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TWO CASES OF ENCEPHALOID CARCINOMA OF THE BRAIN; WITH OBSERVATIONS.

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(Read before the Reading Pathological Society.)

Examples of encephaloid carcinoma of the brain are not sufficiently numerous to render their multiplication either superfluous or undesirable, and while probably leaving the great question of the nature and origin of malignant disease as unsolved as before, yet, as local affections, and when contrasted with the symptoms during life, they may at all times be regarded as natural experiments, well calculated to assist in unravelling the complicated functions of the nervous centres.

The two following are the only instances of the kind we have met with, and it is rather singular, they should both have occurred within a short period of each other.

Of the true nature of the first case we were wholly ignorant, during the life of the patient, beyond feeling confident, as it progressed, of the existence of organic disease, suspecting the presence of tumour, and that probably, of a tubercular character. When called upon to give an opinion as to the nature of the second case, a very short time afterwards, the general analogy of its history and symptoms with the preceding, was sufficiently obvious to justify the inference that it was depending on a similar condition.

Were we to deduce any general conclusions from such limited materials, we should be disposed to assert, that where the local and general symptoms justify the diagnosis of an organic affection of the brain, and when these are accompanied with remittent or intermittent pains of a neuralgic character, gradual emaciation, and cachectic appearance, we might, with high probability, infer the existence of malignant disease.

To give much weight to such an opinion, it would be necessary to tabulate the symptoms attendant upon other forms of organic change, and contrast them with those of a malignant character. Such a task we have not the means of

performing, nor are we aware that others have undertaken it; but, judging from the general impressions which experience has left upon the mind, we are inclined to the conclusion, that the combination of symptoms now enumerated, would be found peculiarly characteristic of that species of disorganisation it is the more immediate object of the present communication to describe.

CASE I.

Mrs. P., aged 35, an Italian by birth, with dark hair and eyes, sallow complexion, of an active but somewhat lymphatic temperament, habitual good health, and moderate *embonpoint*, suffered from an early miscarriage and severe flooding, at the close of September, 1844. About a fortnight later, she was attacked rather suddenly with hemiparesis of the left side, for which we were requested to see her on October the 19th. She then presented all the well known general and physical indications of anæmia, the paroxysms of pain, occupying the left side of the head and face, recurring at short and irregular intervals, preceded by a distressing whizzing pulsatory noise in the right ear, and, when at their height, associated with severe lancinating pains through the right arm and leg.

We may at once observe, that the tinnitus was present from the first; that it never wholly ceased for more than a few minutes during her waking hours, until death; that its increase always ushered in a paroxysm of pain; that throughout, it was a leading subject of complaint; that it did not induce deafness, and proved rebellious to every form of treatment. The pains in the right arm and leg became gradually less severe, and ceased after the first fortnight. It was subsequently noticed, that during the fit, and sometimes immediately before, the right arm was relaxed and motionless, recovering its ordinary power when the pain subsided. It was not clearly ascertained whether the sensibility was disturbed, but we believe it was not, nor did the right leg participate in the temporary motor paralysis.

The vision was also subject, during the last three or four weeks, to singular alternations. Sudden darkness and confusion of sight, particularly of the left eye, amounting at times to blindness, would

accompany the seizures, and occasionally continue, but in a less degree, for several hours. Her headache gradually extended to the right side, was less and less intense, and paroxysmal, and often fixed in the occiput and orbits. It subsequently amounted to a general uneasy feeling, rather than to pain; and her attacks assumed more of an epileptic character, as indicated by sudden stillness, stupor, and at times insensibility, with occasional rigid extension of the legs and left arm. Within two days of her death, she had been nearly a week almost free from any form of attack.

There was no delirium, and in the intervals of suffering, the natural expression and cheerfulness of the patient might easily have deceived a superficial observer. All mental and muscular effort, however, uniformly tended to bring on her attacks. She preferred the horizontal posture, was disinclined to move, and seemed always comfortable when dozing or asleep. Her nights were, with scarcely an exception, undisturbed.

The digestive functions were not affected; the emaciation was slow, though progressive; and the complexion assumed more of a sallow tint.

