CLINICAL LECTURES ON DISEASES OF THE NERVOUS SYSTEM.

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LECTURE IV.—CHRONIC HEMIPLEGIA ORIGINATING DURING THE PUERPERAL STATE.

DISEASES of the nervous system originating during the puerperal state, are a class of affections in general which have been comparatively little studied by either the physician or gynaecologist. Concerning organic lesions of the brain in particular, even at the present time we possess only few well-arranged facts or definite information. It is true that the ancients, since the days of Hippocrates, had recognised and recorded various forms of paralysis associated with lying-in women; but these were usually of a trifling or temporary character, were recovered from quickly after delivery, and were supposed to be either the result of direct pressure or of hysterical origin. Later, Mauriceau, in his *Maladies des Femmes*, 1740, not only recognised and supported the facts observed by older writers, but further admitted that there were some women who, after violent convulsions, fell into a mortal apoplexy, and others became paralysed in one half of their bodies, and remained so many years. This author believed these affections to be the result of eclampsia. Other observers during the last century admitted the existence of puerperal apoplexies, which they thought to be due to difficult labours, or to lacteal or lochial disturbances. Subsequently Portal, Frank, Richter, Burns, Menière, Vulpian, and others, confirmed and established the fact that certain forms of cerebral paralysis were associated with pregnancy; and finally Lever, Lassere, Simpson, and Churchill, maintained that the symptoms of palsy and disturbance of the brain-functions, in such cases, were not so much the result of the puerperal state, as of that condition being complicated by the presence of albumen in the urine as a result of disease of the kidney. The uræmic theory of the origin of eclampsia and paralysis in parturient women, is that which at the present time finds the most favour amongst pathologists; and there can be little doubt, that to a poisonous influence connected with albuminuria many of the affections of the nervous system are due. Whether, however, all are to be ascribed to this cause, and more especially the permanent organic cerebral lesions, is questionable; and this will constitute one of the chief points of the present discussion. Although certain observers have recognised the fact that permanent diseases of the brain may take their origin during the puerperal state, our knowledge of the whole question is still unsatisfactory. This is due to the comparative rarity of the affection, to the imperfectly recorded cases, the paucity of *post mortem* examinations, and chiefly, especially amongst the older writers, to the confused terminology and inexactitude of description: such as the constant use of the vague and comprehensive word apoplexy. The following cases of brain-lesion, as evidenced by their chief symptom, chronic hemiplegia, and associated with the puerperal state, have occurred in my hospital practice during the last three years. The notes are extremely brief, but, it is hoped, sufficiently precise to demonstrate the true nature of the disease.

CASE I. *Hemiplegia of Three Years' Standing began suddenly at Third Month of Pregnancy; Aortic Valvular Disease; No Albuminuria.*—M. C., aged 36, married, had four children. The patient, when eleven years old, suffered from rheumatic fever, but with this exception believed herself to be in good health till three years ago. At this time, when three months pregnant with her last child, without apparent cause, she suddenly lost the power of movement in her left side. There was no loss of consciousness. The paralysis did not interfere with the natural process of labour, and it has since partially recovered. At present, the patient suffers from frequent pain in the head and slightly impaired intellectual powers. There are paresis of the lower portion of the left side of the face, almost total loss of voluntary movement in the left arm and hand, which are flexed, rigid, cyanosed, and all the muscles are in a state of well marked contracture. The patient can walk, but is lame, the left foot being dragged along the ground, and its muscles being stiff and rigid. There is no loss of sensation. There is well-

marked evidence of aortic obstruction and regurgitation. No albuminuria.

