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CASES OF MIDWIFERY IN WHICH GALVANISM WAS APPLIED; WITH REMARKS.

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(Read before the Manchester Medical Society, on February 4, 1846.)

The following cases are submitted to the Society, with the view of calling attention to the power of galvanism in certain obstetrical emergencies. We are indebted to my friend and colleague, Dr. Radford, for the introduction of this agency into the practice of midwifery, and from what I have witnessed, I believe that obstetricians will ultimately acknowledge, that it is one of the most valuable additions that has been made to our obstetrical armamentarium in modern times. It is to be regretted, that since the publication of Dr. Radford's lecture on this subject, in December, 1844, the attention of the profession has fixed itself upon the treatment of certain cases of placenta prævia, by separating the placenta before delivery, rather than on the treatment of severe cases of uterine hæmorrhage generally by galvanism, which was the proper subject of the lecture. It must not be supposed from this remark that I do not fully appreciate the great value and importance of that treatment, which indeed was first adopted on scientific grounds, and as a matter of election, by my late father-in-law, Mr. Kinder Wood; but since the publication of Dr. Simpson's papers on the subject, and since the controversy between that gentleman and Dr. Radford, the method of treatment in question seems to me to have been somewhat abused, its object misunderstood, and the lives of some children to have been sacrificed by its inconsiderate adoption. It does not seem to have occurred to some of those surgeons who have practised it, that nothing but the most extreme danger of the mother can justify a practice which almost necessarily involves the death of the child. The majority of cases of placenta prævia, if seen sufficiently early, are manageable enough on the old methods, viz., rupturing the membranes, or artificial delivery by turning, and till one or other of these means can be adopted, the steady use of the vaginal plug. In a fair proportion of these cases the child is born alive, and I believe that few practical men will concur with Dr. Simpson's views as to the mortality to the mothers, which he seems to me materially to overrate. The separation of the placenta prævia, before delivery, is justifiable in two sets of cases only; the first is where we have

satisfactory evidence of the death of the child, or what is equivalent, where organic alterations in the hard and soft parts have so lessened the diameters of the passages, as to compel us to adopt craniotomy to terminate the labour; and the second is where the woman is so exhausted as to be unable to bear the shock of delivery, the hæmorrhage still continuing, or if not continuing, most likely to recur. It is obvious from this that, although most valuable in its proper place, the treatment alluded to can be very rarely required; whereas, the application of galvanism, which has been lost sight of in the discussion, is serviceable in a number of cases which the actively-engaged obstetrician is frequently meeting with.

I may premise that the instrument used by me in the following cases, was the electro-magnetic apparatus of Messrs. Abraham and Dancer, of this town, with Dr. Radford's additional vaginal conductor.

INTERNAL HÆMORRHAGE DURING LABOUR.

On September 27th, 1844, I was sent for to Mrs. Royle, 21, Major Street, about six hours after the commencement of labour, and some hours after the rupture of the membranes, by Mrs. Lee, midwife. My friend, Mr. Bent, had arrived about five minutes before me. We found the woman suffering from the effects of hæmorrhage, in an extreme degree, though a pint of blood only had escaped externally. The labour pains had gone off; the os uteri was very rigid, and dilated to the size of half a-crown only, and the uterus soft, and without tone, when examined through the abdominal parietes. We gave her about half a drachm of tincture of opium, and put on a bandage. A thin serous discharge tinged with blood, however, continued to drain from the uterus, indicating internal hæmorrhage, and we therefore administered half a drachm of secale cornutum, infused in water, in two doses, a little tea being added to the first, and a little brandy to the second. Before, however, this was done, we had sent off for Dr. Radford, desiring him to bring his galvanic apparatus. In about twenty minutes or half an hour after the ergot had been given, it began to act, and intervallic uterine contraction set in, the head bearing down on the os uteri, and the thin serous discharge soon after ceasing. In the intervals between the pains the uterus still remained soft and doughy.

