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Remarks on the Nature and Treatment of Puerperal Convulsions. By DR NORMAN LYMAN.*

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MY object, in the following paper, is to offer a few remarks respecting the nature of Puerperal Convulsions, and the proper method of treating the complaint. Though in some instances, this disease has appeared to be endemic, in general it is of very rare occurrence. Perhaps it is chiefly on this account, that its pathology has been so ill understood, and that even the best writers on the subject, have differed so materially in relation to its treatment. But few writers on midwifery, so far as I have known, have hazarded an opinion respecting the nature and causes of this disease; and it is certainly a subject of regret, that when women, who have died of puerperal convulsions, have been made the subjects of post mortem examination, morbid appearances have generally been looked for only in the brain. It is difficult to account for this circumstance, for it would seem natural to conclude, that a disease which takes place only in advanced gestation, or labour, should owe its origin to some peculiar state of the pelvic or abdominal viscera.

In relation to the treatment of this disease, almost all agree in the propriety of blood-letting, but, in several other points, of great practical importance, their opinions are entirely at va-

* This Essay contains the substance of a paper read before the Hartford County Medical Society, in April 1823. The notes and cases have been added, and some other slight alterations made in preparing it for the press.

riance with each other. Some writers, supposing the disease to depend on irritation, have directed that bleeding should be followed by full doses of opium and other antispasmodics. By others, who regard the disease as related to apoplexy, and depending on compression of the brain, opium and other remedies of the same class, are indiscriminately condemned, as useless and dangerous. By one class of writers we are taught that the safety of the patient depends on speedy delivery, and are advised to expedite it by art, as early in labour as is practicable. By others, again, all artificial assistance in labour is supposed to increase irritation, and generally, to add to the danger of the patient. It may also be remarked, that those writers who have treated on this species of convulsion, have often given their directions for its treatment, in so general a manner, and with so little reference to the several stages and varieties of the disease, that they often serve rather to perplex than to assist us in practice.*

The suddenness with which these convulsions often make their attack, and the danger which always attends them, require that the symptoms be readily known, and promptly met. I deem it superfluous to describe, particularly, the peculiar symptoms of this species of convulsions. The writings of Burns, Denman, and several others, contain descriptions of them, so accurate and particular, as scarcely to leave room for any addition. But it has appeared to the writer, to be both desirable and practicable, to arrive at more definite views of the nature of the disease, than have yet been attained, and to determine, with more precision than has hitherto been done, the mode of treatment which is best adapted to its several stages and varieties.

That there is a species of convulsion which is evidently connected with gestation or labour, and which occurs at no other time, is a point, in which, so far as I know, all competent authorities are agreed. What then are those changes in the female constitution, connected with pregnancy, on which the tendency to puerperal convulsions depends? By what precursory symptoms may we be able to anticipate an attack of the

* At the time this paper was written, I had not seen Doctor Dewees' Essay on puerperal convulsions. Soon afterwards, a medical friend, put into my hands the third number of the Medical Recorder, which contains this essay. I think it a very valuable treatise, and worthy of the eminent talents and extensive experience of its author; yet I cannot but consider his remark as too unlimited, when he mentions 'the use, the fatal use of opium.' He cannot be more convinced than I am, of its injurious tendency, when used before suitable evacuations, or when used at all, in those convulsions, which are produced by compression of the brain. Yet I believe many cases of puerperal convulsions will occur, in which opium is an indispensable remedy.

disease? and what treatment is best adapted to its prevention and its cure? To answer these enquiries, is the object of the following remarks; they are offered with diffidence, and it is hoped, they will be received with indulgence.

We may suppose the first effect of conception to be an increased excitement of the uterus, in consequence of which it commences a new action, acquires new susceptibilities, and establishes new sympathies. The uterus thus excited, becomes a source of irritation to the system, and hence, generally, the first obvious symptom of pregnancy, is a vascular excitement, 'resembling the sympathetic fever, which attends chronic inflammation of an internal organ.' This state of both local and general excitement, seems to be indispensable to the process of gestation. A material defect of either, will be attended with sterility or early abortion. We conclude then, that the complaints of early gestation, owe their origin in part, to increased nervous and vascular excitement, and, in part, to that interruption of their functions, which the different organs suffer from sympathy with the uterus. In some women, the excitement which attends gestation, instead of producing serious inconvenience, is rather promotive of more perfect health. Few women, however, pass through the early months of pregnancy, without many uneasy sensations, and, in many, the symptoms amount to serious disease. The more ordinary effects of uterine irritation, are frequency of pulse, heat of the surface, especially at evening, watchfulness, or unrefreshing sleep, emaciation, irritability of the stomach, and costiveness. These complaints, it is well known, are generally much more severe, in the early months of gestation. Along with the symptoms above mentioned, pregnant women have often a peculiar irritability or nervousness, which renders them liable to strong impressions, from slight causes. This irritability, seems to have been considered by some writers on midwifery, as the predisposing cause of puerperal convulsions, but I know of no facts to support this opinion. The disease in question, is not peculiar to feeble or irritable women. On the contrary, so far as I have observed, it takes place more frequently, among the robust and healthy. The symptoms of uterine irritation, as already observed, are generally much the most severe, in the early months of gestation; while convulsions attack, only in its more advanced stages. Experience has fully shown, that the symptoms above alluded to, are not generally to be regarded as dangerous. In women otherwise healthy, they rather denote an exemption from more alarming complaints. They appear to be connected with a vigorous action of the uterus, and, on that account, afford an

* evidence that the process of gestation is going on favourably. It is only when they are so severe, or so long continued, as greatly to exhaust the constitution, or when they occur in subjects previously feeble and debilitated, that they afford any ground of apprehension.

