, I was led to devote considerable time to bibliographical research and analyses of cases. At the close of this investigation, I have been surprised at the unsatisfactory state of knowledge on the subject; the opinions of distinguished surgeons being conflicting, and facts to reconcile them not at hand. Seeing moreover that, so late as 1850, Mr. Hancock deemed the question of sufficient importance to devote to it the greater part of an exceedingly able and elaborate monograph, in which he has enunciated propositions at variance with received opinions, and, in my opinion (I emit it with much deference), not in accordance with established facts, I am induced to methodise a few of the notes which I made in the pursuit of this investigation.

Originally performed in a case of strangulated inguinal hernia in the early part of the last century, by Jean Louis Petit, and subsequently in a considerable number of cases