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ON
PUERPERAL CONVULSIONS

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Puerperal Convulsions

An attack of convulsions is one of the most frightful accidents that can befall a woman in the parturient condition, and nothing is more likely to alarm the practitioner or excite terror in the friends of the patient, than their occurrence during the progress of labour. The attack may take place during gestation, immediately before, during or after parturition. The following table of W^h Simpson shows the proportionate frequency of their occurrence at different periods.

	Total Number.	During Pregnancy	During Labour.	After Labour.
Mauriceau	42	4	19	16
Pacoud.	47	18	20	9
Velpeau	21	4	5	9
Ramsbotham.	43	10	24	9

Convulsions occur in two extreme conditions of the system: the one in which the vessels of the brain are greatly distended with blood; and the other when the system has been nearly drained of blood by excessive uterine hemorrhage, or other depletions. There is generally considerable dan-

ger in these cases, partly from the great irritability consequent upon the exhaustion, so that much slighter causes will produce more violent effects, and partly from the greater difficulty of applying remedial measures. These two opposite conditions produce exactly the same phenomena.

It is usual to divide puerperal convulsions into three varieties; - I the Hysterie. II The Epileptic, and III The Apoplectic. - so as to avoid as much as possible any confusion that might arise with regard to the treatment; each requires a separate treatment for itself.

I Hysterie Convulsions: - Nervous and irritable women are most liable to be attacked with this variety of convulsions. They occur most frequently during the earlier months of utero-gestation; they seldom or never occur during labour: This variety is much less serious in its nature.

Causes: These are usually the want of sleep, or excessive fatigue, but they may also be caused by a disordered state of digestion.

Symptoms: The attack is usually preceded by a tightness about the throat, by sobbing, or by repeated attempts at swallowing. The trunk and limbs are agitated with strong convulsive movements; there is violent agitation;

The body is usually twisted from side to side; the head is generally thrown backwards; and the throat projects. Face generally, though not always, pale; jaws often firmly shut: no convulsive movements of the jaws: the nostrils distended: there is no distortion of the countenance; the cheeks are at rest, unless when the patient is uttering screams or exclamations. If the hands are at liberty, she often strikes her breast with them clenched, tears her hair, or carries them to her neck, as if for the purpose of removing some obstruction there. Opisthotonos is often caused by the violent contractions of the muscles of the back. There is seldom loss of consciousness, the patient usually is aware of all that is going on around her, though she may be unable to express her feelings or wishes. After this state has continued for some time, the whole attack terminates in tears, sobs, and convulsive laughter. The fit is often followed by the expulsion of a quantity of limpid urine; frequently this secretion is passed involuntarily during the paroxysm.

The paroxysm may be single, or there may be a return of the same phenomena.

Usually the progress of gestation is not influenced by the attack, yet W^r Churchill states that he has seen a case of premature labour occurring during the paroxysm. The health of the patient is little inter-

ferred with, may be a little more delicate.

Diagnosis: From epileptic convulsions. The convulsive movements are of a different character, they are much less severe; seldom complete loss of consciousness; there is no frothing at the mouth; the respiration is never suspended, nor stertorous. The tongue is not bitten; ~~the~~ the attack is not followed by coma; and the patient usually recovers her usual state after the fit is over.

From apoplectic convulsions: In the apoplectic convulsions there is total loss of consciousness and voluntary motion at first, and ultimately all motion ceases. There is stertorous breathing. That is not the case in hysteric convulsions; the patient soon recovers in the hysteric variety which is quite contrary to the result in the apoplectic variety.

Treatment:— During the paroxysm the patient's dress is to be loosened; she is to be prevented from injuring herself; should be surrounded by cool air; smelling salts may be applied to the nostrils; or cold water dashed upon the face and neck; if she is able to swallow, a drach^m of the compound tincture of valerian or fetid spirit of ammonia, mixed with a little syrup and water should be given. After the attack, a moderate dose of opium may be given; and, after a sound sleep the patient will find herself nearly restored. The bowels are to be

kept open by aperient medicine; the shower bath may be used daily, if it does not produce too great a shock on the system; ferruginous tonics may be administered if necessary. The patient's diet should be regulated; heated rooms avoided; and healthy mental occupation should be found.