So far as my observation has extended, it has appeared, that robust and healthy women, who have suffered from puerperal convulsions have generally enjoyed in the early months, a marked exemption from the ordinary complaints of pregnancy. Instead of being emaciated, they have become more corpulent, and it was only in the latter months of gestation, that they discovered any symptoms which indicate a tendency to the disease. Those, on the contrary, who are constitutionally feeble and nervous, have suffered severely from uterine irritation, through the whole period of pregnancy. Particularly are they liable to excessive irritability of stomach, and to pains of the back which seem to threaten abortion.

For the sake of distinctness, we will first notice those precursory symptoms, which take place antecedently to labour, and, afterwards mention such as occur during labour, or after its conclusion. Among the first class are inappetence, despondency, obtuse pains of the head, back, or hypochondria, occasional vertigo or confusion of mind, obstinate costiveness, alternating, perhaps, with diarrhoea, cellular effusion, and a full and slow pulse. More or less of these symptoms, with different degrees of severity, often continue for days, and perhaps, for weeks, or months. So far as I have observed, they are more uniform, more strongly marked, and of longer duration, when the convulsion attacks before the commencement of labour. The symptoms of the second class are violent pulsating pain of the forehead, sometimes immediately preceding or following the uterine contraction; at other times, alternating with the uterine efforts, and seeming to take place of them. This pain of the head, is often attended with indistinct vision, or total blindness, and not unfrequently, with a vomiting of viscid mucus or bile. At the same time, there is, generally, a remarkable sluggishness of pulse, and the uterine contractions, are either irregular in frequency and force, or, if apparently regular, they do not seem to produce an effect, proportionate to the severity of the pains. More rarely, convulsions attack without any warning, or are preceded, for a short time, by a violent shaking of the muscles, or great sickness or pain of the stomach.

From a view of all the symptoms, connected with puerperal convulsions, I am led to conclude, that they result from plethora, or rather from deficient absorption. When I speak of plethora,

as a cause of this disease, I do not mean by it, a mere redundancy of circulating fluids, but rather an unnatural distribution of them. I suppose that the action of the arterial system, so far exceeds that of the venous, that an unnatural accumulation takes place in the latter. In women who are naturally robust and healthy, the arterial excitement, which attends gestation, aided by habitual costiveness, and neglect of customary exercise, must tend powerfully to produce congestions of the abdominal viscera. It also seems worthy of remark, that with women of impaired constitution, and with such as are naturally feeble and debilitated, the uterine excitement, which attends gestation, is often too expensive for the resources of the system. In proportion to this excitement, the organs concerned in digestion and assimilation, are interrupted in their functions. Hence, as already remarked, these patients suffer much from uterine irritation, in the early months of pregnancy; and towards its conclusion, the symptoms of irritation frequently give place to those of congestion, or at least become complicated with them. An increasing debility is at length manifested in a deficient action of the absorbents, which seem to possess weaker vital powers than the exhaling vessels, and to fall more readily into disease. Hence the feeble and debilitated, as well as the robust and healthy, become liable, in advanced gestation, to congestions, and to general cellular effusion. My own observation, would lead me to consider this effusion, as one of the most common, and important of the precursory symptoms. I shall take opportunity hereafter, to offer some remarks respecting it.

It seems needless to remark, that the same action of the sanguiferous system, which produces a congestion of the uterus, will tend to produce the same effect, in other organs and viscera; but from the great accumulation of blood, which takes place in the uterus, in the latter months of gestation, this organ, it is evident, must be peculiarly liable to suffer from congestion. We may also remark, that as no diseases or derangements, of other organs, have been known to produce puerperal convulsions, it seems reasonable to conclude, that the uterus is chiefly, if not solely concerned in their production. From a view of these facts I am led to conclude, that a venous congestion of the uterus constitutes the predisposing cause of puerperal convulsions. It is evident that a congestion of the uterus, when existing to a certain extent, will enfeeble this organ, and incapacitate it for carrying on the process of gestation or labour. We know that in proportion as any organ is deprived of its healthy arterial circulation, and suffers an undue accumulation

of venous blood, it loses its excitability, and becomes incapable of discharging its functions. It is this state of congestion, and its consequences, which we suppose to affect the uterus, in the disease we are considering. In what manner the uterus, when thus affected, produces that sympathetic irritation of the brain which is the immediate cause of the convulsion, we do not profess to understand.

Doctor Denman informs us, that in almost every case of convulsions which he saw, in the early part of his practice, 'there was evidently, after delivery, a greater or less degree of abdominal inflammation.' And he attributes the infrequency of these inflammatory symptoms, in latter years, to the very free evacuations which are used for the cure of the convulsions.* That those convulsions which are strictly puerperal do not depend, primarily, on compression of the brain, may be inferred from the sudden and complete return of sensibility, which often takes place in the intervals, as well as from the fact that they are seldom, or never, followed by permanent paralysis. Patients who have recovered from these convulsions are not more liable than before to epilepsies, or any other symptoms of diseased brain.