Dr. Radford now arrived, and when he made a vaginal examination, raised the head from the os uteri, so as to allow of the escape of a considerable quantity of the liquor amnii, which had been retained above it; the latter portions of this fluid were deeply tinged with blood. He agreed with Mr. Bent and myself in the

opinion that to deliver in such a case would be death, even if the os uteri had been in such a state as to have permitted the proceeding. It was therefore determined to try Dr. Radford's new plan of galvanism, applied to the uterus, to induce tonic contraction of that organ, so as to keep the flooding in check, and give time to get support into the woman, a plan which he had developed to me in several private conversations some time previously. We applied one conductor of the electro-magnetic apparatus to the os uteri, and the other to the abdominal parietes over the fundus uteri. The woman immediately began to complain that we were cutting her, and the uterine action came on at once. After having used the remedy a few minutes, we desisted, and had great pleasure in finding that the tonic contraction of the uterus had been called into play. We again applied the galvanic shocks and currents, and the uterus immediately responded to the applications, strong contraction at once taking place, and the woman complaining of cutting pain. In about twenty minutes after its first application, we finally ceased to use it, so firm a state of tonic contraction having been induced that we considered it safe to leave the woman, with orders that beef-tea, broth, and eggs beaten up with milk, should be given her at intervals, and a teaspoonful of brandy in a little water occasionally. An abdominal bandage was kept firmly applied. When we made a vaginal examination, we found the head bearing down on the os uteri, with a much greater degree of pressure than had existed before the galvanism was applied, and we left with a firm conviction that the galvanic treatment had been of most essential service in this, the first case in which Dr. Radford's new plan had been tried in the human subject.

There was no further flooding, and the woman went on very well, taking a moderate amount of support, till half-past ten p.m., six hours and a half after the application of the galvanism, when labour came on. The action of the uterus was not very strong, but about two a.m. on the following morning the labour terminated. After the head was two thirds expelled, the action of the uterus entirely ceased, the abdominal muscles alone contracting, so that the latter part of the labour was completed by Mr. Bent carefully extracting the child, which was still-born, whilst I managed the proper compression of the abdomen. The placenta was easily withdrawn from the uterus immediately after the birth of the child, and a coagulum, about a pound in weight, accompanied it. I then tightened the bandage, and put a compress over the uterus, which caused the expulsion of another coagulum, about two pounds in weight. During the latter part of the labour the woman was so exhausted from her own efforts at straining, when the uterine action ceased, that we gave her about two tablespoonfuls of brandy in a little water. After the labour was over we gave a drachm of tincture of opium, and left her with orders that she should be kept perfectly quiet, with the head low, and light nourishing diet to be given at short intervals. She slept well during the night.

I did not take notes of the subsequent part of the case, as Mr. Bent promised to do so. On applying to him for them, I received the following note, &c.:—"My dear Sir,—I am sorry to say that I have mislaid the report of the treatment, but have referred to the day

book, and have, as far as my memory serves, drawn up a short statement. Perhaps what I have omitted you can recollect. The report of the inspection is incomplete in consequence of a refusal to allow us to proceed. If any thing further should be required, if possible I shall be glad to furnish it.—Believe me yours, very truly, JAS. BENT.

"Sept. 28th, 1844. She was going on well, no medicines given.

"September 29th. She was troubled with cough, for which she was ordered a simple linctus containing Oxymel Scillæ, and Syrup. Papaveris. Half an ounce of castor oil was given. At night she complained of abdominal pain, with great tenderness; pulse quick and wiry; slight tympanitis; bowels open. She was ordered hot turpentine liniment to the abdomen, with poultices, and three grains of calomel with a quarter of a grain of opium every four hours.

"30th. Pain and tympanitis much increased. Continue pills, and to have a turpentine enema. In the evening symptoms much the same. Rep. Pilulæ et Enema.

"October 1st. No improvement; bowels acted upon by the enema, but no diminution of the tympanitis or pain; no mercurial affection of the gums; pulse quick and feeble. Ordered to rub inside of the thighs, a drachm of Ung. Hydrarg. Fortis, every two hours; a pill containing three grains of calomel and one grain of opium to be taken every four hours, with one ounce of saline mixture every three hours. She sank rapidly, and died at three p.m."