II. Epileptic Convulsions:- This is the most frequent variety of puerperal convulsions.

The statistics of their frequency given by W. Churchill in his work on Midwifery, shew that in 190,313 cases of labour: 273 were cases of convulsions: or 1 in about 693 $\frac{1}{4}$.

The mortality to both mother and infant is considerable. W. Locoek says that "half a century ago, puerperal convulsions were much more fatal than at present, for we are told by writers of the period, that upon an average, full half of the patients died, whereas now as is well known, when properly treated, they usually recover." The statistics given by W. Churchill shew, that out of 254 cases, 57 mothers were lost, or 1 in about 4.5. The following table is one of W. Simpson's showing the fatality of convulsions to the mother and infant:-

Authors	Cases	Mothers lost	Infants lost
Ramsbotham	43	4	23
Merriman	48	11	34
Velpeau	21	8	
Collins	30	5	18
Total	142	31	45

Puerperal convulsions are apt to occur in women of all temperaments: W^r Collins in his Practical observations states, that they almost invariably occur in strong plethoric young women, with their first children, more especially in such as are of a coarse make, with short thick necks; and, in a foot note he says, he is surprised to find so experienced a practitioner as W^r Ramsbotham state, that "women with large families are equally or perhaps more liable to be assailed". This statement of W^r Ramsbotham's however, is not borne out even by his own cases, for more than $\frac{2}{3}$ were with first children

The subjoined table of W^r Simpson shows the greater frequency of puerperal convulsions in first than in subsequent labours:-

Total N ^o of Puerperal Convulsions	N ^o of those occurring in First Labours	Reported by
59	45 or 57 per cent	J. Ramsbotham.
22	15 " 68 " . .	J. Ramsbotham.
46	30 " 65 " . .	Lee.

48	36 or 75 percent.	Merriman.
19	15 " 79 " "	Clarke.
9	8 " 89 " "	Johns.
30	29 " 96	Collins.
233	178 or 76 per cent	Total Cases.

Causes. The causes of puerperal convulsions are very various, and obscure, as well as the explanation of them. W^r Locock says: "The immediate causes of puerperal convulsions are often very obscure. They appear sometimes to depend upon a loaded state of the brain; at other times the brain appears to be influenced by distant irritation, either in the uterus or digestive organs; and again, in some cases, puerperal convulsions are induced apparently by a peculiar irritability of the nervous system. It has been remarked, that there has been a greater disposition to puerperal convulsions in those patients who have been in early life subject to convulsive attacks, particularly of an epileptic character: and also in those who suffered similarly in former labours, and who have omitted those measures, usually employed as precautions. That the uterine organs are in some way particularly implicated, is evident from the convulsions being of a character which may be said to be peculiar to the state of either pregnancy or parturition. "The immediate attack may be brought on by a loaded

or disordered stomach, or by food, however small in quantity, of an indigestible kind. Some substances, shell-fish for instance, have been found very frequently to induce convulsions in the puerperal condition, when at other times they may have been taken by the same individual with perfect impunity. A sudden fright, afflicting intelligence, or any unexpected or depressing mental emotion, may excite the paroxysm: hence it has been long remarked, that unmarried women are more particularly likely to be sufferers from convulsions, from the shame and distress under which their children are usually born. The violent straining caused by labour pains, from the disturbance of the frame by the earlier uterine contractions, causing a temporary rush of blood to the head, will sometimes bring on convulsions.

Dr. Joseph Thompson of Nottingham, in his essay on the epileptic form of *puerperal* convulsions insists that no injury to the cerebrum or cerebellum can cause convulsions, so long as the true spinal system is uninvolved, he gives his opinion in the following manner:— "There can be no question that the proximate cause of puerperal convulsions, consists in a morbid irritation of the true spinal system, and more especially of the medulla oblongata, propagated to it from the mucous surfaces, through the incident nerves of the exatomotor system."

Among the proximate causes of puerperal convulsions morbid irritation of the uterus from hyperemia or anæmia, and morbid irritation of other organs, are mentioned by Dr. Murphy in his lectures, in the 43^d Vol. Med. Gazette, and he regards the whole as a beautiful illustration of the reflex nervous function: the peripheral nerves of the affected organ rapidly communicating their irritation to the spinal system, which, as an excitomotor centre, radiates the irritation over the whole of the voluntary muscles, and the muscles of respiration, in violent convulsive paroxysms. Even the involuntary muscles as the uterus and heart, do not escape, but give every evidence of greatly increased muscular contractions.

