

## THE PHYSIOLOGY, PATHOLOGY, AND THERAPEUTICS OF THE MOTOR FUNCTIONS OF THE UTERUS.

By H. HANNOTTE VERNON, M.D., Physician to the Great Northern Hospital; formerly Resident-Accoucheur to St. Mary's Hospital.

[Continued from the Volume for 1857, page 1047.]

### PART III.—THERAPEUTICS (continued.)

*Strychnia* is the next oxytocic to which I am desirous of directing attention. It is, as far as I can ascertain, quite new as an agent for exciting the motor functions of the uterus; but as an emmenagogue it is not new, for the late Dr. Bardsley, of Manchester, used it in this way, and had no small faith in it. The properties of *strychnia* as a powerful excitant of the spinal cord have been so long and so well known, and have been made use of in medical practice with so much success, that it is surprising it should never have been introduced into obstetric practice. And this the more so, because of late years the minds of obstetricians have been so much occupied with the enunciation and elaboration of the excito-motor theory of uterine contractions.

It first occurred to me to use *strychnia* as an oxytocic about two years ago. It may not be uninteresting to detail the circumstances which led me to what I believe, and hope will prove, a valuable addition to our means of influencing the motor operations of the uterus.

I was summoned one evening to attend E. H., an out-patient in the maternity department at St. Mary's Hospital. She was about thirty years of age, and the mother of three children; her previous labours had all been slow. Her temperament was leucophlegmatic; complexion fair; muscular system flabby; pulse slow, very small and compressible. A more flabby atonic person I hardly ever saw. On examination per vaginam, the passages were found to be cool, moist, and very relaxed; the os uteri was already somewhat dilated, soft, thin, and dilatable. The presentation was natural. The pains came on about every five minutes, and the bag of membranes, which was unbroken, became somewhat tense at each contraction; but the uterus acted very inefficiently: each pain was not only very weak but very short. After waiting about an hour, I returned home, as no progress whatever was made. In the course of the night a messenger called me to her again, and I found things exactly *in statu quo*. As no progress was made during an hour's patient expectancy, I went home again. Two or three visits were made the next day, and still there was no advance whatever; no alteration in the character of the uterine contractions; no change in the position of the fetal head, or in the condition of the maternal passages. My patient had pains now and then; she alternately dozed, ate, and drank, and appeared only a little fretted (as much as her lethargic nature would permit) at the duration of her labour. About 10 P.M. I made a visit; and, while sitting at the bedside cogitating upon the disagreeable prospect of another night's devotion to the goddess *Lucina*, and feeling rather in a "rusticus expectat, dum defluat amnis" state of mind, I ran over to myself the different ways of exciting the uterus to act, and the *modus operandi* of the agents used for that purpose. Nearly all the means which occurred to me, except ergot of rye, resolved themselves into eccentric irritations of the spinal nerves. The ergot appeared to me inadmissible, as the os uteri was not so far dilated that I could hope to procure delivery within the short limit of time which I thought imposed by regard for the safety of the fetus; and I did not like to alter the labour from the natural by rupturing the membranes. But what if, instead of employing eccentric spinal irritation, I could exalt the polarity of the spinal cord itself, and leave the natural excitator stimuli to their usual mode of operation? It was clearly a case of diminished irritability of the nervous centres, and particularly of the spinal cord. The next question which presented itself was—what agents do we possess capable of exalting the polarity of the spinal cord? The readiest answer to this was—*strychnia*. Persuaded that I had found the key to my difficulty, I went home and procured a solution of *strychnia* in very dilute hydrochloric acid, of the strength of one grain to the fluid ounce. On returning to the case, I administered one-sixteenth of a grain of *strychnia* in half a wineglassful of water. In a little more than ten minutes the pains increased in frequency and force; but in fifteen minutes more they subsided again somewhat. The same dose was repeated, and in a short time the uterine contractions again became exacerbated and hopefully

persistent; the fetal head, too, was lower in the pelvis. Nearly forty minutes had now elapsed since the first dose. A third was now given to the extent of one-sixth of a grain, and in about fifteen minutes more the membranes were ruptured in consequence of the severity of the pains. The labour was terminated in less than an hour and ten minutes from the exhibition of the first dose of the *strychnia*; the uterus contracted firmly after the expulsion of the placenta, which took place spontaneously; there were no excessive after-pains; not a single bad symptom appeared; and both mother and child did extremely well. The whole amount of *strychnia* given was seven twenty-fourths of a grain. The result was very gratifying, because here the patient had been at a standstill for nearly thirty hours; there was no advance whatever in that time, and no promise of advance; she might have travailed for thirty hours more if nothing had been done. It was still more satisfactory, because I felt that, by the application of the known physiological action of a drug, I had procured, with perfect safety, a new therapeutical result. By the application of physiological knowledge the boundaries of obstetric art had been somewhat extended.