If the primary cause of these convulsions is compression of the brain, why do they occur at regular intervals? And why is the convulsive attack synchronous with the efforts of the uterus? We learn from Doctor Denman, that in the examination of many women, who died of convulsions, he had never seen an instance of effusion of blood in the brain, though the vessels were extremely turgid. If compression of the brain were the cause of these convulsions, why should not effusion be as common, in fatal cases of this disease, as in ordinary apoplexy? When the primary cause of the convulsion is compression of the brain, it cannot, with propriety, be called puerperal, as it differs in nothing from ordinary apoplexy, except that it occurs during gestation or labour. Probably an apoplectic attack is never attended with that violent convulsive agitation which takes place in the disease we are considering. If not immediately fatal, it is followed by coma, paralysis, and other distinct symptoms of cerebral compression; and if it takes place after the commencement of labour, the uterine efforts will either be entirely suspended, or they will recur imperfectly and at distant and irregular intervals. It is not supposed, that puerperal convulsions never terminate in effusion on the brain. Probably any

* Several cases of convulsions which I have seen have been followed by a degree of abdominal disease, though not apparently inflammatory. The abdomen had some preternatural fulness and tenderness, and the discharges from the bowels were of an unhealthy appearance.

cause which irritates the brain to a certain extent may produce a fatal determination of the circulation to that organ. We suppose too, that in very plethoric subjects, a morbid accumulation in the vessels of the brain sometimes takes place, together with that state of the uterus which has been mentioned as predisposing to convulsions. The disease which results from these combined causes exhibits the symptoms of puerperal convulsions, complicated in different degrees with those of apoplexy.

I have mentioned the dropsy of pregnancy, as a precursory symptom of puerperal convulsions. It will be understood, that when I speak of it as such, I do not mean by it, that swelling of the feet, which so often takes place during utero-gestation, but a general œdema, attended, most commonly, with diminished secretion of urine. It is true, that convulsions sometimes take place when there has been little or no œdema, and an extensive effusion in pregnancy is not always followed by convulsions; but, so far as I have known, this has been the case very generally, especially in first pregnancies. This cellular effusion is generally attributed to the pressure of the gravid uterus opposing the return of venous blood, but with what propriety I am unable to comprehend. It is certainly possible, that the distended uterus may hinder, in a degree, the return of blood from the lower extremities; but then, the effect should bear some proportion to its cause.* We know, however, that the effusion in question bears no proportion to the size of the uterus. In a great proportion of pregnancies it does not take place. In cases of twins, or redundancy of liquor amnii, it is not more common or more extensive than in ordinary pregnancies. Nor is this effusion more confined to the feet or lower limbs, than that which takes place independently of gestation. It may be worthy of remark, that there are two varieties of the dropsy of pregnancy, having symptoms very distinct from each other. The one takes place in vigorous subjects, is attended with strong arterial action, and a peculiar hardness of the œdematous swelling. The other is peculiar to feeble habits, and is attended with symptoms of general debility. The œdematous swelling is soft, and there is a peculiar paleness of the surface, with a waxen or semi-transparent look of the skin. These varieties of the disease greatly resemble the two predominating forms of general dropsy, which take place independently of gestation. A corresponding resemblance undoubtedly exists in the causes which produce them. Local congestions

* No one, I believe, doubts that the varicose veins of the lower limbs in pregnant women are owing to the pressure of the uterus. I have now a patient, remarkably troubled with these tumours. She has no œdema, and I do not recollect having seen the two complaints combined in a single instance.

tion is often a cause of dropsy, as we see in many cases connected with diseased liver. It is also produced by local increased action, as in those dropsies which supervene upon chronic inflammation of the pleura or peritoneum. I conclude, that congestion or excitement of the uterus may produce an unequal action of the sanguiferous system, similar to that which results from chronic congestion or excitement of other organs.

While treating on the causes which produce convulsions, it may not be improper to remark, that those women who are subject to difficult and protracted labours, are not more liable to the disease than others whose labours are easy. Nor does malposition of the child, or deformity of the pelvis, dispose to this disease. I have never known, nor do I recollect having read of any case, in which mechanical obstacles to labour were supposed to produce convulsions of the puerperal kind. If these observations are correct, it will follow, that uterine irritation, in the sense in which that term is commonly used, or, in other words, that a preternatural excitement of the uterus ought not to be regarded as a cause of convulsions. For, in labours of this class, the uterus suffers every variety of irritation, and is often, for a long time, excited to the most violent action, of which it is capable. Probably strong voluntary exertions in labour may sometimes produce apoplexy, but never, I believe, puerperal convulsions.*

It seems to have been a question with some writers, whether the disease we are considering ever attacks antecedently to labour. I believe, we may very safely answer it in the affirmative. I do not recollect having seen an attack earlier than the latter part of the seventh month; and in no instance, within my observation, has there been an interval of more than a week between the convulsive attack and the occasion of labour. It is