Dr. W. Tyler Smith in his work on Parturition and Obstetrics, after entering very minutely into all the causes of puerperal convulsions, given by various authors, sums up thus:— "In conclusion, to give a summary of the whole subject, the true puerperal convulsions can only occur when the central organ of this system - the Spinal Marrow, - has been acted on by an excited condition of an important class of its incident nerves - namely, those passing from the uterine organs to the spinal centre, such excitement depending on pregnancy, labour or the puerperal state. While the spinal

marrow remains under the influence of either of these ¹⁰ stimuli; convulsions may arise from two series of causes those acting primarily on the spinal marrow, or centric causes; and, secondly, those affecting the extremities of its incident nerves; causes of excentric or peripheral origin

I Causes acting immediately on the Central Organ:-

1. Pressure exerted on the Medulla oblongata by congestion, coagula, serous effusion within the cranium &c.
2. Loss of blood.
3. Morbid elements in the blood.
4. Influence of emotion

II Causes acting on the extremities of excitor nerves:-

1. Irritation of the incident spinal nerves of the uterus and uterine passages.
2. Irritation of excitor nerves within the cranium.
3. Irritation of the incident spinal nerves of the rectum.
4. Irritation of the ovarian nerves.
5. Irritation of the gastric and intestinal branches of the pneumogastric nerve.
6. Irritation of the incident spinal nerves of the bladder.
7. As probable causes, may be enumerated, irritation of the cutaneous nerves, of the nerves of the mammae, and of the hepatic and renal branches of the pneumogastric

"Though the subject distinctly admits of this division, several causes may act together, and centric and ex-centric causes may be in operation at the same time. I have made no attempt at a division into predisposing and exciting, ~~proximate~~ and remote causes, as other authors have usually done, because it is evident that a cause which in one case is the exciting or proximate, may in another be the predisposing or remote cause. Thus, irritation of the uterus may be the predisposing, and irritation of the stomach the exciting cause in one instance, while in another, irritation of the uterus is both the predisposing and exciting cause; hence any such division must be to a great extent, arbitrary, and devoid of precise meaning. For instance: W. Hamelotham says, 'The most usual proximate cause of puerperal convulsions, is probably pressure on the brain', whereas it can be shown that cerebral pressure is usually a symptom produced by some exciting cause previously in operation. The same authority mentions irritation of the stomach and intestines among the remote causes. Though there can be no doubt of their being generally exciting causes when they exist as causes of any kind."

W. Lee regards those women most predisposed to the disease who have had hysteria or epilepsy

in early life, who have suffered from injuries of the head, or who have had violent attacks of fever, with severe affections of the brain. But others do not altogether agree with this statement, for W.^r Tyler Smith, says:—The suspected affinities between epilepsy and puerperal convulsions deserve attention. It would seem, *a priori*, that epileptics, or persons who had been subject to convulsions during infancy, would be far more likely than others to attacks of convulsions during the puerperal state. It would also seem probable that patients suffering from puerperal convulsions should become subsequently liable to epileptic attacks. But experience does not support either of these probabilities:—

A diseased condition of the kidney, as in Bright's disease, is an exciting cause, because albumen is always found in the urine in that disease. In almost all cases the urine is albuminous to an exceeding great degree. W.^r Hamilton was among the first who stated that puerperal convulsions, were liable to be preceded by anasarca, and W.^r Simpson and Lever were the first to connect this dropsy with Bright's disease. Albuminuria is found in 49 out of every 50 cases of puerperal convulsions. There can be no doubt there is albuminuria in a large proportion of cases of convulsions, with or without

anasarca; and there may be albuminuria without convulsions; and convulsions without albuminuria. It is difficult to say precisely what is the exact relation between the two. Dr. Churchill says, ~~what~~ he "believes with Dr. Simpson, that they both stand in the relation of effects of another cause, viz., 'a pathological state of the blood, to the occurrence of which pregnancy some way disposes.'"

Albuminuria indicates a retention of urea in the blood; but urea as urea does not produce coma and convulsions, for according to the theory of Ferriehs it is transformed into the carbonate of ammonia, and he says that he has produced convulsions by injecting carbonate of ammonia into the blood. The researches of Dr. Richardson, show that ammonia is present in the blood, as a natural constituent, but in so minute a quantity, that he could only obtain about $\frac{1}{2}$ a grain from 40 lbs of blood. In cases of convulsions an excess of it is found in the blood.