Since the above case occurred I have used *strychnia* in eight cases; care has always been taken to select cases of *pure atony*. On no occasion have I ever resorted to *strychnia* in order to overcome an obstacle, however small. Believing that oxytocics are never permissible except to promote uterine contraction when it is below the natural standard of force and frequency, I never use them except for the remedy of such conditions. Cases of atony, moreover, vary very much in their nature; inertia of the uterus from fatigue ought to be met by rest and diffusible stimulants; from mental preoccupation, by diversion or anaesthesia; and so on. It is by no means justifiable to lash the uterus in every case of inertia into action, by direct stimulation of either the uterine ganglia or the spinal cord.

For these reasons, the number of cases in which I have felt it proper to use a remedy of so powerful and definite a nature as *strychnia* has been small. The result of nine cases of *pure inertia uteri* has been as follows:

1. In every case the mother has done well.
2. In every case the child has been born alive; and has, to the best of my knowledge, suffered nothing from the exhibition of the drug.
3. In one case only have the uterine contractions been at all immoderate; and in that instance a glass of spirits was given to the patient at her own urgent request: so that all the exacerbation of uterine contraction was not attributable to the *strychnia*.
4. The dose given has ranged from one-eighth of a grain to one-third, variously divided.
5. The pains have been visibly augmented in force, frequency, and duration, within periods ranging from eight to twenty minutes.
6. Labour has been accomplished within one hour and a half in every case from the first dose given. The longest was one hour and twenty-two minutes; the shortest eighteen minutes. In three cases the drug was given in strong tea, without the knowledge of the patient.

It is not pretended that these nine cases are conclusive as to the value of *strychnia* in obstetrics. It may yet remain to discover that there are cases in which it is not admissible, but which are yet cases of pure atony—defective polarity of the spinal cord. But in any nine cases of ergotic labour which have fallen under my own observation, I am persuaded I have seen more inconvenience than in the nine cases in which I have administered *strychnia*.

In the *Lancet* of June 14, 1856, I published a short letter, in which I incidentally referred to the use of *strychnia* as an oxytocic. Curiously enough, a letter from Dr. Matthew Corner appeared in juxtaposition with my own, detailing a case of poisoning by *strychnia*. The patient swallowed two grains of *strychnia* by mistake. She was pregnant, and aborted in the course of the action of the poison. The case terminated favourably. I have since become acquainted with the case of a lady who aborted five times consecutively whilst under the influence of *nux vomica* given as a tonic.

Objections will doubtless be urged against the use of so powerful a remedy as *strychnia* in obstetrics. Practitioners who prefer the *laissez faire* system will exclaim against haste and rashness; the timid will feel alarmed; and many will feel that a thorough diagnostic skill ought to be the property of whoever may venture to use such an agent. Some persons will confound between *inertia uteri* and *lingering labour*; between defective motor action, and a mechanical impediment.

My answer to all objectors is this: first, labour as it occurs in crowded cities and highly civilised communities, occupies in part the domain of pathology; to wait is to prolong disease; secondly, timidity is no proof of scientific election and discriminating caution; the motto of the accoucheur should be "nec temerè, nec timidè"; and, thirdly, if people will confound between what is vital and what is mechanical; if they cannot separate between a case of pure atony or inertia uteri, and a case of delay arising from an *obstacle*, however slight, they had better leave obstetrics alone. Diagnostic skill, finally, is attainable by all; the facts of every induction lie ready to hand.

*Galvanism and Electricity.* Like all agencies which produce marked and powerful effects upon the animal economy, *galvanism*, and its allied forces, have attracted the attention and excited the hopes of physicians in no ordinary degree. The analogy which subsists between electricity, galvanism, and that which, for lack of a more definite knowledge, we call *nervous force*, has materially augmented the conviction that these imponderables contain great therapeutic virtues. Accordingly we find that numerous applications of them have been made. It cannot, however, be said that the therapeutical experiments which have been instituted have been guided by anything more than conjecture, except in some exceptional cases, or that any great amount of success has attended them. Mature reflection might, perhaps, have damped the sanguine expectations of those who looked to electricity or galvanism for much assistance in the treatment of disease; however analogous to nervous force these agents might be, whether in their mode of generation or in their manifestations, they could never in any degree supply its place. The one is essentially a function of animal life; the others quasi-chemical, and incapable of conversion into their animal analogue, or permanent importation into the system. There are doubtless normal electrical conditions of the body, which being abrogated would induce pain and inconvenience; in the same manner there are conditions of heat and light which are necessary to health. To a certain extent, too, heat and light may be turned to therapeutic advantage. But we rather look to the continuous action of proper degrees of each, as conditions necessary to the preservation of health, than to extreme applications of them for the cure of disease. In like manner, galvanism and electricity, like other imponderable agents, must take a comparatively low place in the scale of therapeutics.

The first application of galvanism in obstetrics was made by Herder in 1803. In 1834, Dr. Ramsbotham proposed its use in cases of inertia uteri, in the lectures published in the *Medical Gazette* of that year; but I am not aware whether he carried his proposal into practice. In 1839, Stein and Kilian constructed galvanic forceps, making the blades of different metals. As might have been anticipated, the instrument turned out to be an utter failure, and its inventors had the candour to acknowledge this in 1845. Everyone accustomed to obstetric practice knows that the mere application of the forceps will quicken the action of the uterus, and it was the observation that this exacerbation was as marked in cases where common forceps were used, as where galvanic ones were resorted to, that convinced Stein and Kilian of the inutility of their invention. In 1844, Hœninger and Jacobi made experiments upon galvanism as applied to inertia of the uterus, but as they gave ergot also in their cases, the results arrived at must be nugatory. The most prominent advocate of galvanism has been Dr. Radford, of Manchester.