* Does not the opinion which has been advanced respecting the causes of puerperal convulsions, admit of confirmation from the analogy of other convulsive diseases? In those general diseases of the system, which are produced by a local derangement, we observe two prominent modes, of what is termed reaction. The one, affecting the vascular system, constitutes a fever. The other, affecting the nervous system, is termed convulsion. Is not local atony the common cause of the latter, as local excitement seems to be of the former? Acrid ingesta produce inflammation of the stomach, and fever. Indigestible substances, when taken into the stomach, often produce epilepsy. Obstructed menstruation is a common cause of hysterical convulsions, but they do not occur during uterine inflammation. The mineral poisons which inflame or corrode the stomach, destroy life without producing convulsions. The contrary, in general, is true of those narcotics, which, when taken into the stomach, suspend its natural actions, or directly weaken its vital powers. It was noticed, so early as the days of Hippocrates, that the supervening of a fever puts an end to convulsions. As fever cures convulsions, so convulsions sometimes cure other diseases. The cure, in both instances, is probably affected by restoring excitement to some organ, which had before laboured under atony.

undoubtedly a fact, that the parturient effort is most commonly the exciting cause of the disease.

Respecting the treatment of puerperal convulsions, we shall first consider what should be attempted towards preventing them. When women, who are otherwise healthy, become affected in the latter months of gestation, with those symptoms which have been mentioned, as precursory to convulsions, we should immediately take so much blood as is necessary to relieve them, and the bleeding should generally be repeated, as often as the symptoms require. It is scarcely less necessary, that the bowels should be freely evacuated, and kept constantly lax. The patient should be directed to a spare diet, and should not fail to use daily exercise in the open air. When cellular effusion takes place, we should by no means neglect this symptom, but should attempt its removal by the use of digitalis, and alterative doses of calomel.

When we discover the predisposition to convulsion, in subjects whose constitutions are impaired by previous disease, and who are of feeble and irritable habit, we shall find the indications more complicated, and the prospect of success less considerable. It is necessary, in these cases, to pay particular attention to the state of the digestive organs, and to obviate costiveness by the most gentle means. Small bleedings may be necessary, but we should bleed with caution. The diet should be light but nutritious, and the patient should take as much exercise as her strength will bear. When there is extensive œdema, we may probably derive benefit from diuretics, with bitter infusions and peruvian bark.

In some instances, when women are near the full period of gestation, they have indistinct symptoms of labour, with irregular, obtuse pains of the back and abdomen, alternating with a violent pulsating pain in the head; these symptoms continue more or less severe, for hours, and perhaps for days, and then there is a sudden attack of convulsions. On examination, it will often be found that there is no apparent contraction of the uterus, and no dilatation of the os uteri. Full bleeding and cathartics will, generally, either put a stop to the convulsions and to the apparent labour, or else will enable the uterus to act effectively, and the process of parturition, if it be actually commencing, will go on without farther difficulty. I have been called to visit two women, on account of convulsions, who were supposed to be in an advanced stage of labour. They had no dilatation of the os uteri, but their convulsions were clearly of the puerperal kind. They were relieved by very free evacuations. One of these patients had, by far, the greatest cellular

effusion, which I have ever seen. This was rapidly removed by the use of calomel and infusion of digitalis, so that she was nearly free from it before the commencement of her labour. In both these cases, after the convulsions had ceased, nearly a week elapsed before the accession of labour; and, though their labours were lingering, the convulsions did not recur, nor were they attended with any other unfavourable symptom.

Generally speaking, if a patient have not made some evident advance in labour, the circumstance of her pregnancy has nothing to do with the treatment. If, however, the convulsions continue, after suitable evacuations, and occur at nearly regular intervals, it may be important to ascertain whether the uterus is not prevented from contracting, by over distention. Should there be evidence of a redundancy of liquor amnii, it would doubtless be proper to puncture the membranes with a view to bring on efficient contraction of the uterus. But this case is probably the only one, which would justify an attempt to induce labour, with a view to suspend convulsions.

When convulsions commence during labour, the attack is sometimes sudden, and without distinct precursory symptoms. More generally, however, intense pain of the head or stomach, or violent shaking of the muscles, will for a longer or shorter time precede the attack. We notice, in some instances, a tolerably regular progress of labour, except that the uterine efforts seem not to produce their ordinary effect. There appears to be severe pain, with but feeble action of the uterus. If this state continues for a considerable time, especially if the pulse is oppressed, we have reason to fear an attack of convulsions, though there should be no other precursory symptoms. In these circumstances, we should always open a vein, unless the feeble habit of the patient decidedly forbids it. We should also direct a stimulating enema, and endeavour to excite the uterus, by brisk friction of the abdomen. I once attended a very feeble and slender woman, who had for years been subject to severe spasmodic pains of the stomach. Her labour advanced considerably, with no other unpleasant symptom, than a feeble and irregular action of the uterus. She was walking cheerfully about the room, when she became slightly convulsed, and died almost instantly.

The same general principles will regulate our practice, whether the disease comes on before or after the commencement of labour; but we shall not proceed in both cases with an equal prospect of success. When convulsions precede labour, I believe that a judicious application of remedies will seldom fail to arrest their progress, and prevent their recur-

rence. But when they commence during labour, and do not prove fatal, perhaps, notwithstanding our best efforts, they will more commonly recur with the pains, till the child and placenta are expelled.