CASE II. *Hemiplegia of Eight Years' Standing, began suddenly at Eighth Month of Pregnancy; Heart apparently Normal; No Albuminuria.*—E. B., aged 29, married, has two children. The patient states that, as far as she knows, she was a perfectly healthy woman till eight years ago, when she was eight months pregnant with her last child. At various times during gestation she experienced peculiar sensations of sudden weakness in her right leg, which, however, passed off in a few hours. Six weeks before her confinement she went to bed one night in her usual health, and on waking next morning discovered that her right side was completely paralysed; the face was dragged to the left, the right eyelid was closed, and when opened there was diplopia, and the speech was mumbling and indistinct. These symptoms continued till a dead child was born after a natural labour. Two weeks afterwards the patient had "a fit", during which she lost her consciousness, and subsequently her speech. Since then, her symptoms have gradually improved. At present the general health is good, articulation is perfect, the mouth is drawn slightly to the left side, and the eyelids are normal. The movements of the right arm and hand are limited, and the muscles, especially the flexors, are stiff and rigid, but not to a high degree. The patient is lame and the right foot is dragged. Sensibility and intelligence are normal. There is no history of rheumatism, and the physical signs of the heart are normal. No albuminuria.

CASE III. *Hemiplegia of Four Months' Standing, began suddenly during Labour; Heart apparently Normal; No Albuminuria.*—L. G., aged 26, married, has two children. The patient states that she was in good health till eight years ago, when she suffered from rheumatic fever, after which she remained quite well till her last confinement, four months ago. During labour she was suddenly seized with trembling; shortly after which the child was born. It was then found that her right side was paralysed, without loss of consciousness. This condition has since partially improved, but still a considerable amount of paresis remains. At present the right arm and leg are weak and the movements imperfect, and the right angle of the mouth is depressed. Sensibility and intelligence normal. The physical signs of the heart are normal. No albuminuria.

CASE IV. *Hemiplegia of Ten Weeks' Standing, began suddenly Three Days after Labour; Heart apparently Normal; No Albuminuria.*—E. B., aged 26, married, two children. The patient stated she was in good health till ten weeks ago, when, after a natural labour, she was delivered of a healthy child. Three days afterwards, while lying in bed, and without obvious cause, she suddenly lost her speech, and power in the right side, but without her consciousness being affected. The motor power has since partially returned. At present, the patient is a robust, healthy-looking person. She cannot say a word, owing to paralysis of the tongue and of the apparatus of articulation; but there is no true aphasia, as she knows what she wishes to say, and remembers and understands words and writing perfectly. The movements of the right hand and arm are very limited, and there is slight rigidity of the flexors of the wrist and fingers. The patient can walk fairly well, but is lame, and drags the right foot. Sensibility is not affected. The intelligence appeared fairly good; but the husband said his wife is not as she was before the attack. There is no history of rheumatism; and the physical signs of the heart are normal. No albuminuria.

CASE V. *Hemiplegia of Eighteen Months' Standing, began suddenly Two Weeks after Labour; Heart apparently Normal; No Albuminuria.*—E. W., aged 22, married, has two children. The patient stated that she was in good health till her last confinement, eighteen months ago. After a natural labour, she was delivered of a healthy child. Her convalescence progressed favourably till the fourteenth day, when she for the first time got out of bed. Whilst in the act of dressing herself, she suddenly fell down insensible, with stiffness of the right side, and distortion of the face. She continued apparently unconscious for two or three days, after which time she recovered her senses; and it was found that the entire right side was paralysed, and she was completely speechless. This loss of speech continued for a long time, but ultimately slowly improved; and it was only after sixteen months that she considered that her powers of articulation had entirely recovered. The motor power has slowly and only partially been restored. At present, the patient is a healthy-looking woman. The lower part of the face is slightly drawn to the left side, and the articulation is perfect. The movements of the right arm are very limited, and there is complete paralysis of the hand and fingers. All the muscles are stiff, rigid, and in a state of intense contracture. The skin is purple, cold, and clammy. The right leg is in a similar condition, but not to the same extent, and the patient, with assistance, can walk a little. Sensibility is normal. There is no history of rheumatism, or evidence of cardiac disease. No albuminuria.