The state of the atmosphere is in some way or other connected with the occurrence of puerperal convulsions, for they are much more frequent in hot weather than in cold, and more especially when the atmosphere is charged with electricity. They are more frequently

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met with towards the end of summer, and in the autumn, and also in the spring when there happens to be a few unusually warm days. Wenman remarked that women were far more liable to puerperal convulsions, in certain years and seasons than in others.

The most common exciting causes are, intemperance in eating and drinking, violent and sudden impressions on the mind, more generally from terror than any other cause; Wenman mentions the following instance, in his Introduction to Midwifery, in which a fright was the exciting cause:—"The carriage of a lady, who was going on a party of pleasure, was broken down; she was near the time of her lying in, and was very much frightened, though she received no apparent injury. When she fell into labour, this was preceded by convulsions, in which she died undelivered."

Periodic paroxysms may occur, only during the time of gestation, of which the following is an instance "The wife of a citizen of Ferrara, 20 years of age, of a bilious constitution, and the mother of three children, was attacked with periodical epilepsy whenever she conceived, and sustained a paroxysm of that malady once a fortnight during the whole of her gestation; but as soon as she was delivered, the disease left her. Its occurrence, therefore,

was always to her a sign that she had become pregnant". Dr. Churchill mentions a case somewhat similar to this.

Symptoms:- The symptoms of epileptic convulsions, in their character, are very similar to those of ordinary epilepsy, if they are not altogether identical. There are sometimes, though not in the majority of cases, premonitory symptoms sufficient to warn the patient of an approaching seizure. These warnings differ both in duration and character. Spectral illusions, headache, giddiness, dimness of vision, a state of amaurosis may come on in one or both eyes; or the patient may become deaf; confusion of thought; a flushing of the face, or lividity; difficult articulation; nausea or vomiting; ringing noise in the ears; rigors. An intense pain in the forehead, is mentioned by Dr. Hamilton senior, as peculiar; and Hennen was of opinion, that those who had a severe pain in the stomach, turned out to be cases of the worst kind. A dropsical swelling of the face, or of the face and upper extremities, more especially when combined with albuminous urine, may be regarded as a premonitory symptom of the first class. The "aura epileptica" is seldom felt.

On the approach of the attack these symptoms are aggravated, the pupils become dilated, the face

more injected, the eyes fixed, and the patient loses consciousness. During the attack, the features are always greatly distorted, the brows are knit; the eyes sometimes quiver and roll about, sometimes are fixed and staring, sometimes are turned up beneath the lids, so that the cornea cannot be seen, the white sclerotic alone being visible; the mouth is twisted away; the tongue thrust between the teeth, and caught by the violent closure of the jaws, is often bitten very severely; and the foam which issues from the mouth is reddened with blood. The muscles of the body are violently convulsed, the hands are firmly clenched; the arms are thrown about, striking the chest of the patient with great force, or bruising themselves against surrounding objects, or striking those who have hastened to her assistance. The respiration is at first irregular, and being forced through the closed teeth and the foam at the mouth, produces a peculiar hissing noise. The pulse is quick, and at the beginning, full and hard, but afterwards becomes small and almost imperceptible. It frequently happens that the urine and excrement are involuntarily expelled during the violence of the paroxysm. The spasmodic contraction of the muscles is occasionally so powerful as to dislocate the bones to which they are attached - the jaw and shoulder joints for instance: and

the teeth may be fractured.

The average duration of the paroxysm varies from five to ten minutes; it may last for half an hour or more, when - gradually - the alarming phenomena subside, and shortly afterwards cease; and the patient falls into a deep sleep. The countenance being less distorted, and assuming a more natural and placid appearance; the respiration becomes more regular, though still sibilant; and the circulation is restored, the pulse becoming more perceptible, but still very quick.

During the interval the patient's condition is very variable. It is very seldom that she has any recollection whatever of what has taken place during the fit. Many are not aware that they have had one; and those who do know it, discover the fact by the injuries they may have received during the paroxysm; by the soreness of the bitten tongue; by the bruised limbs; or by the same confused or painful sensations which they have experienced on former occasions. She may recover her consciousness so far, as to be able to recognise her friends around her. In other cases, the return of intelligence - without recollection - may be complete until the approach of the succeeding paroxysm, accompanied with great weakness, headache and confusion. These according to Dr. Churchill are the

more favourable cases. Others, again, remain in a state of complete insensibility, approaching to coma with stertorous breathing, with or without muscular motions of any kind. But paroxysms very soon occur, succeeded in their turn by intervals of repose.