In what I have further to say respecting the treatment of puerperal convulsions, I shall consider the disease as presenting several varieties of symptoms. Those of the first variety seldom attack, till after the labour has made considerable progress. The convulsion very generally comes on without much warning, or is preceded with a transient but violent pain in the forehead. Distinct precursory symptoms are, I believe, less common to this, than to the other varieties of the disease. We must however mention œdema, and a remarkable slowness of pulse, as exceptions to this remark, for these symptoms very seldom fail to precede this variety of convulsion. The great danger which attends this form of the disease, is not so much indicated by the violence of the convulsions, as by the symptoms which attend the intervals. For a considerable time after the convulsive attack, the patient remains obstinately comatose, with slow and oppressed pulse, bloated, red or livid countenance, dilated pupils, laborious respiration, and perhaps is unable to swallow. If there is a return of sensibility in the intervals, it is slow and partial, and is frequently attended with a vomiting of viscid mucus or bile. This variety of the disease, in some instances, is hardly to be distinguished from apoplexy; except by the convulsions recurring, at nearly regular intervals, attended with some degree of uterine action. Nor is the distinction of much practical importance. It is generally in plethoric women, of robust constitution, that we shall see this form of the disease. These require, and will safely bear, the most decided treatment. Blood should immediately be drawn from a large orifice, and in such quantity as to produce a very decided effect on the pulse. The first bleeding should rarely be less than thirty or forty ounces, and we should recollect, that the suddenness of the evacuation, as well as its quantity, is important, to produce its full effect. The bowels should next be moved. And, if the patient can swallow, we should prefer for this purpose a very full dose of calomel, followed by neutral salts, and quickened in its operation by a purging enema. These means should be aided by a blistering plaister to the nape of the neck, cold applications to the head, and sinapisms to the feet. In short, this variety of the disease requires copious depletion, so managed as to produce a sudden and strong impression on the system, together with such means as will produce, and keep up, an active counter-irritation. Should the convulsions continue, *our chief*

dependence will still be on bleeding, which should be continued as far as appears consistent with the safety of the patient. More danger is to be apprehended from bleeding too little than too much. But it should always be the design of the practitioner, to take a sufficient quantity at once. There is much more probability of arresting the disease and much less danger of injuring the constitution, when very free bleeding is resorted to in the outset, than when by beginning with small and frequent bleedings, we are obliged to take in the whole a much greater amount. In this form of the disease, the common antispasmodics will probably be altogether useless, and opiates, without doubt, are decidedly injurious.

A second variety of the disease frequently attacks before the accession of labour. It also takes place in any stage of its progress, and in some instances after its conclusion. Its approach is generally announced by distinct precursory symptoms, and these often precede the attack for a considerable time. The muscular agitation is often very violent, but the patient, in the intervals, very soon recovers sensibility, and is unconscious of all that has taken place during the fit. She appears tolerably calm, or perhaps complains of darting pain of the forehead, or sickness, oppression or pain of the stomach; and so far as I have observed in this, as well as the other varieties of the disease, the convulsion is generally preceded, and more generally followed, by indistinct vision or total blindness.

The same general treatment will be proper in this, as in the former variety of the disease; but the bleeding, if resorted to immediately, will rarely be needed to the same extent. It should, however, be copious, and sufficient at all events to produce a decided effect on the circulation. I have seen the convulsions evidently increased in violence by a moderate bleeding. It is commonly the case, that after the blood has flowed for a time, the pulse rises somewhat suddenly to more than its natural frequency, and, at the same time, becomes much more hard and resisting than before. A similar alteration in the pulse is sometimes produced by the convulsion, when no blood has been drawn. It is important generally, that the blood should be suffered to flow till the pulse becomes soft and open, and if it runs freely from a large orifice, this softening of the pulse will scarcely fail to take place before any danger will be incurred from too great an evacuation.

When the tongue is foul, and there is much oppression or sickness of the stomach, an emetic, given after the bleeding, has sometimes produced very decided benefit. A speedy and thorough evacuation of the bowels, and the use of counter-irritants, are equally important in this, as in the former variety of

the disease. If this form of the disease is suffered to take its course, or if the necessary evacuations are omitted, and relief is prematurely sought from opiates, the symptoms will soon approximate to those of the variety before described, and will probably terminate in death. But, on the other hand, it will sometimes be the case, that the convulsions continue with unabated violence after evacuations have been carried to the full extent, and symptoms of general irritation and exhaustion supervene, so that the distinctions of this variety of the disease are lost in those of the next.

In a third variety of the disease, the convulsions are preceded and followed by great general uneasiness. The patient tosses about, talks incoherently, and looks wild and confused. In extreme cases, there follow tremor and subsultus, with a very quick vibrating pulse and hurried respiration. These symptoms sometimes usher in the first attack of convulsions in very debilitated and nervous subjects, or they take place in the intervals in an early stage of the disease, and before any remedies have been employed.