I have nothing to add to Mr. Bent's notes, except to state generally, that the case appeared to us at the time to be a low obscure peritoneal affection, which the subsequent notes of the inspection prove to have been an erroneous view.

"On inspecting the body the third day after death, found its whole external surface quite blanched and the abdomen immensely tympanitic. On making an incision into the abdomen, and displacing the bowels, was surprised to find not the slightest quantity of serum, lymph, nor even injection of the peritonæum. The uterus was rather larger than usual, but well contracted and by no means softened, its peritoneal covering free from inflammation; the internal one was covered with a dark-coloured coating of what seemed lochial discharge. On making a section in that part of the uterus to which the placenta had been attached, upon tracing the veins there was no indication of thickening or inflammation. The friends arriving for the funeral I was not allowed to proceed."

Though the result of this case was not fortunate, it is, on the whole, one of the most satisfactory cases that I have seen; for certainly when Mr. Bent and myself first saw it, we considered it morally impossible that the woman could live to be delivered. When we couple with her exhausted state the undilated and undilatable condition of the os uteri, and the fact that the hæmorrhage was in all probability continuing, we must certainly view it as one of the most formidable cases that the surgeon could possibly have to treat. The fact of the ergot having been administered before the galvanism was used, may perhaps be considered by some to vitiate the case as an illustration of the galvanic

treatment, but so far from this being the fact, it rather enabled us to compare the relative effects produced by the two agents, ergot and galvanism, and the difference was indeed most marked. The uterine action brought on by the former, did not occur till an interval of from twenty minutes to half an hour after the administration of the drug; whereas that brought on by the galvanism was instantaneous. The contractions from ergot were not nearly so strong as those from the galvanism, and the uterus in the interval between the pains, before the application of the galvanic currents, remained soft and doughy, to which our attention was particularly directed by Dr. Radford at the time, as showing that the ergot had failed to establish that state of permanent tone in the organ which was our only security against further hæmorrhage. The galvanism, moreover, acted as a general stimulant, which was very useful in the depressed state of the patient; and in this respect its superiority over the ergot, which by some good obstetricians is considered rather depressing, was very decided.

The result of the case, and the exsanguineous condition of the patient, as shown by the *post-mortem* examination, led me to regret that the operation of transfusion was not adopted either before or after delivery. The combination of transfusion with the galvanic treatment is peculiarly applicable to these cases, as Dr. Radford has remarked, for the tonic contraction induced in the uterus by the latter, by preventing further effusion from the exposed uterine sinuses, would give the fresh blood poured into the system the opportunity of being expended in keeping up the vital powers. Indeed, transfusion can be of little service unless you have co-existent uterine contraction, since the blood must necessarily run the risk of being lost again as fast as it is received if the uterus is flaccid.

ACCIDENTAL HÆMORRHAGE BEFORE LABOUR.

February 17th, 1845. Sarah Dawson, 95, Silver Street, Hulme, aged 29, has been pregnant eight times, and has had two miscarriages. Her last pregnancy terminated in miscarriage. She is at the full term of pregnancy, and for three months has had a great deal of pain and uneasiness in the left iliac fossa; she has felt this to an unusual degree to-day. About five weeks ago, after lifting a heavy pan, she had a slight flooding; in a fortnight after she suffered in the same way; in a week after that she had another slight flooding, and was similarly affected in about ten days after. There was no obvious cause of any of these attacks of flooding except the first. To day she walked about a mile and a half, and when she came back she had great pain in the back, and felt remarkably tired and sleepy. About midnight, whilst stooping down, she had a violent and sudden hæmorrhage, to the amount of two pints or more, as she thinks; she fainted and vomited. Soon after, reaction taking place, she began to feel very warm, and noticed that the warmer she became, the more feeble she felt. Mrs. Foxley, midwife to the Lying-in Hospital, of which institution the woman was a home-patient, saw her in about forty minutes after she had the flooding, and got her up stairs to bed. She found her faint, blanched, and nearly pulseless; indeed she thought she was dying. Receiving a summons from Mrs. Foxley, I arrived at twenty minutes to two a.m., but she was