She died comatose six weeks after I first saw her, having walked down stairs the same day.

The *treatment* consisted in the diligent employment of all those means which the association of pain and anæmia would suggest. Arsenic, quinine, and steel, were freely given, without any sensible benefit; the latter, indeed, appeared injurious. Various combinations of sedatives by the skin and mouth, with counter-irritation, were conjoined; but to no agent could relief be attributed, except to morphia, in sufficient doses to excite drowsiness. Her diet was nutritious, with wine.

As to the *diagnosis*, my first impressions were, from the presence of tinnitus, and the extension of the pain to the right arm and leg, that I had to do with more than a simple case of neuralgia and anæmia, though both the previous history of the case, and the actual appearance of the patient, did not seem to warrant such an inference. I was glad, however, to avail myself of the larger experience of my colleague, Dr. Smith, who, after careful examination, did not see any evidence of more than functional derangement. He recommended change of air, with the free use of quinine and opium. A fortnight later he again saw her, and expressed his fears of the existence of organic change, though unable to determine its precise nature or situation. During the last fortnight there could be no reasonable doubt of the fact; and, from the absence of delirium, convulsion or permanent paralysis, I conjectured that the probable seat of the lesion was the central portion of the hemispheres. The idea of malignant disease did not once present itself, having never met with any

instance of the kind, and there was nothing in the constitutional or local condition of the patient to favour such an opinion.

Post-mortem, twenty hours after death. Neither the bones nor membranes presented any morbid appearance. The brain itself looked externally healthy, except the convolutions of the inferior portions of the middle lobe of the right hemisphere, resting on the temporal bone; these were smoother than elsewhere, and soft and elastic to the touch. The greater portion of the corresponding medullary matter was converted into a red, pulpy and highly vascular substance, with numerous hemorrhagic points, and a black coagulum, as large as a hazel nut, in the upper portion, breaking its way through into the ventricle. The latter contained a drachm of bloody fluid. Neither the membranes nor the grey matter were implicated. A thin layer of softened brain separated the diseased from the healthy portions.

The centre of the *posterior lobe* of the *left side* presented precisely similar appearances. The diseased structure had also penetrated into the ventricle, and extended to the posterior surface of the optic thalamus. In the centre of the right anterior lobe, a distinct portion, about the size of a nutmeg, and in an earlier stage of similar transformation, was very clearly and beautifully seen, surrounded by healthy brain. The nature of the morbid structure was, in every respect, that described under the term of encephaloid carcinoma.

No other viscus was examined.

Remarks.—The appearances now briefly detailed, sufficiently account for the intractable nature of the case, and satisfactorily correspond with the leading symptoms during life.

We are not aware of any instance on record where a similar cause for tinnitus has been clearly ascertained. It was evidently dependent on the pulsations of the diseased central lobe, which rested on the temporal bone, and these physical conditions, united with increased sensibility of the parts, render the presence of such a phenomenon perfectly intelligible. The fact of increased tinnitus invariably preceding the accession of pain, is interesting, because proving the existence of vascular changes prior to those of the sensibility; and also as illustrative of those singular alternations of activity, so peculiarly characteristic of affections of the nervous centres. The usual symptoms were clearly produced by irregular pressure on the optic tracts, which, on both sides, but particularly on the left, were liable to be influenced by vascular turgescence. A similar explanation applies to the intermitting paralysis of the right arm, the left thalamus being necessarily impeded in its functions by increased vascularity of the morbid growth, and as easily recovering them when the congestion was diminished.

Why the pain should have been of a simple neuralgic character, at first limited to the left side, and affecting the fifth pair, we are unable anatomically to explain. Its connection with the principal disease was evidenced by its uniform association with the tinnitus on the opposite side. It might, perhaps, otherwise be regarded as an epi-phenomenon.

The absence of any appreciable mental disturbance, notwithstanding such extensive though not symmetrical disorganization of the white tissue, is worthy of notice, as in favour of the generally admitted conclusion as to the functions of the grey matter. That no permanent paralysis, no interception of the will, was the consequence, may be explained by assuming, with many physiologists, that the central ganglionic masses are the seat of the motor power.