More generally, however, they are secondary, and take place only after the vital powers are greatly exhausted by repeated convulsive attacks. When these symptoms attend the primary attack, they obviously require great caution in the use of evacuations. This form of the disease is peculiar to subjects whose constitutions have been broken down by previous disease, or who are naturally of very nervous and irritable habit. Such will bear to lose but very little blood, and it would doubtless, in some instances, be injurious to bleed at all. The bowels should be evacuated, and the strength be supported with animal broths, and wine or other cordials. When, as is more frequently the case, these symptoms are secondary, and take place after free evacuations, they admonish us that no benefit is to be expected from further depletion. In either case, our remedies will be camphor, ammonia, &c. with opium, in full doses and frequently repeated. The propriety of giving opiates before the termination of labour, may, perhaps, admit of some doubt. If the attack is in an advanced stage of labour, it may generally be proper to delay their exhibition till after its conclusion. But when convulsions precede labour, or take place in an early stage of it with the symptoms under consideration, I have no doubt that a judicious use of opiates will generally afford the patient the best chance for recovery.* It would seem rational to

* It may perhaps be said, that in what relates to the third variety of the disease, I am not describing puerperal convulsions; but such as are purely hysterical, or such as result from exhaustion. What I have described as the second

conclude, other things being equal, that those convulsions which commence after the conclusion of labour, should require less evacuation than others, and be more likely to be relieved by opiates; but the symptoms alone can determine the proper treatment.

It is admitted that the above division of the symptoms which attend puerperal convulsions, is altogether arbitrary; I have made use of it only with the view to render what is said respecting the treatment more intelligible and definite.

Whatever may be the cause of the disease, we have ground for the opinion, that many of the symptoms which follow an attack are the effect of the convulsion itself. That strong cerebral irritation, which attends the convulsions, endangers a fatal determination of blood to the brain; and the violent muscular exertion, if long continued, cannot fail to exhaust the vital powers. It is only by carefully observing the manner in which the disease tends to a fatal termination, that we can determine on the best means for warding off that event. Every variety of the disease is to be regarded as dangerous; for though a patient should appear but slightly injured by the first attack, a subsequent one may prove suddenly fatal.

When called to attend on labours complicated with convulsions, every physician will agree, that the first attention is due to general symptoms. If the convulsions continue, after suitable evacuations and other appropriate treatment, and the patient is in an advanced stage of labour, it is then that the question occurs respecting the propriety of artificial delivery. This question, if the circumstances are such as to render delivery practicable and safe, is to be decided on general principles. It is presumed, that no intelligent practitioner will attempt to deliver till the os uteri is dilated, or at least very easily dilatible. He will avoid a harsh and needless interference, while the labour is progressing and the appearance of the patient gives reason to expect, that the natural efforts will be sufficient to conclude it. But when the uterine efforts are inefficient, and there are symptoms of great exhaustion or dangerous compression of the brain, he will be careful not to lose time. Profound stupor, or great nervousness in the in-

variety, I suppose to be the most common form of the disease in its early stage. That the first is less frequent, and that the third occurs still less frequently than either of the others, except it be secondarily, as explained above. Two cases however I have seen, which were strong examples of this variety of the disease, yet having the unequivocal characteristics of puerperal convulsions; as the precursory pain in the head with vertigo and impaired vision; and, during the convulsions, the distortion of countenance, frothing at the mouth, hissing respiration, &c.

tervals of convulsions, and a frequent repetition of the attacks, are symptoms of great and immediate danger. Under these circumstances, it is not to be forgotten, that the uterine efforts are a powerful exciting cause of convulsion, and that artificial delivery will often afford the only chance for saving the patient.

As a remedy in puerperal convulsions, a particular consideration is due to the Ergot. It is not to be regarded merely as a means of accelerating delivery. By exciting the uterus to a more vigorous action, it tends, directly, to counteract the predisposition to disease. The trials which have been made of it, have given it a fair claim to our confidence; but farther experience is necessary, in order to determine how far it may supersede other means. It can hardly be expected, that it will at all preclude the necessity of evacuations, but it is probable that by the use of it we may often bring the labour to a safe termination, when, without its aid, we should be obliged to use the forceps. When convulsions occur early in labour, it will probably be useful and safe to give the ergot in small doses, and repeat it frequently so as to produce a moderate and steady effect. Of the propriety of this practice, however, I can say nothing from experience. After the os uteri is dilated, there can generally be no objection to its use; and if the uterus acts feebly we should give it in full doses.

When called to assist in ordinary labours, we should pay early attention to the general health of the patient, and should carefully observe the state of the pulse. By this means we may often be led to anticipate mischiefs, and may easily prevent what it would be difficult to remedy.

No man should attempt to commence business as an accoucheur, till he is thoroughly qualified to encounter those untoward accidents which he is likely to meet with in the course of his practice. It is particularly important, that he should know how to distinguish puerperal convulsions from such as are purely hysterical, and from such as are produced by hemorrhage or exhaustion. In no part of our practice can it be more important to distinguish accurately and to act with decision, than when we are required to assist in labours complicated with convulsions. Frequently a physician is called, when he needs to redeem the time which has already been wasted in trivial expedients, or to remedy mischiefs which have already resulted from ignorance and mismanagement. Need we caution the inexperienced practitioner against that blind attachment to any theory, or that implicit reliance on any authority which shall lead him to neglect an accurate discrimination of symptoms, and a careful adapta-

tion of remedies? Or need we remind him, how much he will hazard his reputation and his peace of mind, and how much he will fall short of his duty, if conscious ignorance compels him to hesitate and temporize at a time when the safety of his patient requires him to adopt a bold, enlightened, and decisive practice?

