5 Elliot (G.T.) Jr. From T. A. Emmet from his friend the Author

INDUCTION

OF

PREMATURE LABOR.

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Induction of Premature Labor.

The *New York Journal of Medicine*, for July, 1856, contains an interesting article by Dr. Nœggerath, on the induction of premature labor by the injection of warm water within the cavity of the uterus. This occurred on the 2nd day of July, 1856, and is believed by Dr. N. to be the first operation of its class performed in this city.

On the 16th of December, 1853, while Resident Physician of the Lying-in Asylum, I induced premature labor with the douche, under the following circumstances :—

Mary Kipple, healthy looking, and apparently well formed, had been twice delivered with the perforator and crotchet. Pregnant for the third time, she was brought to Prof. Gilman for advice, and recommended to the Asylum. She was then about seven months gone, and the fœtal heart distinctly audible. The antero-posterior diameter of the brim was much diminished from projection of the promontory and upper part of sacrum ; pelvis otherwise normal. Drs. Cock, Beadle, Metcalfe, and T. F. Cock, physicians to the asylum, saw the patient, and they, with Dr. Gilman, concurred in urging the induction of premature labor.

I selected the method recommended by Kiwisch, from previous personal experience of its efficiency in relaxing the rigid os uteri, so often the source of troublesome delay in labor. At. 11 P.M., December 16, 1853, I injected about

two gallons of tepid water, in a steady stream, well against the os uteri. The instrument used was the admirable india-rubber syringe, invented by Higginson, of Liverpool, which had been kindly sent to me by Prof. Simpson. The patient was placed on her back, with her nates projecting somewhat over the edge of the bed, and a large tub received the water as it escaped from the vagina. The instrument that I used enabled me to direct the nozzle of the syringe with one hand, and to regulate its action with the other.

December 17, 9 A.M.—The vagina and the os uteri had commenced to relax, though the patient had enjoyed a quiet night's rest, and felt no symptom of approaching labor.

2 P.M.—Repeated the injection, which neither annoyed the patient in anticipation or performance. The os was now softened and the vagina much relaxed, while slight wandering pains around the back and abdomen denoted incipient uterine contraction.

December 18, 2 A.M.—Entering the ward to repeat the injection, I found the patient in bed, unconscious of any symptom of approaching labor; though the os was now dilating very satisfactorily, and the membranes commencing to protrude in a somewhat cylindrical form. At 5 A.M., they ruptured, when the funis prolapsed to the vulva, and the right foot entered the vagina.

The funis was pulsating vigorously; and the arguments used by Dr. Simpson to illustrate the advantages of version in deformities of the pelvic brim, satisfied my mind that the pelvic presentation would rather increase the chances of safety for the child, were it not for the unfortunate complication present.

But the child was larger than I anticipated, (weighing five pounds two ounces,) and before my best directed efforts could draw the shoulders and head through the contracted brim, all pulsations in the funis had ceased, and no endeavors of mine could resuscitate the boy.

The placenta passed without difficulty, and so little did she suffer from the labor, that Mrs. Kipple left the house

surreptitiously a few days after, rather than await the time when she might do so without incurring risk.

In my judgment, the unexpected size of the infant, and the untoward complication of the prolapsed funis alone prevented the birth of a living child; while it is evident that no labor could advance more insidiously, or entail less suffering.

It is interesting to note the closeness with which the phenomena presented simulate those of the most fortunate labor. First, relaxation of the soft parts, with increased secretion; the os then softens, relaxes, and dilates, when the pouch of membranes passes intact into the vagina. The first stage of labor may be said to be accomplished with the least possible inconvenience, and the patient saved in great measure from its attendant sufferings, which are probably productive of more annoyance and anxiety than the severer expulsive efforts which promise speedy relief to the burden.

Reference to reported cases will show that, in many, the commencement of labor was detected by the physician before it was perceptible to the patient, a fact well illustrated in the one reported above; and it is an established fact that the child's risk diminishes in direct ratio to the simplicity of the labor.

At the present day, when the propriety of the operation has been placed beyond a cavil, in those cases where a previous labor has demonstrated a degree of deformity forbidding the passage of an unmutilated child, there remains but the choice of means.

In the *New York Medical Times* for July, 1853, will be found the report of a case where I used the douche to relax an undilatable os, with signal benefit; and, indeed, from the autumn of 1852 to the present time, I have had many opportunities, in hospitals and in private practice, of testing the value of this agent in relaxing a rigid os uteri in the first stage of labor.

The form of the instrument is a question of convenience to the operator. One like Matteson's, or that of Thier's, which can be worked with one hand, presents obvious ad-

vantages, and a small nozzle readily moved in the vagina is desirable.

It is essential to the success of the operation that the stream should be directed against the orifice of the os, and that the advantage gained should be followed up by deeper insertions of the nozzle; this practice should not differ in inducing labor, or in relaxing the os.