The injurious effects resulting from all mental or muscular exertion, point out how a local lesion influences the action of the whole brain; but why some palpable deficiency of function does not always accompany structural changes, such as we have described, has not, we think, yet received a satisfactory solution.

It must be confessed, that the physiology of the brain is still but very imperfectly understood, and though much has been made intelligible, far more yet remains unexplained. The duality of all the cerebral organs; their extensive commissural relations; the possible transmission of nervous power from one hemisphere to the parts above or below the seat of injury in the other; the influence of central lesions upon distant parts; also the great difficulty, in illness, of clearly ascertaining the true state of many cerebral functions, have all been repeatedly adduced in solution of the problem; but while these conditions may, to a certain extent, be received as explanatory, and can never be neglected in our estimate of cerebral disease, yet we still feel that pathology has not demonstrated that strict accordance between organization and function, viewing the brain as the organ of the mind, which both theory and the results of external examination of the head, might have led one to expect. Indeed, admitting the truth of such explanations, we cannot be surprised at our having hitherto comparatively failed, for no examples of cerebral disease, except those involving precisely corresponding portions of both hemispheres, could be considered as wholly satisfactory; and even here an ingenious mind might easily suggest a doubt.

Before, however, continuing our observations, we shall proceed to the narration of the second case.

CASE II.

Mrs. C., aged 44, mother of sixteen children, brown hair and eyes, sanguine temperament,

robust health, active habits, and possessed of an unusually calm and energetic mind, suffered in January, 1844, from attacks of bilious headache, which quickly yielded to ordinary treatment.

In February, she underwent great anxiety and fatigue in consequence of the alarming illness of a daughter, and was observed to be excited, restless, and to lose her flesh and strength. The following month she occasionally awoke with severe headaches, which gradually subsided after getting up, and was also sensible of peculiar uneasy, quivering, fidgetty sensations in the legs, particularly the left; these, at times, forced her to continual movements for relief. She felt as if she could not sit still.

In May, she complained of partial numbness in the left cheek, and was now observed to stagger in her walking; deviating from a straight line, and to the left, as if she had lost the *directing* power. It was compared by those about her to the effect of slight intoxication. The headaches became more intense, at times agonising, with distressing vomiting, and on the 8th of June, when preparing to ride out, she was seized with præcordial pain and palpitation, violent congestion of the head and face, embarrassed speech, and mental confusion. The day following, the power of utterance was impaired, the loss of sensation in the cheek complete, and she was deaf in the left ear. For these symptoms she was bled, leeches, and salivated, and blisters and a seton applied.

For a month subsequently the headaches materially diminished, but the excitement, restlessness, distressing feelings, uncertain movements, emaciation, and general lassitude, gradually increased, and for two or three months she was liable to fits of hysterical laughing, excited by the most trivial cause.

In August, her deglutition was rather difficult, and strabismus, principally of the left eye, was noticed, with partial loss of vision on the same side. The headaches returned with still greater intensity, and were referred to the left parietal and occipital regions. The irregularity in her voluntary movements gradually affected the arms as well as the legs. She required to be held and directed in every act, supported at times by two assistants, and pushed forwards by a third, to enable her to move about the room; and, if by accident, she fell when attempting any effort alone, she was quite unable to raise or to assist herself. There was no paralysis of movement or sensation to the last, nor was one side more distinctly implicated than the other; but the *controlling, the co-ordinating power of the muscular system*, appeared abolished, or nearly so.

For six or eight weeks before death, which took place on February 18, 1845, she was merely removed from the bed to the sofa; the debility and

emaciation became extreme, and the sphincter muscles ceased to act.

Her mental condition, from the first, was characterised by excitement and great restlessness, seeking relief in change of scene and position; an inability to be quiet; a certain indescribable distress; an effort to restrain and conceal what she felt to be at variance with her natural habits and feelings; a childishness of thought, with great fickleness of memory and attention; and yet, throughout a long and painful illness, supported with unvarying patience, and no ordinary fortitude, there were intervals of unexpected and remarkable revivals of the natural feelings and mental powers, with a capability of utterance strikingly contrasting with her ordinary state. This singular waking up of the mind occurred within a few days of her death. She appeared sensible to the last.