With a view to illustrate more particularly that variety of puerperal convulsions, which, as I suppose, requires the use of opium and antispasmodics, I have subjoined the following cases. They occurred in the early part of my practice, and, as I took no notes of them at the time, I cannot relate them so particularly as might be desirable. What I state is from recollection, assisted by a reference to my day book. But however defective the statement may be, I can assure the reader that in every important particular, so far as it goes, it is correct.

Mrs S——n, a very slender and feeble woman, had suffered three successive abortions, in the early months. In her fourth pregnancy, she was frequently threatened with abortion, and the ordinary complaints of early gestation, affected her with unusual severity. She was bled very sparingly two or three times previously to the seventh month, her bowels were kept open by laxatives, and absorbents and bitter infusions were given to allay the irritation of the stomach. From the commencement of the seventh month, her dyspeptic symptoms became more severe, she was subject to diarrhœa, had extensive œdema, with headache, and general nervous depression. In the eighth month, her labour commenced, and in an early stage of it her pulse became very frequent, and she discovered much general uneasiness. Her labour however advanced with usual regularity, till the head engaged in the pelvis, and her pains became more severe. Soon after this, she had violent darting pains in the head, and complained that she could not see. After a short interval, a very marked increase of pain in the head, and general restlessness, was followed by a convulsion of the puerperal kind. About eight ounces of blood were now taken from her arm, without any apparent benefit, and from her general symptoms, and her constitutional debility, it was not thought prudent, to carry the evacuation further. During the remainder of her labour, which lasted nearly two hours, the uterine pains occurred less frequently than before, and were mostly attended with convulsions. At length, in one of the convulsions, the child was expelled, and in another the placenta.

Cold applications to the head, an epispastic to the neck, and an occasional use of Spts. Lavend. Comp. and aqua ammoniæ were the principal means used during the continuance of her labour. After the os uteri was fully dilated, she took twenty grains of

ergot in substance, this seemed very evidently to increase the force of the uterine contractions, but had no perceptible effect on the convulsions. From what I had read and heard, respecting the effect of opium in puerperal convulsions, I had imbibed a strong prejudice against the use of it in this disease. But a violent convulsion, recurring about two hours after the termination of labour, determined me to make trial of a full dose. Though she suffered, after this, two very slight convulsive attacks, yet the good effect of the opium, in lessening their severity, in calming the circulation, and allaying general uneasiness, was very apparent. The use of it was continued for several days, in such doses, as the circumstances seemed to require. For several succeeding weeks, she had impaired vision, with occasional headache and dizziness, and convalesced very gradually under a course of mild laxatives and tonics.

On the eighth of August, 1816, I was called to visit Mrs ****. She was the mother of several children, supposed herself in the eighth month of pregnancy, and for several days had been unwell, concluding, from her sensations, that her child in utero was dead. She was of spare habit, and nervous temperament, but not sickly. She complained of violent pain in the forehead, and indistinct vision. Her countenance was flushed, and her pulse was full and preternaturally slow. I immediately proposed bleeding, to which she strenuously objected. She was apprehensive of a fit, and said that bleeding always made her faint and would bring the fit on. I found it impossible to overcome her apprehensions, but succeeded so far as to open a vein in her arm, and take away about eight ounces of blood, when she became somewhat faint, and so much alarmed, that I was obliged to tie up the arm. Not long after this, she became blind, the pain in her forehead became still more distressing, and she was soon violently convulsed. I took advantage of her insensibility, and drew from her arm about twenty ounces of blood. I had previously given her a cathartic, had applied cloths wet with cold water to the head, and an epispastic to the neck. From this time, her convulsions recurred with intervals of from one to three hours. They were severe, and evidently of the puerperal kind. During the first twelve hours, she became sensible in the intervals, and continued to complain of her head. The cathartic operated freely. After the second bleeding, her pulse was frequent and very tense. She discovered no suspicion at any time, of having been affected with convulsion. The next day her convulsions continued, and in the intervals, she discovered increasing restlessness, with much confusion of mind. A very respectable physician was now called in to advise. He