CASE VI. *Hemiplegia of Eight Years' Standing, began suddenly Three Weeks after an Abortion: Heart apparently Normal: No Albuminuria.*—A. M., aged 36, married, has had one abortion; no children. The patient stated that she was in good health till eight years ago, when for the first time she became pregnant. She aborted at the third month. Three weeks afterwards, without apparent cause, she suddenly became unconscious, and remained so for two days. On recovering her senses, she was found to be completely paralysed on the left side, including the face. From this time, she was confined to bed for several weeks; but, ultimately, she slowly regained the partial use of her leg, so that she could walk about with the aid of a stick. The arm improved more slowly. At present, the patient is a healthy-looking woman, her intelligence is good, and she presents all the usual symptoms of chronic hemiplegia: depression of the left angle of the mouth, almost complete immobility of the left arm and hand, with stiffness, rigidity, and contracture of the muscles, and cyanosis and coldness of the skin. The same condition is observed in the leg, but not so far advanced, as the patient can walk a little with assistance. The sensibility is unaffected. There is no history of rheumatism. The heart is apparently normal. No albuminuria.

The symptoms in all these cases are evidently due to a destructive lesion on one side of the brain. It may be further conceded that the cerebral disturbance is closely related to, and almost certainly caused by, the puerperal state of the patients, as, prior to the particular confinement which originated the illness, they were in perfect health.

We have now to inquire in what way the puerperal state predisposes to organic lesions of the brain; but, before doing so, it will be necessary to briefly state certain facts connected with the physiological condition of parturient women. During gestation, the blood of the female is in much larger quantity than in her ordinary state; it is more watery, contains fewer red blood-corpuscles, and is loaded with certain new elements, more especially a great excess of fibrine. As pregnancy advances, owing to the state of the blood and to the increasing demand made upon it, the heart hypertrophies, and more especially its left ventricle. A combination of these causes induces a remarkable state of high tension in the circulation, as has been abundantly proved by the sphygmographic tracings of Fancourt Barnes, Mahomed, Marey, Macdonald, and others. For about ten days or so after delivery, these conditions are more or less retained; for, although one obstruction to the circulation is removed, another is instituted in the kidneys, owing to the blood becoming charged with effete matter, due to the absorption by the uterus, etc. The whole vascular system becomes changed in pregnant women, owing to those physiological conditions which may be seen in the tendency to dilatation and varicosities of the veins. Finally, as Dr. R. Barnes has pointed out, there is a peculiar condition of the nervous system during pregnancy, which must not be lost sight of in discussing the nervous diseases of that condition. These states may be said to be physiological; but very slight disturbing causes, of most of which we are ignorant, may render them pathological. A woman during her pregnancy may be compared to an engine under high pressure. If its machinery be sound, and its material good, it withstands the strain made upon it, and meets satisfactorily the increased demand for work; but if there be a flaw, which may not be detected or soon suspected, it breaks down, and may explode at any of its weak points. In the present inquiry, the weak point is the brain, and we must now consider in what way the lesion of that organ has been brought about in the six cases under notice.

The puerperal state may have induced the cerebral disease in one of three ways, viz., by (1) hæmorrhage, (2) embolus, (3) albuminuria.

1. *Hæmorrhage.*—In a perfectly healthy young woman, cerebral hæmorrhage is a very rare disease. Of 383 cases occurring in the practice of Dr. Hammond, no fewer than 361 took place above the age of thirty. This represents the statistics of both sexes, and the number of women attacked is much less than that of men. Of the special liability to hæmorrhage in the pregnant state, we have very little knowledge. Many writers have indicated that "apoplexy" is sometimes associated with pregnancy; but this expression is vague, and does not prove the existence of rupture of the cerebral vessels. A few rare cases have been recorded, notably by Dubois and Menière, in which cerebral hæmorrhage was proved to exist by *post mortem* examination; but even here it remains uncertain whether or not this may not have been due to other causes, such as Bright's disease, degeneration of the vessels, etc. At the same time, it must be admitted that, theoretically, it is quite possible to conceive the puerperal state as being a direct cause of cerebral hæmorrhage. The vascular system of the pregnant woman we know to be profoundly modified. The altered condition of the blood, by influencing the nutrition of the arteries, may cause their degeneration in the brain; this, with the hypertrophied heart, and high state of tension in the circulation, may, under certain circumstances, be

the means of actually inducing rupture of the blood-vessels. Carefully recorded facts are wanted to decide this point.