The decubitus was easiest on the right side; the bowels were habitually costive, but throughout no symptoms were observed indicative of other than cerebral disease. From an early stage of her illness, she was dependent upon opium for sleep.

Every thing that medical skill and ingenuity could devise was most assiduously persevered in by her medical attendant, Mr. Maurice, either alone or in consultation. No treatment, however, proved more than palliative, and the greatest relief was from the use of opium and its preparations, chiefly the bi-meconate of morphia.

Post-mortem, thirty-six hours after death.—Extreme emaciation; scalp dry, thin, and bloodless; skull of average thickness and density; it separated easily from the dura-mater, and the inner table was deeply furrowed, and of a rather porous structure. All the membranes presented great venous turgescence, with soft dark coagula in the larger trunks; about an ounce of pink-coloured serum drained from different surfaces to the base; a small quantity of opalescent fluid was lodged under the arachnoid in the sulci; the membranes were of healthy firmness and transparency; no bony irregularities.

The cerebral convolutions were deep and numerous; the grey matter very distinct, and the brain throughout was vascular, particularly the cerebellum.

At the base we found a dark-red, spongy and highly vascular substance, presenting all the well-known characters of encephaloid carcinoma, incorporated with the anterior extremity of the left lobe of the cerebellum, of which it seemed a prolongation, and passing forward in inseparable connection with the pons, and following the emerging fibres of the corresponding crus cerebri, it terminated about an inch further, without penetrating the ventricle, in the medullary substance of the middle lobe; where it presented a more broken-

down and disorganised appearance. It originated about a quarter of an inch posterior to the pyramidal fissure, involved the whole thickness of this portion of the cerebellum, and nearly an inch in width, penetrating irregularly into the substance of the pons and left crus, from which, as well as from the cerebellum, it seemed to grow and sprout. The pia-mater only covered it at a short distance from the cerebellum, and the general surface was irregular and shaggy. The line of separation between the diseased and healthy structures was indistinct, but no membrane intervened, nor was there more than very slight softening of the surrounding cerebral pulp. The medulla oblongata, and the pons, were pushed to the right, forming an obtuse angle with the spinal marrow, and the left pyramidal and olivary bodies appeared stretched and slightly softened. The left pneumogastric nerve was thinner and more filamentous than its fellow, and the seventh, fifth, fourth, and sixth nerves, passed over and partially through the morbid growth, and at their exit from the skull were vascular and soft.

At a precisely corresponding point of the right side, in the centre of the white fibres, as they leave the cerebellum to pass over the pons, a small nucleus of encephaloid matter, about the size of a large pea, was imbedded, as if formed at the expense and not by the displacement of the surrounding tissue.

The morbid growth on the left side, was therefore limited by the tentorium superiorly, by the petrous portion of the temporal bone anteriorly, and could only increase in bulk by pressing the mesocephale upwards and to the right.

Remarks.—The correspondence between the lesions discovered after death and the symptoms during life, is, in the instance now before us, more direct than we are often enabled to establish.

Whatever other functions the cerebellum may discharge, it is now generally admitted, from the experiments of Flourens, Majendie, and many others, that the integrity of this organ is essential to the proper association or harmonising of the voluntary movements. The loss of this power formed the most striking peculiarity of the case we have narrated, and the principal seat of the morbid change was in the commissural fibres, which contribute to the formation of the pons, at a point in fact of all others the most calculated to disturb and interrupt the normal functions of the organ.

It is interesting to observe, that the movements of the upper, as well as of the lower extremities, were affected, and that much of the difficulty of articulation seemed dependent upon the same cause, though the latter might, perhaps, be referred to direct injury of the motor nerves. The deviation of the patient's movements to the left may be accounted for, either by supposing an inequality of

the voluntary, or of the co-ordinating power. Whether attributable to one or both of these causes, we are unable to determine.

That no paralysis of sensation or motion, and no convulsive action should have occurred, is not a little remarkable, and can only be accounted for by that wonderful power of adaptation to slow organic impediments, which the system not unfrequently exhibits.