This was well illustrated in a case of labor where I suggested the use of this method; and the second injection having produced no change, I requested that it might be again tried, when I learned, accidentally, that the management had been confided to the nurse, who barely introduced the nozzle within the vagina. Success followed a proper application.

In the monograph of Dr. Silbert, on this subject, it is stated that Dubois induced premature labor successfully in a woman with three injections. Having to repeat the operation in the same woman, again pregnant, it was repeated eight times without effect, a delay attributable to an inclination forwards of the os, by which the force of the water was spent on the posterior lip. This being recognized, the nozzle of the instrument was so directed as to throw the stream against the orifice of the os, when labor instantly set in. Had the fingers of one hand held the nozzle in position from the first, this accident could not have occurred.

In no case, that I am aware of, where premature labor has been induced according to the method employed with Mrs. K., has it been attended by the result signalized by Dr. Nœggerath in his case, where the water was injected through a catheter introduced between the membranes and the uterine wall to the depth of four inches. After the second injection, "Mrs. M. experienced a very distressing pain in her abdomen, much more so than she did at the former injections. It made such an impression upon her system, that she fell into an almost unconscious state; the pulse sunk suddenly, so as to be scarcely perceptible; her face instantly became purple, and her breathing very much embarrassed.

Half an hour later, when she recovered from these symptoms, she was seized with a violent chill, which lasted nearly two hours; this was followed by a feverish condition—general heat, and a pulse of one hundred and thirty in a minute. This alarming state gradually subsided, and a renewed succession of strong uterine contractions commenced."

The injection of *carbonic acid gas* in the vagina, on the principle advocated by Brown-Séquard, that it excites unstriped muscular fibre to contraction, has been added to our resources of late. The first successful application of the principle is due to Scanzoni. This gentleman has abandoned the practice, which he introduced, of exciting the expulsion of the ovum, through sympathy with irritation of the mammæ.—(*Vide Lond. Lancet*, Nov. 1853, p. 415.) An interesting illustration of this sympathy, by the way, can be found in another part of this number of the Journal.

The following is an abstract of Scanzoni's recent case, condensed from an English journal :—

A very small primipara, aged 26, with deformed pelvis, in the thirty-second to the thirty-fourth week of gestation, was the subject. Outer os uteri fast closed; head floating; fœtal pulse faintly heard.

Two table-spoonfuls of bi-carbonate of soda, in ʒxij of water, were mixed in a quart bottle, and the acid was supplied by a little vinegar. From this bottle a tube passed through a glass speculum into the vagina, and the tube, being surrounded with a cork, retained the gas in the vagina.

First day.—Application for twenty minutes; no change. Second day.—Morning, for twenty-five minutes; evening, thirty minutes. During the injection, prickling in the vagina; during the day, frequent stinging in the region of umbilicus; in the evening, portio vaginalis loosened; stingings renewed during the night. Third day.—Morning and evening, each time half an hour; prickling in the vagina; in the course of the day, the presenting head could be reached; in the night, labor-like pains; and, towards morning, contractions of uterus, which ceased after a time. Fourth day.—Ting-

ling during the thirty minutes of the injection; os, dilating. Noon.—Painful persistent contractions; 6 p.m.—rupture of membranes; 7 p.m.—birth of living child, weighing three pounds; recovery, good.

The readiness with which this agent can be applied, and its simplicity, will recommend its trial; and it will be interesting to know whether the sufferings of labor can be mitigated thereby.

The power of ergot is variously estimated, and some deny its efficacy. Drs. Delafield and Gilman have respectively authorized me to refer to two cases under their own observation, where ergot, and ergot alone, brought on expulsion of the ovum.

In Dr. Delafield's case, there was deformity of the pelvis, demanding craniotomy in her first labor. When about seven months and a half gone in her second pregnancy, Dr. Delafield brought on the expulsion of an unmutilated, but still-born fœtus, by the administration of ergot.

In the case which came under the cognizance of Dr. Gilman, the ergot had been taken in ten grain doses, frequently repeated during two days, with the effect of procuring abortion.

In *Ranking's Abstract*, No. 8, p. 250, may be found the statistics of five hundred and twenty-four cases in which premature labor had been induced. In forty-five cases ergot was given, and the fate of thirty-eight children noted, of whom twenty-three were born alive, though twelve out of that number died within thirty-six hours.

In fact, the uncertainty of this remedy, and the greatly increased risk to the child, warrant the disfavor with which it is now regarded.

Galvanism is entitled to farther trial. The result would not appear to be much affected by the position of the poles. —*Vide Lond. Lancet*, 1854, Jan., p. 26–27.

Rodenberg recommends the introduction within the cervix of a bougie, promptly withdrawn, and frequently re-introduced. He points to fifteen cases, in fourteen of which the

children were born alive; and when the youngest of that number had reached the age of two years, seven of them were known to be alive.—*Gazette Méd.*, 1853, No. 26.