2. *Embolus.*—The puerperal state is eminently fertile in the formation of emboli; and plugging of the arteries and veins by blood-clots, in various parts of the body, is not unfrequent during pregnancy, or after delivery. Sir James Simpson, in his *Obstetric Memoirs*, cites several examples, in which women in this condition were attacked with gangrene, and other serious lesions, as a result of arrest of the circulation in different arterial or venous trunks. The same takes place in the lungs, liver, and other internal organs; and these emboli can actually be demonstrated during life when they occur in the eye. It is therefore not remarkable that the vessels of the brain should be obstructed in a similar manner, and give rise to symptoms referable to a loss of function of the parts supplied by the artery affected. The anatomical construction of the circulatory apparatus explains the frequency with which the clot becomes lodged in the left middle cerebral artery. Owing to the angle at which the common carotid leaves the aorta, a foreign body can more readily enter it than pass into the innominate. In the same way, the middle cerebral is not only the largest branch of the internal carotid, but it maintains the original direction of the trunk more nearly than the others. This vessel supplies chiefly the great motor ganglia of the brain. The puerperal state may lead to the formation of emboli in several ways, the chief of which is its tendency to the production of endocarditis and arteritis. The blood—as in rheumatism, albuminuria, and zymotic diseases—is in an abnormal condition; it is loaded with fibrine and other secretory excrementitious matters; its irritating qualities predispose to inflammatory affections of the lining membrane of the vascular system. The various forms of endocarditis thus induced, as is well known, lead to the formation of emboli, either by the clots coagulating on the rough membrane becoming detached, or by vegetations from the valves being swept into the circulation, and lodged in a peripheral vessel. Emboli may originate from the lining membrane of the arteries themselves, the heart being normal, as occurred in a case recorded by Dr. James Duncan, in which a patient, who died of gangrene of the legs shortly after delivery, was found to have disease and vegetations on the aorta as a cause of the embolus, while the lining membrane of the heart was healthy. The peculiar state of the blood in pregnancy is another direct source of embolus. It is loaded with fibrine, and is highly and readily coagulable: hence there is an inherent tendency, at the slightest provocation, for it to be deposited in a solid form. If endocarditis or arteritis be present, this is further encouraged by their offering rough or prominent points upon which the blood may coagulate. A particle is readily detached by any exertion on the part of the patient, or by increased activity of the circulation; and thus the thrombus is converted into an embolus. If chronic heart-disease have existed prior to the pregnancy, the chance of embolus is much increased; for, in addition to the damage from the cardiac affection itself, there is super-added the condition above discussed.

3. *Albuminuria.*—All forms of Bright's disease may lead to oedema and anæmia of the brain, which may induce delirium or coma, convulsions or paralysis, according to their degree and the portion of the organ affected. The impoverished state of the blood, the obstruction in the kidneys, and the high tension in the circulation, cause the ready exudation of serum into the brain, as well as other tissues; and the symptoms thus induced, although usually temporary and removable with the cause, may, if destruction have in consequence taken place, be permanent. The poison in the blood also probably acts as an irritant to the vaso-motor nerves—thus contracting the cerebral capillaries, and thereby causing anæmia of this organ, with its corresponding nervous symptoms. Albuminuria also predisposes to rupture of the blood-vessels. Small capillary extravasations have been demonstrated in the brain by Kiwisch, Braun, Spiegelberg, and others; and most writers on Bright's disease admit that a considerable percentage of its mortality is due to sanguineous apoplexy. Now, the puerperal state is specially liable to be complicated with albuminuria; and it can be readily believed that, when these two conditions are combined, the danger to the tissues of the body generally, and the brain in particular, is very great; so much so, that it is now generally recognised that a large proportion of the serious nervous affections arising during pregnancy are associated with albumen in the urine.