then somewhat better; she was still very faint, and inclined to vomit; the pulse was feeble and rather slow; there was no hæmorrhage nor labour pain, and the os uteri was dilated to the size of a half-crown, but rather rigid; there was some degree of anterior obliquity of the uterus. I could feel the head covered by the membranes, and could not detect any portion of the placenta in the neighbourhood of the os tincæ; I ruptured the membranes, and gave a drachm of tincture of opium in a little water. In a short time the uterus felt firmer than before, when examined through the abdominal parietes. At a quarter past two a.m., she began to vomit, and the action of vomiting caused the liquor amnii to come away in considerable quantity. The pain and tenderness in the left iliac fossa were much less severe after the uterus was thus in some degree emptied. At half-past two she thought she felt the child move.

As there seemed no probability of labour occurring, and as it was not impossible that insidious internal hæmorrhage might take place, I thought I would apply galvanism to induce a firm tonic state of the uterus, till its parturient action should come on. With the assistance of Mr. Runcorn, House-Apothecary to the Lying-in Hospital, I applied the galvanic shocks and currents in both the longitudinal and transverse axes of the uterus. The effect on the uterine fibre was most marked, the firmest tonic contraction occurred the moment the organ was stimulated, and when the conductors were finally removed, a good tonic state of the organ existed, a fact which was proved both by its hardness to the touch when examined through the abdominal walls, and by the head being in firm apposition with the internal surface of the os uteri. The constitutional effect upon the woman was very serviceable, for it acted as a general stimulus, rousing her up, and making her, to use her own words, "feel better than she had done for months." The pulse was 98, and stronger, and her face much less pallid. I ordered her to have an abdominal bandage put on, and to lie on her back to counteract the anterior obliquity of the uterus. About twelve p.m., nineteen hours after the galvanism was applied, labour commenced without any further hæmorrhage having occurred, and terminated in about two hours and a half in the birth of a male child, which was living. The placenta was expelled, along with four or five coagula, as large as the closed hand, in a quarter of an hour afterwards. The woman recovered well.

In this case, although it is probable that the rupture of the membranes alone might have prevented the continuance of the hæmorrhage, it was very satisfactory to me to be able to put the uterus into such a state as to preclude the probability of its recurrence when reaction took place; a circumstance which not unfrequently happens, and which had it occurred in this case, where the os uteri was rigid, might have proved extremely dangerous to the patient and embarrassing to me. Had the ergot of rye been used, the probability is, that the child would have been born dead, and the labour forced on before the os uteri was prepared to dilate, which might have caused other evils; and on the other hand, had nothing been done after the rupture of the membranes, my mind would have been for many hours in a state of anxiety and dread lest further

mischievous might be insidiously occurring, and the beneficial effect of the galvanism on the system would have been lost.

PLACENTA PRÆVIA: HÆMORRHAGE BEFORE AND DURING LABOUR.

March 8th, 1845. Catherine O'Neal, 77, Jersey Street, Great Ancoats Street, aged 31, is at the eighth month of her fifth pregnancy. About a fortnight ago, when getting up to go to her work, which is that of a doubler in a cotton mill, she began to flood very slightly for the first time, without any obvious cause; she thinks that during the whole of this pregnancy she has had an unusual degree of weight and fullness in the hypogastric region; there was no recurrence of the hæmorrhage till two days ago, when she had another slight sanguineous discharge, with some pain above the pubis, early in the morning. She went, however, to her work, and at eleven a.m. it returned, which circumstances she attributed to her being obliged to put her hands very frequently into cold water, this being necessary in her occupation. She went home, and kept quiet, and the flooding went off; the next morning early, on rising from bed, it returned, but again ceased when she lay down; at the end of an hour, when she rose again, it reappeared, and kept recurring at intervals all day. At night she was seen by a midwife, who ordered her to lie down and keep quiet, and to send to me for some medicine. I sent her a draught containing thirty minims of tincture of opium, and ten minims of diluted sulphuric acid, which she took early this morning; the discharge seemed after this to diminish in quantity.