I have collected sixteen cases from other sources, in which galvanism has been used, either for the purpose of hastening delivery, setting up uterine contractions during pregnancy, or in cases of *post partum hæmorrhage*. They are recorded by Professor Simpson, Dr. Oldham, Mr. Cleveland, and others. Of these sixteen cases, in six no effect whatever was produced; in eight the application was successful; in two the uterine contractions were suspended, and in one of these, not merely for the time being, but for twenty-four hours afterwards. These results are not very encouraging; and, indeed, though Dr. Radford's results are more favourable, there are fallacies attaching to the employment of the remedy which seriously affect his conclusions. Such fallacies consist of the influence exercised upon the mind of the patient by the apparatus and the ostentatious nature of the proceeding. The objections to the use of galvanism consist in the possibility of its altogether suspending uterine action; in the well known fact that its continued application exhausts the irritability of the nervous centres; and in the practical fact, that in those very cases in which its use would be most justifiable and most necessary, the apparatus

would almost infallibly be quietly at home in our own cupboards instead of at the bed-side of the patient. Gardini found pregnant women to be in a state of negative electricity. I do not know whether this fact has been applied to any practical purpose, or whether it has occurred to obstetricians to insulate the persons of women to whom galvanism has been applied for obstetric purposes. This might easily be done by means of the glass pedestals upon which pianos are commonly placed. Galvanism and electricity act as exciters of the various nervous centres, both ganglionic and spinal; not exalting their polarity, as some other agents, but simply *exciting them to act*, and simultaneously exhausting them.

[To be continued.]

## SEROUS EFFUSIONS IN A FŒTUS.

By WILLIAM WALKER, Esq., Surgeon.

Mrs. F., aged 30, a small, healthy person, was taken in labour with her seventh child on December 3rd, at 4 A.M., and at her full time. On examination, the os uteri was found to be fully dilated, and the head low down. The pains were feeble, but still sufficiently effective to expel the head at half-past seven. For fully half an hour afterwards no further advance was made, when I managed to hook my forefinger into the axilla of the child, and almost perforce effected delivery. A profuse flow of amniotic fluid immediately followed. I found, on examining the infant, no evident signs of life; the abdomen was enormously enlarged, with extreme puffiness of the eyelids. I had it immediately placed in a warm bath, and friction made over the chest. After several minutes, it showed signs of vitality, as evinced by slight gaspings, and in a short time it uttered a feeble cry. It survived till 4 P.M., and passed a considerable quantity of urine two hours before death. As I felt somewhat curious to know the state of things, I requested permission for a *post mortem* examination, which was readily granted. I found, on removing the sternum, that the lungs were free from disease, but the cavity of the chest contained three or four tablespoonfuls of serum. The heart was free from adhesions; but there was more than the usual amount of fluid in the pericardium. On opening the abdomen, a large quantity of thickish fluid escaped, somewhat of the colour of dirty water. The peritoneum was firmly adherent to the liver and colon throughout their whole extent. The stomach, spleen, and kidneys were healthy. The small intestines were forced back into the lumbar region, had a thickened feel, and were filled with a greenish-looking substance, almost of the consistence of putty. The bladder was empty.

REMARKS. One would expect, from the *post mortem* appearances in the foregoing case, that some form of inflammatory action had been set up; else how can we account for the great amount of effusion with extensive peritoneal adhesion? more particularly as regards the colon, which was so entirely fixed as to prevent any degree of motion whatever. On referring to several works on midwifery, and to others, I find cases mentioned where abdominal dropsy was found, with tubercular disease scattered through the several organs of that cavity; but nothing relative to any morbid state of the peritoneum.

I have been induced to publish this case owing to the appeal made some time ago by my friend Dr. Barker, of Bedford, when he spoke of the few contributions made on fetal diseases; and join him in the hope "that some central mind may group such diseases together in their respective classes, and elaborate a true and philosophical system of uterine pathology."

PRESENTATION OF A TESTIMONIAL TO R. TURNER, Esq. A gratifying occurrence took place on December 23rd, 1857, in the National School Room of the village of Frant, Kent—the presentation of a silver tea-pot, cream-jug, and sugar basin, to R. Turner, Esq., surgeon, of Tunbridge Wells, in testimony of the great kindness and attention the poor of the parish of Frant have received at his hands during a lengthened period of his attendance upon them as their union medical attendant. The subscriptions in the first instance originated with the poor themselves, who were afterwards generously assisted by their more wealthy fellow-parishioners. The articles presented were neat in pattern, and good in quality. The tea-pot bears the following inscription:—"To Richard Turner, Esq., surgeon: presented by the parishioners of Frant, of all classes, in grateful remembrance of his unexampled kindness and attention, during many years, to their sick poor: 1857."