Zuydhoek recommends the introduction of a wax bougie, two or three lines in diameter, between the anterior wall of the uterus and the membranes, and leaving it there for a length of time—a method preferred by Dr. Lehman, of Amsterdam.—*Brit. and For. Med. Chir. Rev.*, April, 1851, p. 546.

Sponge tents were used by Kluge, on the same principle; and, when made of various sizes, well compressed and smeared with ointment, were adopted by Prof. Simpson.—*Gaz. Méd.*, 1852, No. 26. *Braith. Ret.*, *XVII.*, p. 218.

The separation of the membranes, to some extent without rupture, was chiefly advised by Prof. Hamilton, of Edinburgh; while Cohen proposed to attain the same end by the injection into the uterus of about ʒviij. of tar water.

Dr. Nœggerath gives the credit of the idea that premature labor might be induced by intra-uterine injections to Schweighauser, of Strasbourg, and its introduction into practice to Cohen.

It has, perhaps, been more customary to puncture the membranes than to use any other method; nor is the procedure so fatal to the child as might, *a priori*, be anticipated, since out of one hundred and eighty cases recorded by Hoffman, one hundred and three were born alive. Yet, to diminish the risk to fœtal life, Meissner, of Leipsic, preferred to puncture the membranes at some distance from the os, by means of a stilette, and allow but a small quantity of the water to escape. In 1841, he gives eight cases of success to mother and child.—*Gaz. Méd.* 1852—2.

It would seem, indeed, from a review of the subject, that no plan offers the requisites of safety, simplicity, and celerity, in a greater degree than the douche, unless the use of carbonic acid gas should prove preferable; but the advantages of the douche, in the induction of labor, are small and infrequent, when compared with the assistance to be derived

from its powers in relaxing the rigid os and cervix uteri, in lingering labor from this cause.

In the writer's judgment, the following case is an illustration, though by no means a conclusive one, of its value, where copious blood-letting had proved inefficacious.

At one A.M., December 6th, my friend, Dr. H. S. Hewit, requested me to meet him in consultation, and brought me to the bedside of a plethoric, strongly built primipara, aged 34. She was comatose, and breathing stertorously; her face, feet, and ankles œdematous; the blood trickling from a lacerated tongue. She had not exhibited one ray of consciousness from three o'clock in the afternoon; and from that time, convulsions had succeeded each other with about half-hour intervals. No fœtal heart was audible, and vaginal examination disclosed a dry and hot vagina; a long, hard, and undilated cervix, with the uterus at about the sixth or seventh month of gestation. I could, with much force, thrust my finger far enough to be sure that I could detect the membranes, with some portion of a fœtus presenting—perhaps, the head. There was scarcely any urine in the bladder, and that, when drawn off with the catheter, and tested with nitric acid, became completely coagulated.

Dr. Hewit had seen her for the first time, at about nine P.M., and with Dr. Stewart, had withdrawn nearly one quart of blood from her arm, which did not coagulate well; hyd. chlor. mit. ℈j, on back of tongue. On inquiry, we learned that she was reserved in disposition, and much depressed in spirits of late, from domestic trouble; still, our informants could now remember that she had been obliged to lay aside her rings of late, as they had become inconveniently tight—that her face had been noticeably swelled, and that, on the morning of the 5th, she had suffered greatly from pain in the head; the convulsion came suddenly, without warning to them.

We noticed, in her motions and her convulsions, that the left arm and leg did not stir. Some four hours having elapsed since the blood-letting, without effect on the os;

about a gallon of warm water was played against the uterine orifice. Within an hour's time, the vagina became perceptibly relaxed, and the os perceptibly softened. In a short time longer, my finger could reach the membranes with ease; and, more anxious for the patient than the trial of the remedy, punctured the membranes with the stilette, and recognized a breech presentation. In little more than an hour longer, two fingers could pass readily through the cervix. There was not sufficient space left for a blunt hook, but it occurred to me, that a strong wire bent in the form of a hook might be of service. A piece was procured, and bent with strong forceps. The first effort to introduce this failing from the size of the curve, this was now made smaller, and fastening it around the leg of the child, I was gratified to find that it sank into the flesh, and would allow strong traction without slipping; with this, and one finger, the pelvic extremity was withdrawn, and then the remainder of the body extracted. The placenta was taken away entire. The womb contracted nicely, and the woman lost no blood from the vagina. During the removal of the child, the patient had one convulsion, in which she raised the left arm; but, while injecting the water, and while delivering her, she was placed in the ordinary position for the forceps, with her feet confided, separately, to women—and at neither time did she move the left leg, though she used the other with considerable force.

No return to consciousness took place; blisters were applied to temples and the nape of the neck, but at about ten A.M., she died in a convulsion, after twenty hours of unconsciousness. No post mortem allowed.

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