I saw her to day at half-past eleven a.m. for the first time; the hæmorrhage had obviously not been severe; she was in a good state; there was still a slight draining discharge, and the upper part of the vagina contained some coagula. Upon carefully removing these, I found the os uteri oval in shape, dilated to the size of a penny piece, tolerably dilatible, and almost entirely filled up by the placenta. I could just feel the membranes anteriorly, and to the left side of the uterine orifice, and I ascertained that they were unruptured, and that the head presented. There had been occasionally slight labour-pains since last night; the foetal heart was audible just below the umbilicus. I prescribed quiet and cool regimen.

At half-past one p.m., Dr. Radford, Mr. James Kenworthy, and Mr. Runcorn, saw her in consultation with me; there was still a slight draining discharge, and the other circumstances much the same as at my visit earlier in the day. We thought the case a favourable one in which to try the experiment of delivering the child without turning, by means of the uterine action induced by galvanism, combined with artificial rupture of the membranes. At a quarter to two p.m., we applied the galvanic conductors in the usual way, and good strong uterine action set in at once. In about ten minutes I ruptured the membranes with Holmes's stilette, and we continued the use of the galvanism till twenty minutes past two p.m., by which time the pains had begun to come on spontaneously at intervals, and the placenta had fallen down to a considerable extent into the vagina; the hæmorrhage was extremely slight. At three p.m. we left her, the labour-pains being good

and regular, and the foetal heart still audible. We ordered her to lie on her back, with a little inclination towards the left side, as there was right-anterior obliquity of the uterus, and the child's head was a little too much inclined to the left side, and too far forward over the pubis.

At 5 p.m., Dr. Radford and myself returned, and found that very little change had taken place since we left. The uterine action was not so strong as it had been two hours before, and there was no hæmorrhage. We reapplied the galvanism, using a greater power, and Dr. Radford carefully dragged the os uteri into the axis of the vagina, for we thought that the obliquity of the organ prevented the head from entering the pelvis. In an hour there was a decided advance; the head had descended into the brim of the pelvis, and was dilating the os uteri rapidly, and there had been no further flooding. The placenta continued to descend more and more as the labour progressed, preceding the head for some time, and indeed when the child, which was a female, was born, its most depending portion was protruded from the os externum before the head; so that the child passed over the half-detached placenta along the vagina. Of course, as so great a separation of the after-birth had occurred, the child was born dead, though the foetal heart was audible till half an hour before its birth. The placenta came away immediately after the child, the labour being entirely terminated at twenty-five minutes to seven p.m. The woman recovered rapidly and without a bad symptom.

This case, so far as the life of the child was concerned, would probably have terminated in the same way under any plan of treatment, since the placenta would doubtless in any case have become detached to a great extent from the uterus before its birth. These separations, of which Dr. Simpson has collected many instances, in all probability depend upon some peculiarity in the situation of the organ, through which it necessarily becomes detached from the uterus when the child is escaping from its cavity. But so far as the safety of the mother is concerned, it cannot be doubted that much less risk was incurred by the plan adopted, than would have been under the old method of turning, which is an operation of some danger under any circumstances, and of peculiar risk where the placenta is at the os uteri. It is a fact, which was first pointed out to me by my friend Dr. Radford, that uterine phlebitis is more frequent after placenta prævia than any other form of labour, which doubtless depends on the exposure of the orifices of the uterine sinuses to the contusing influences of the child during delivery, and to irritating lochial discharge from the uterus, if it exists afterwards. The former of these sources of danger is unquestionably increased if the hand has to be passed through the os uteri and the child delivered by the feet; and therefore a plan of treatment which will supersede that method has strong claims upon our consideration. The process of delivery in this case was precisely analogous to that which takes place when such cases terminate without surgical interference; the only difference is, that the uterine action was excited by the galvanism instead of being spontaneous, and the membranes were ruptured at an earlier period than they would have given way if left untouched.