The sudden seizure on the 8th of June, we are disposed to refer either to the sudden shifting of the mesocephale, the result of gradually increasing pressure, or perhaps to the escape of some portion of the morbid structure from membranous restraint. The deafness in the left ear, the imperfect vision and strabismus of the same side, the numbness of the face, the obstinate vomiting, and the fits of hysterical laughter, were no doubt the direct consequence of injury or irritation of particular nerves; while the restlessness and excitement of mind, and the constant tendency to change of position, with the gradual impairment of mental power, may be regarded as the inevitable attendants upon lesions, of the nature and situation we have described.

How to account, in a satisfactory manner, for those sudden, but brief restorations of cerebral activity, to which allusion has been made, we know not. There are many other mysteries yet unsolved, but it is wiser to admit our ignorance, than attempt its concealment by mere speculative ingenuity.

On the subject of diagnosis, we can only state, that the existence of organic disease of the brain was recognised by her medical attendant some months before death, but without attempting to define the precise nature or locality of the change. From the absence of paralysis or convulsions, we were, ourselves, inclined to the opinion, that the morbid change was further removed from the base than was really the fact; but from a subsequent review of the whole phenomena and history of the case, we think the symptoms would have justified and required, a more accurate localisation.

It will be observed, in both the preceding examples, that the medullary structure was alone the seat of change; that the membranes were only secondarily implicated; and that the condition was rather one of nutritive transformation than of tumour; circumstances, in accordance with the observations of Hooper, Bright, Abercrombie, and others. Of the state of the other viscera, we are unable to speak, nor could we detect, in either case, the evidence of hereditary liability.

Observations.—Why an organ like the brain should be thus affected, we confess to be a mystery beyond our power to make even an attempt to explain. Indeed the whole subject of malignant disease is still enshrouded in deepest darkness, and though some

interesting results have been developed by modern researches, the philosophy of the question has yet to be written, and the mind still wanders in search of a clear and comprehensive principle.

However gratifying it may appear to be told by Müller, and other supporters of cytogenesis, "that cytoblasts form cells; that new cells are generated from a nucleus or granule, either inside or outside those of prior existence; that the cells are under certain circumstances converted by flattening and elongation of their extremities into caudate bodies, and that these caudate corpuscles, when placed in lateral and terminal juxta-position form fibres," we quite agree with Professor Walshe, in thinking, that the origin of the cytoblast is still the great, the unsolved problem; and until this be decided, whatever light may have been thrown on the mode of increase of these products, they have by no means cleared up the history of their origin.

Amidst the multitude of facts, now daily presented to our notice, we are sometimes seduced into the oblivion of the paucity of ideas they involve, and are deceived into measuring our progress by the novelty either of explanation or experiment. The intense energy of pursuit hurries us on with the expectation of soon leaving difficulties behind, but when we stop to appropriate the fruit of our labours, we are too often compelled to retrace our steps, and to confess that our journey after truth has again to commence.

This reflection is extensively applicable to the era we are now passing through, a period beyond all others vibratory with scientific excitement, and well calculated to encourage extravagant impressions of our actual advance.

It should never be forgotten that, combined with much inaccuracy of theory and illustration, there is yet much of truth, much soundness of thought in the works of our predecessors; and that most of the great questions they attempted to solve, though now exposed to more numerous and systematic assailants, are still formidable impediments in our path, still monuments of our continued defeat. Not that we would despise any accession to the territories of truth, however small, or deny that some lasting additions have really been made; but we, at the same time, feel that the tendency is to overrate the extent of our dominion, and to calculate possession by the false standard of ambition.

From the language of many it might be delusively inferred that the brain and its functions were now within the reach of easy and demonstrable elucidation. We are told, for instance, "that the action of the white substance for either volition or voluntary motion, is commensurate and co-extensive; when directed to the convolutions, it reproduces images and ideas of the past that had long been treasured on their leaves; and, when

exercised upon the muscles, it excites and sustains the action of these organs, and thus the will, dwelling on recorded sensations, gives birth to memory, and, by exciting the muscular organs, engenders motion." And all this is regarded by many an eager reader as a summary of our astonishingly increased information—the result of minute anatomy of the brain, the announcement of our great progress in physical and metaphysical investigation, and the groundwork of incalculable improvement in the knowledge and treatment of mental disease.