Having discussed the different modes in which organic disease of the brain may arise during the puerperal state, we must now turn to a consideration of the patients under notice. These six cases, although they vary in severity, in the side affected, and in matters of detail, are all essentially of the same character. They all present the features of chronic hemiplegia, as the result of a destructive lesion in the motor ganglia on one side of the brain, subsequently followed by secondary sclerosis of the spinal cord. That the disease was a destructive one, is shown by the permanent loss of function and general nature of the

symptoms. That the motor centres or conducting tracts were chiefly affected, is indicated by movement above being impaired, as intelligence and sensibility were, to all practical purposes, intact. The train of symptoms points to a lesion of the corpus striatum and its neighbourhood, or to that portion of the brain supplied by the middle cerebral artery. As frequently occurs in such cases, in all our patients the secondary descending degeneration of the lateral columns of the spinal cord was well marked, which was demonstrated chiefly by the gradual increase of muscular rigidity and contracture: a further evidence of the chronic nature of the cerebral lesion, and of its destructive character. Assuming, then, such a local disease, what is its exciting cause? Is it the result of hæmorrhage, of embolus, or of albuminuria? With regard to the last, it may be said that, at the time of observation, there was no trace of any albumen in the urine of any of the patients, nor had there at any time been any symptoms of disease of the kidney. All, previously to their paralytic seizure, had been in singularly good general health; and, with the exception of this symptom, have remained so to the present time. The suddenness of the attack, the absence of convulsions and other eclamptic symptoms, and the chronic nature of palsy, seem to indicate that albuminuria alone was not the cause of the brain-lesion. At the same time, we cannot be certain that a temporary affection of the kidneys did not exist during the puerperal condition: all that can be said is, that neither the history nor the present condition of the patient gives any evidence of it. Is the cerebral lesion due to hæmorrhage or to embolus? From the nervous symptoms alone, it is impossible to diagnose between these two causes, as in both instances the same portions of the brain may be destroyed, and thus induce the same results. Two points, however, are in favour of embolus; namely, the youth of the patients, the average age of whom was twenty-five years; and the fact that, in four out of the six cases, the hemiplegia was on the right side. In the first case, and in it only, there was valvular disease of the heart, which seems to show that in this also the disease was of embolic origin, as a result of the blood-change in the puerperal state. Further, in support of this theory are the want of premonitory head-symptoms, the limitation of the disease to the motor tracts, the absence of mental derangement, and the arrest in improvement of the paralysis. As all these patients are still alive, there has been no opportunity of verifying these views; and, although the various circumstances of the case point to embolism as being the cause of the cerebral softening, as has been already pointed out, we cannot be perfectly certain that it may not be due to hæmorrhage. *Post mortem* examinations of women who die suddenly after childbirth, or who are known to suffer from paralysis acquired during the puerperal state, would settle this question. Assuming the cases to be embolic, it may be fairly admitted that these originated in the puerperal condition. It is true that, in two instances, there was a history of rheumatic fever; but this occurred in early life, and apparently left no traces, and the patients remained in perfect health till pregnant many years afterwards. In one of these, there was valvular aortic disease; but when this originated we do not know. If it started at the time when she had rheumatic fever, twenty-five years before, it is remarkable that there should have been no evidence of it during that time, as well as during three previous labours. In five cases, there was no evidence of any affection of the heart; but this is no proof that endocarditis was absent: indeed, in acute ulcerative inflammation of the cardiac lining membranes, which is demonstrated after death, it is common to have had no physical signs of its existence; and it is rarely diagnosed during life.

To sum up, it may be concluded that: 1. These six cases of chronic hemiplegia are due to a destructive lesion in that portion of the brain supplied by the middle cerebral artery; 2. The disease began suddenly during the puerperal state, which was the predisposing cause of it; 3. The exciting cause was probably an embolus; 4. This embolus was the result of acute endocarditis, or due to the hyperinotonic state of the blood, or possibly to both of these conditions combined.