The urine in the great majority of cases, is albuminous. Dr. Lever found it albuminous in every case but one, that he examined at the time of the convulsions. In the urine of fifty women that he had had drawn off by the catheter, during labour, albumen was only found in the urine of those women in whom there had been convulsions, or in whom symptoms had presented themselves which were readily recognised as precursors of the paroxysms. Drooping of the hands, arms, and face is a very characteristic symptom. The albumen is usually in considerable quantity, increasing as the labour advances, but disappears in a very short time, often within 48 hours after delivery.

The attack terminates variously in different patients: some gradually recovering after remaining in a state of half stupor and great exhaustion for some time. Others may become maniacal, recovering, after remaining so for some time. Or they may continue comatose, passing into a state resembling apoplexy, and die.

Recovery is not always complete: the patient may be

deaf, blind, speechless, or her limbs may be benumbed. Partial or complete paralysis is often a sequel to convulsions, giving unmistakable evidence of some permanent injury being received by the sensorium.

When they occur during the period of utero-gestation, it is most frequently during the latter two months of it; but they may occur earlier, or at irregular intervals. Our apprehension of an attack increases, as the time of her confinement approaches, by reason of the uterus being so distended and increased in irritability.

Labour may come on during the continuance of the attack, and run its usual course, or the uterus may remain quiescent, and gestation go on for some time longer. Usually the child is still born, frequently putrid; but whether its death preceded or resulted from the convulsions is not easy to determine.

The return of the paroxysm during labour occurs at the commencement of a pain. (That is when their occurrence takes place during the time of labour). Suffering is expressed more from the uterine contractions, than from the convulsion. The symptoms are more intense when the attack occurs during labour, than during gestation. The uterine contractions do not appear to be impeded by the fits; ^{the labour} usually running its natural

course in the usual time, if not terminated by art. Although there is great danger to the child, it is not necessarily fatal.

When they occur after delivery, it is usually from two to four hours after the birth of the child, but may be later. We can have little hesitation in attributing them to some injury received by the brain or nervous system during labour, though unable to specify the particular mischief.

The patient may enjoy her usual health after recovery, and her subsequent pregnancies do not appear to be very liable to similar attacks.

Morbid Anatomy:- A post mortem examination affords in general but little information, the brain is usually in a healthy state. Its vessels are sometimes turgid with blood, or serum may be found effused in considerable quantity on its surface, at its base, or into its ventricles.

The heart is usually flaccid and empty, and the lungs are of a pale colour; serum is occasionally found in the pleura, or pericardium.

Diagnosis:- From Hysteria Convulsions:- In the epileptic convulsions, there is complete loss of consciousness, great muscular action, foaming at the mouth, coloured.

with blood, frequent recurrence of the paroxysms, and incomplete restoration, or total insensibility during the intervals. In the hysteric convulsions, the loss of consciousness is not complete, the muscular contractions are moderate, no foaming at the mouth, the fits do not frequently recur, the patient recovering shortly after each. The sobbing, sighing, weeping and screaming, are characteristic of the hysteric variety.

From apoplectic convulsions. In the epileptic convulsions the body is repeatedly thrown into violent spasms, with intervals of quiescence, and often partial return of consciousness; respiration is sibilant; the muscles retain their contractility even during the intervals. In the apoplectic convulsions, the spasms only take place at the commencement, and are not repeated, respiration is stertorous, ^{there is} complete loss of sense and sensibility, ^{the} muscles are powerless, so that if an arm be raised and allowed to fall, it resembles that of a person recently dead.

Prognosis: We must be guarded in our prognosis, for there is a considerable amount of danger, the danger not being in proportion to the length and strength of the fits, and the shortness of the intervals, but rather to the degree of consciousness between the paroxysms. If the patient be lying in a state of complete stupor

and if there be stertorous breathing, when the paroxysm has ceased, and if she be insensible to any ordinary stimulus that could be applied, even although the fits be of short duration, she is to be considered in greater danger, than if the convulsions were stronger, and a complete return to consciousness during the intervals. Our prognosis should rather be formed from the condition of the patient during the intervals, than from the actual violence of the fits themselves. If we could be certain that no lesion had occurred in any part of the nervous system, we might with some confidence hope for a favourable termination in most cases of puerperal convulsions.