It will require a large experience to determine to what extent the practice we here adopted, is capable of superseding delivery by turning, in cases of placenta prævia generally. I am disposed to think that it is applicable in most cases of partial presentation, where the flooding has not been very great, and where it is not going on rapidly at the time when we are called in, provided the os uteri is dilatable; but where we cannot afford to lose any time in sending for the apparatus, and where the discharge is so impetuous as to require checking absolutely and at once, the woman still being in a state capable of bearing the shock of delivery, the old practice is to be adopted without hesitation. We want facts also to show whether those cases where the placenta is planted so completely over the os uteri that the membranes cannot be felt, are as well suited to the galvanic treatment as cases of partial presentation of the placenta, or indeed whether they are suited at all. With regard to the extreme cases of exhaustion from flooding where the woman is utterly incapable of sustaining the process of delivery, Mr. Kinder Wood's plan of detaching the entire placenta should be adopted, the liquor amnii having been first drawn off by Dr. Radford's stilette. When delivery is subsequently effected, the galvanism is very likely to be of service; but as yet, I am not aware that it has been tried. Whilst on this subject I may perhaps be permitted to observe, that I think that the practice of detaching the placenta before delivery in cases of placenta prævia has been advocated rather generally by Dr. Simpson, and that the consequence will be, that those who follow his advice, will lose, should I not say, destroy, a certain number of children that might have been saved on the old method. It is very probable, too, that the risk of uterine phlebitis may prove greater in forcible detachment of the entire placenta than in turning after detaching it partially.*

* I cannot subscribe to the correctness of Dr. Simpson's views, in proposing this plan of practice where the os uteri is in too rigid or undilatable a state to allow of turning, or where the cervix uteri is yet undeveloped, owing to the early period of pregnancy. I suspect that, under such circumstances, we should cause serious lacerations of these parts at the time, and such contusions as might afterwards lead to very grave consequences in the shape of hysteritis, uterine phlebitis, or hypertrophy and ulceration of the os uteri.

(To be continued.)

CASE OF COMPOUND FRACTURE OF THE SKULL, WITH LOSS OF A PORTION OF THE BRAIN.

By J. C. PARKER, Esq., Surgeon to the Bridgewater Infirmary.

William Small, aged 27, was admitted into the Bridgewater Infirmary, under my care, on the 31st of December last. He stated that he had fallen from a height of six or eight feet on a piece of iron, and had pitched on his head. On examination there was found a wound of the scalp about three inches in length, on the right side of the frontal bone, and about an inch

above the frontal sinus. He complained of very little pain, had not been sick or giddy, and indeed had no symptom indicating fractured skull, much less wounded brain. On introducing my finger into the wound, I found the bone to a considerable extent was completely smashed. Having first enlarged with the scalpel the external wound, I removed eight or ten pieces of bone; two were about an inch in diameter, others were very small; two or three had wounded the dura mater, and were driven into the substance of the brain, so that when removed they were covered with the medullary substance. Having carefully removed every spicula as far as I knew, two sutures were inserted in the scalp at an interval of two inches, and water dressing was applied over the whole. The patient would not consent to be carried to the ward, but walked immediately after the operation through a long passage, and up a flight of stairs, almost as if nothing particular had happened. He was put in bed, and ordered to be well purged with calomel and colocynth, followed by a rhubarb aperient.

On the following day, January 1st, 1846, he had passed a tolerable night, but had not slept; small portions of brain were exuding from the wound; there was slight erysipelatous inflammation around, and the eye of that side was closed; a quiet pulse, and no particular symptom worth recording. The oil-silk was ordered to be omitted from the water dressing, and cold water and lint kept constantly applied. Ordered saline mixture, &c.

It would be tedious to give the daily progress of the case, which by general treatment, according to the symptoms, progressed most favourably. The discharge of cerebral matter ceased after three or four days; the wound partly healed by the first intention, and partly by granulations; in six weeks he was made an out-patient, and he is now quite well, with the exception of a very trifling sore. The only inconvenience he complains of is, that on looking at any object it appears double.

The foregoing case is one which points out the necessity to the young practitioner of carefully examining every case, however slight it may appear. This man said he had merely a cut on his head, and he had not the slightest symptom of any more serious injury; but following that very useful practice of inserting my little finger into the wound, the case was immediately evident. Had it been neglected, the patient's life, there is little doubt, would have been sacrificed. During the progress of the case there were no particular symptoms connected with the nervous system manifested; nor were any phenomena tending to illustrate the doctrines of phrenology observed.

February 28, 1846.