WEARDALE RURAL DISTRICT.—For the Stanhope and Newlandside division of this sanitary district, Mr. C. Arnison records a death-rate of 16 per 1,000 in 1880, against a rate of 22 in 1879. The figures are, however, too small to admit of any just deduction being drawn from these rates alone. Typhoid fever seems to have been unduly prevalent in the district; but the circumstances of its manifestations are not told with the minuteness that is desirable. This disease caused 3 deaths, and appeared in ten families, in three distinct villages. Measles was also very prevalent, appearing in forty families, though only fatal in two cases. The total number of births was 74, and of deaths 47.

ABSTRACT OF A CLINICAL LECTURE ON SORE-THROAT.

Delivered in University College Hospital.

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TONSILLITIS, or acute inflammation of the tonsils, commonly results from exposure to cold, in the case of delicate young people who have susceptible throats. Towards evening, the throat feels swollen and painful, and both speech and deglutition become difficult, the voice having a peculiar thick tone, which is very characteristic. On inspection, the fauces will be seen deeply injected, and the tonsils swollen and bulging, both towards the median line and behind the anterior pillars of the fauces. There is great tenderness in the submaxillary region and behind the jaw, and occasionally acute pain in the ear from extension of inflammation along the Eustachian tube. There is considerable general fever, the temperature rising two or three degrees, and the tongue being coated with a white fur; but the pulse, though rapid, has little force, and is very compressible. In from twelve to twenty-four hours, and either with or without a rigor, matter forms in one or, seldom, both tonsils; and, if not relieved, gives rise to great distress from the embarrassment caused to the breathing, the patient sitting up in bed, and constantly hawking up viscid mucus, until at last, in some straining effort, the abscess bursts, and immediate relief with rapid convalescence follows.

In the premonitory or early stage, a mustard emetic often acts as a charm, and produces immediate resolution; but, failing this, recourse may be had to warm inhalations, the application of hot poultices below the ears, and the administration of belladonna internally in small and frequent doses, coupled with plenty of liquid food. An early puncture of an inflamed tonsil is much to be recommended, if the surgeon will use a bistoury, covered except for a quarter of an inch from the point, and thrust it boldly through the soft palate, where it is made prominent by the tonsil. The hæmorrhage should be encouraged by gargling with hot milk and water, and will give much greater relief than the application of leeches externally. The same method should be adopted in opening an abscess in the tonsil, and thus all risk of doing damage to important structures will be avoided.

A more chronic form of tonsillitis is familiar to residents in hospitals under the name of "hospital sore-throat", and is met with among persons exposed to bad air, particularly if tainted with sewer-gas. It consists in a subacute inflammation of the tonsils with injection of the fauces, sometimes going on to abscess, but more frequently subsiding, if the patient be put upon a stimulant and tonic plan of treatment, and removed from the depressing influences to which he has been exposed. The occurrence of frequent sore-throats in a household should direct immediate attention to the condition of the drainage, and the probable escape of sewer-gases into the house.

Acute inflammation of the pharynx may occur in conjunction with tonsillitis or alone, and the great symptom is the difficulty in swallowing. The disease ends ordinarily in resolution, but may occasionally lead to suppuration in the cellular tissue behind the gullet, thus causing a post-pharyngeal abscess. The bulging forward of the posterior wall of the pharynx by an elastic swelling, which impedes deglutition and may interfere with respiration, clearly marks the case, and a puncture in the median line will readily evacuate the pus. It should not be forgotten that post-pharyngeal abscess is often connected with caries of the cervical vertebræ.

Erysipelas occasionally attacks the fauces and pharynx, and appears to lead to complete temporary paralysis of the muscles, so that not only is deglutition impossible, but it is equally impossible to excite reflex action in them by irritating the throat mechanically. The affection is a very serious one, and likely to prove rapidly fatal from depression of the vital powers, both by the poison and the want of food, unless ample nourishment be administered by the rectum until the power of swallowing is restored.

A much more chronic form of paralysis of the throat is that following diphtheria, but here it is the palate which is principally affected, the voice being thick for weeks.

Hypertrophy of the tonsils is common in children and young persons of a strumous diathesis, and, in rachitic patients, is apt to lead to the