Treatment. When called to a case of convulsions, our first duty is to loosen the dress of the patient, raise her head, and protect her from injuring herself by the violence of her struggles; and then endeavour to prevent a recurrence of the paroxysm. One or two strong assistants will in general be able to restrain her, preventing her throwing herself off the bed, or striking her head and arms against any hard body. To protect the tongue - we must take advantage of the depression of the lower jaw - which occurs at the commencement of each paroxysm - by inserting a piece of wood or cork, wrapped in a handkerchief or piece

of linen, between the molar teeth, it must be kept steadily in its place by an assistant, until the paroxysm is over, so as to prevent the risk of its falling out.

Blood letting is the next thing that we are recommended to do, and that largely so as to make a decided impression on the system, rather than regulating the quantity to be drawn by a certain number of ounces. Dr. Hamilton avers that he never lost a patient under such treatment. Venesection is performed during the intervals, and not during the paroxysm, the struggling of the patient would prevent it being properly performed. It is evident that this treatment can only be carried out on those patients whose head is hot, face flushed, and the pulse full, firm, and frequent; and not on those patients who are pale exsanguinated, and weak, in these cases we have to rely on counter-irritation to the head and neck, cold in moderation, calomel and opium, and chloroform. Chloroform is the most powerful of all remedies, it diminishes the supersensibility of the nervous system, caused by the stimulating effect of the carbonate of ammonia. It keeps sensibility at a reduced point, and allows the labour to go on; and also it may act chemically (?) by preventing the decomposition of the urea into carbonate of ammonia.

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Tartar emetic given in small doses - half a gram or so - frequently repeated, is of great service, not with the view of exciting vomiting, but only to produce nausea, so as to keep the circulation.

After the paroxysm is over, the bowels are to be speedily acted on by giving a strong purgative, such as calomel and jalap, followed up by a tablespoonful of the infusion of senna and jalap, every half hour, until stools are procured. If the patient is sensible there will be little difficulty in administering the medicine by the mouth, but if she remains in a state of coma, she may perhaps be unable to swallow, in that case we must give a strong purgative enema, and repeat it if necessary, or we may put a drop or two of croton oil on the back of the tongue.

Emetics are recommended by some practitioners, but they need only be given when there are indications of the stomach containing any undigested food or indigestible substance.

Cold should be applied to the head, by means of a wet towel, frequently changed; the head need not be shaved unless the paroxysms are very severe, and coma during the intervals.

The next point to be settled is - whether we are to

interfere with the progress of gestation or parturition.

Should the attack come on during gestation, we are not to interfere with the uterus at all, as it would do more harm than good; our treatment is to be directed against the convulsions.

Should the attack come on during labour, it is the practice of some to hasten the operations of Nature by manual assistance; but unless the passages are in a proper condition for the delivery of the child, we are not to expedite the labour. The rule is, to restrain the convulsions as much as possible, and expedite the labour by means of forceps, if the passages are properly dilated, and if the head be within reach, introducing them during the interval between the paroxysms; should the introduction of the blades bring on a violent paroxysm, they must be withdrawn, lest they be forced through the vaginal or uterine parietes, during the struggles of the patient.

If the head be high, and the passages not prepared, we are not to mind the uterus, but take care of the convulsions; keep the patient quiet, and keep down the circulation with tartar emetic.

In the after treatment. The patient sometimes remains comatose for a long time, the pulse weak, and she cannot be roused; in such cases we are not to despair

till the very last, remove all sources of irritation, keep the bowels open and bladder empty, try to excite diuresis, for the urine is scanty and albuminous - by means of nitric ether, digitalis, fomentation over the loins &c. When diuresis commences the coma disappears.

Prophylactic Treatment: Should we be consulted by a patient during pregnancy, who presents any of the premonitory symptoms; we should prescribe saline purgatives, small doses of tartar emetic, moderate exercise, and a regulated diet.

But should the symptoms accompany an impoverished state of the blood, a generous diet and tonics will constitute our best treatment. cold or counter-irritation to the head, may be had recourse to at the same time.