recommended a repetition of the bleeding, and about twenty ounces of blood were accordingly taken from the arm. Notwithstanding this loss of blood, a convulsion, more violent than either of the preceding, occurred soon after it; and the symptoms of general irritation were now alarmingly increased. Her pulse became very quick and vibrating, and her countenance was pale and ghastly. She tossed about incessantly, had dilated pupils, tremors and subsultus tendinum. She was nearly insensible to external impressions, and appeared to be rapidly approaching towards dissolution. It was now agreed in consultation, to give two grains of opium, combined with camphor and assafoetida, to be repeated every two hours, or oftener if needed, together with infusion of Valerian, aqua ammoniæ, and light nourishment. The benefit derived from this course, far exceeded our expectation. She had no return of the convulsion, and her nervous symptoms gradually subsided. I will add here, because I have omitted to mention the circumstance in its proper place, that throughout her disease, she had discovered no symptom of labour, and the os uteri was not at all dilated. Under the use of antispasmodics, and moderate tonics, she convalesced regularly, and on the 23rd, after a quick and easy labour, she was delivered of a putrid child. Her headache and indistinct vision were troublesome for several weeks, but she at length recovered perfect health. I think it will hardly be doubted, that the termination of this case would have been fatal, if the cure had been trusted to evacuations alone. The above cases, as already observed, occurred in the early part of my practice, and were not treated, in all respects, as I should have treated similar cases, after I had become more extensively acquainted with the disease. I have selected the first, as an example of the disease, in a feeble subject, connected with symptoms of general debility, and in which depletion, to any great extent is inadmissible. The second is introduced, as a specimen of what I have called the second variety of puerperal convulsions, changing in the course of the disease to the third; and ultimately requiring the treatment, which I have recommended in that variety. I had designed to introduce other cases, belonging to the first variety of the disease, in which there existed symptoms of compressed brain, and which yielded to depletion and counter-irritation. But I omit them on account of the length to which this article is already extended.

The following interesting cases, were lately treated by my friend Doctor Woodward of Wethersfield, and by him forwarded to me. I shall communicate them in the Doctor's own words.

They will be read with greater interest, on account of the deservedly high rank which this gentleman holds in his profession.

Glastenbury, Conn. Aug. 10, 1824.

CASES BY DR WOODWARD.

CASE 1.—Mrs G——, of Stepney, Wethersfield, was attacked with puerperal convulsions, on the evening following the last sabbath in April last. She was of a delicate constitution, slender and irritable. Her labour was completed before the convulsions occurred, and was not severe. It was her first child. Shortly after she got to bed, she complained of severe headache and blindness. The convulsions soon succeeded, and were of a very alarming character. They occurred at intervals of 15 and 20 minutes, and continued through the night and forenoon of the next day. Soon after the occurrence of the convulsions, she became apoplectic, and continued so till I saw her at 12 o'clock next day; 14 hours after the attack. She had had no medication. By her attending physician, the case was considered hopeless. When I saw her, her symptoms were, pale bloated countenance, apoplectic respiration, skin warm, but pale, pulse 130, highly irritated but not tense nor strong; entire loss of sense and voluntary motion, pupils of the eye contracted, power of deglutition lost; convulsions occurring every 20 minutes. She had then had forty or about that number.

I advised that blisters be applied about the head and on the ancles, that 5 grains of calomel be thrown down the pharynx, from the handle of a tea-spoon, and repeated every 3 hours, that an injection containing two ounces of *Oleum Terebinth.* be thrown up the rectum.

After the turpentine was administered, the paroxysm did not recur for two hours; at which time the bowels were moved freely. Afterwards, they recurred twice, at intervals of 2 hours. Half an ounce of liquid laudanum, was then given by injection, after which no convulsions appeared. As soon as the power of deglutition was restored, oil of turpentine, with castor oil, was administered, till the bowels were freely evacuated. The catheter was used twice during this period. For some days she was excessively irritable, entirely blind and deranged, calling loudly and almost incessantly for candles. Full doses of opium were given, to quiet and subdue the irritability of the system; and she gradually recovered. Her tongue was horridly mangled, and was for a long time very troublesome and painful.

CASE 2.—Mrs R——, of Wethersfield, of a plethoric habit,

sanguine temperament, subject to vertigo, and headache, was attacked on the 20th of May last, with puerperal convulsions. During pregnancy, she was extremely swollen from head to foot, with hard œdema. Her pulse were full and strong. She was bled repeatedly, in small quantities, during her pregnancy, and her bowels kept open by gentle laxatives. Till nearly the close of labour, she was remarkably comfortable; the pains were in every respect regular. The os uteri was quite dilated, and the vertex pressing on the perineum. In this situation, she was attacked with convulsions. I immediately took 16 ounces of blood from her arm, and gave her a table-spoonful of strong tincture of ergot. In a few minutes she had a return of smart uterine efforts, and the labour was terminated with one pain. The placenta soon followed, with a smart pain, and a second convulsion occurred. I now gave her 60 minims of strong tincture of opium, and she slept one hour and a half, when a third convulsion followed. She was able to swallow in the intervals, although nearly destitute of reason. In this way convulsions recurred for ten hours, at intervals of from half an hour to two hours. Her pulse were tense and full, about 110 in the minute. Her countenance was flushed, her breathing stertorous. She was bled a second time about 16 ounces. Calomel was thrown down the throat in a dry state, till about two scruples were given, and oil of turpentine with laudanum freely given. The convulsions still recurring, 30 ounces of blood were drawn from the arm. A table spoonful of oil of turpentine and two large tea-spoonfuls of tincture of opium were given, by the advice of my ingenious friend Doctor Todd of Hartford. The bowels were soon freely evacuated, and the convulsions ceased and did not return. Blisters had been applied to the forehead and ancles. The next day her bowels were tympanitic, her tongue enormously swollen, and febrile symptoms, with severe headache, tense pulse, and great heat, continued for some days, when she recovered. Free doses of opium were continued for some days.

The oil of turpentine was doubtless a very important agent in the treatment of these cases.

Wethersfield, July, 1824.