It is thus that we talk ourselves into blind complacency, most comfortably adapt our discoveries to our wants, and lose sight of the greatness of the question, by reducing it to the limits of our puny capabilities to explain.

Into what dimensions would not man be condensed were he left to the tender mercies of some great physiologist? How quickly would he be shorn of his incalculable greatness were he delineated by the pencil of a scientific materialist?

If all that is mere assertion and pure assumption in the statements of those who claim profound familiarity with the structure and functions of man's nervous system, were carefully sublimated in the retort of common sense, the precipitate of novelty and truth would, we fear, be incalculably small, nor easily to be detected amidst the lingering fumes of hypothesis and error.

Ignorant, as we confessedly are, of how the material and the spiritual act and re-act upon each other, incapable of more than very partial mental analysis, limited to the examination of the grosser forms of nervous matter, and still most imperfectly acquainted even with these; finding in the little that we know, far more to humble than to inflate—the finite nature of man's powers becomes more and more apparent as he progresses, the fancied depths of his philosophy are reduced to their true shallowness, and while the mind shrinks under the accumulating evidence of its own feebleness, it swells with adoring wonder when visioning the vast and yet inscrutable unknown.

Were the deep consciousness of our weakness more habitually felt, and the ever fluctuating character of human experience more clearly perceived, what a repulse would be given to the many wild and presumptuous hypotheses now rampant amongst us, and how would that daring spirit of impious inquiry, which seeks to subjugate the supernatural to the laws of inductive science, be controuled and driven back by a sounder, a more Christian philosophy,

An age of science, as the present period well exemplifies, is ever closely allied to one of scepticism and gross credulity; and man, in his eager efforts to acquire, too easily forgets the narrow sphere of his powers; indulges in exaggerated

unreasonable expectations, and under the garb of philosophy, and when most glorying in his strength, becomes both the victim and advocate of the wildest delusions.

Every day's observation more and more convinces us, that a well-grounded reliance upon the dicta of Revelation is essential for the safe guidance of science as well as of morals; and amidst the jarring turmoil and confusion of conflicting opinions and startling novelties, the safest course is to breathe more and more of the sobering atmosphere of that truth-speaking volume, where man's true nature and destiny are unfolded, and where much that he calls wisdom is pronounced to be folly.

We shall not apologise for the introduction of remarks, which have no direct bearing upon the subject of the present communication; but our thoughts having for a moment been directed to a consideration of the physiology of the nervous system, we felt it impossible to suppress a brief expression of our convictions as to the nature and tendency of much we are now daily called upon to examine and embrace.

There is ever something more in carefully formed conclusions, than either language can embody or reason define, and a deep conviction of fallacy may be felt, where the power of demonstration may be feeble. Moral truth thus often shields us from the seductions of intellectual aberrations, and while, unable to disprove, we fail not the less to disbelieve and to avoid.

Such sentiments we are aware will ever fail to be popular, and by many be considered as retrograding to the mediæval ages of mysticism and darkness; but satisfied of their truth, and conscious of their comfort, we do not hesitate in their avowal, and would rejoice to be instrumental in their still wider diffusion.

OBSERVATIONS ON THE NATURE, ORIGIN, AND TREATMENT OF PUERPERAL FEVER.

By EDWARD BLACKMORE, M.D., Edin.

(Concluded from page 230.)

CASES OF ABDOMINAL INFLAMMATION ATTENDING A SINGULAR GANGRENOUS AFFECTION OF THE MUSCLES. (A SORT OF ERYSIPELAS.)

The analogy of these cases in the essential character of the morbid action, to those of malignant puerperal cases, and their occurring about the same time with the latter, gives to them extreme interest in reference to the first object of this paper.

CASE XVII.

A man, of industrious and sober habits, aged 45, of a robust and muscular frame, had been hard at work in plastering the ceiling of a room, which made his arms ache severely; after which he was attacked in the afternoon of August 12th, 1831, with severe rigor, sickness, and pain in the middle of his arms and calves.