Some patients do not recover from albuminuria for some considerable time, and there is a tendency to adema. In such cases diaphoretics, counter-irritation over the loins, hydragogue cathartics, &c. are to be had recourse to with the view of rectifying such a state of matters. Thus albuminuria is generally recovered from

III. Apoplectic Convulsions:- The apoplectic form of convulsions only occurs at the time of labour, either shortly before, or after it is terminated. They may occur at the commencement of labour, although they are exceedingly rare at that period, Dr. Burns mentions a case in which they occurred at the commencement of labour.

Causes:- The great degree of pressure that is put upon the cerebral vessels during the labour process - especially those during the second stage - is evidently the cause of this variety of convulsions.

Dr. Churchill is of opinion that anxiety of mind predisposes to an attack, as appeared in one case that he saw.

Symptoms:- In some cases there are premonitory symptoms, and in others they are absent, but most frequently there are, such as:- headache; giddiness, particularly on stooping; noises in the ears, loss of memory; numbness; incoherent talking; partial paralysis sometimes affecting a limb, muscles of the face, and sometimes the eyelids &c:- These are among the most important of the threatenings.

During the labour, the patient complains of headache; and during the second stage the face is flush-

ed and the eyes injected.

There is very little of the convulsive movements which we see in the epileptic form; there is complete loss of consciousness. The pulse, at first generally small, becomes full and strong, according as the system recovers from the shock. The respiration is slow, embarrassed, stertorous. There is no frothy saliva about the mouth; the face is pale; the eyes dull and glassy, with dilatation of the pupils, and insensibility to light; the power of deglutition is either lost or much impeded; torpidity of the bowels, or if they act, the motions are passed involuntarily; and there is either involuntary micturition, or retention of urine, until the bladder becomes distended, overflows as it were, and causes the urine to be constantly dribbling away. When the patient recovers incompletely, paralysis remains.

Pathology:- The blood may be effused upon or between the membranes of the brain, into the ventricles, or into the substance of the brain itself. Although a rare occurrence, the ^{blood does not} may be only in a congested condition, without any effusion; or serum may be effused in such quantity, as to give rise to the symptoms of apoplexy.

Diagnosis:- The diagnosis is easily established by

* *W^h Bennett on the treatment of Apoplexy*

* *A Collection of Cases of Apoplexy. By Edward Copeman.
London 1845*

the total and persistent insensibility; it is distinguished from either of the other two, by the absence of repeated paroxysms, and their accompanying phenomena.

The chief difference between that arising from congestion, and that from extravasation, is to be recognised in the intensity of the symptoms.

Treatment. The treatment that is generally recommended, is, venesection, and that to a large amount, either from the arm, jugular vein, or temporal artery (arteriotomy). The advance of pathological knowledge, however, must have made it apparent, that the same proceeding is not likely to be beneficial in all cases where the nervous centres are similarly affected. We may have sudden loss of consciousness and volition from syncope, as well as from coma, the only supposed difference between the two being, that the same nervous phenomena commence in the heart.*

As the abstraction of blood to any amount will neither remove the blood already extravasated, nor prevent further extravasation: for - if we are to believe with Mr. Copeman - instead of rendering the blood more coagulable, on the contrary bleeding diminishes the coagulability of the blood by rendering it thinner.*

Our treatment therefore should be such as "to obviolate the tendency to death". If the tendency be towards

death by coma; if the pulse be full, hard, or thrilling, if the vessels of the neck are congested; and if the face be flushed and turgid, a moderate bleeding may be beneficial. The extent must be influenced by its effect on the heart's action; for the object of this measure is not to draw blood from the brain, but merely to diminish the pressure on that organ, by lessening the force with which the heart propels the blood through the carotid and vertebral arteries. If, on the other hand, the patient is dying from syncope, with a weak, irregular, or almost imperceptible pulse, and a cold clammy skin, bleeding in such a case would only hasten the fatal termination, but wine, brandy, stimulants generally, and restoratives are demanded.

Active purgatives in most cases do good, a full dose of calomel and jalap followed by the common black draught; or if the patient be insensible, and, therefore unable to swallow, a few drops of croton oil may be put on the back part of the tongue. Blister applied over the scalp or to the neck are often of use.

If the attack comes on during labour, and if the uterine action be suspended, the ^{patient} should be delivered as speedily as possible, so as to save the child

if possible, and for this purpose, if the head be within reach, and the passages properly dilated, the long or short forceps are to be applied according to circumstances.
