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INDEX
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IN THE

ADMINISTRATION OF ERGOT.

By J. W. COMPTON M. D.,

Professor of Materia Medica and Therapeutics, Evansville, Ind.



Reprint from DETROIT LANCET, June, 1879.

GEO. S. DAVIS PUBLISHER,

DETROIT, MICH.

PRECAUTIONS

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ADMINISTRATION OF ERGOT.

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Professor of Materia Medica and Therapeutics, Evansville, Ind.

The skilled therapist, in the administration of active remedies for the relief or cure of disease, looks for the characteristic physiological action of each remedy to be manifest, with as much certainty as the chemist in his analysis expects his re-agents to act upon the certain other bodies he is searching for.

In selecting his re-agents there are two requisites the chemist will insist upon, that they be pure and of full strength; the physician, in selecting his remedies, should be content with nothing less. These necessary precautions in selecting medicines pure and of full strength apply, perhaps, with quite as much force to ergot as to any other article of our materia medica. The prompt and certain action of ergot is sometimes urgently demanded in cases of profuse and dangerous uterine hemorrhage, when to administer an article of the drug, the strength of which has been impaired by age, heat or improper chemical manipulation, might result in the death of the patient. The greatest care should be exercised by the physician to the end that the edge of this important weapon in his armamentarium be not dulled.

There can be no reasonable doubt that the power to originate and intensify uterine contractions, which clinical experience has so fully accorded to this remedy, resides, in an eminent degree, in the fresh and well-preserved drug, and, when practicable, this form of administration should be relied on, as it will uniformly respond to the demands made upon it. If, however, the fresh grain cannot be obtained, a reliable article of the preparations should be procured. Any preparation containing the full strength of the remedy should and will produce the characteristic physiological action of the remedy, and all the uncertainty in the action of ergot which has been recorded has arisen out of the use of inferior preparations or impaired stock of the substance. Failures to obtain the expulsive contractions, when a pure article is used, originate principally from the administration of the remedy at improper times, less often from improper doses.

It is well known that midwives and some doctors give the remedy to intensify the pains and hasten labor, regardless of any indications or contra-indications for its use; they make no examination, and some of them who make the most liberal use of the remedy would not know any more about the case if they did examine. All they know is that the child is not born, and they desire to hasten the process. An intelligent physician, who is better informed now, has just told me that when he was a young practitioner he was called quite a distance to see a farmer's wife and attend her in her third confinement. He reached her bedside near nightfall and learned that his patient had been in rather active labor for twelve hours; but, as not much progress appeared to have been made, without any examination (something he would not do now), he gave a full dose of ergot, waited an hour, when he found the force of the pains had greatly subsided. He administered another dose, waited another hour, and found his patient entirely easy and taking a much-needed rest in quiet sleep. The doctor retired for the night with instructions for him to be called when the pains became sufficiently forcible to require his assistance. He slept all night, and so did his patient. After eating a good breakfast, his patient feel-

ing quite well, the doctor returned home, and six weeks after that time his patient had an easy and natural delivery. If this were a rare case it would not be worth narrating here, but such cases are of frequent occurrence, and from them we may learn an important lesson, that ergot, under certain conditions, becomes a sedative instead of a parturifacient. Dr. W. R. Putney says "that he has observed that ergot, in fifteen-drop doses every four hours will relieve pain in the back and bowels, uncomplicated with hemorrhage in the pregnant, when threatened with abortion. It surpasses opium in its sedative effect upon the pelvic organs; it subdues the hyperæmia of these parts, thus quieting the disturbances." By its known physiological action in contracting the circular muscular fibres in the blood vessels, it will be found to be more strongly indicated and equally satisfactory when hemorrhage is present. There are several precautions which may be named as contra-indicating the administration of ergot as an expulsive agent, where a complete hindrance to the expulsion of the child may be produced by the very remedy we may unwisely administer to facilitate and shorten the labor. When we take into consideration the conformation of the uterus and the requirements nature has provided that it should possess, we may readily see how the action of ergot may mechanically retard instead of hasten labor. Nature has designed that the neck of the uterus should be thick and strong, with short resisting fibres to sustain the constant weight of the fœtus during the nine months of utero gestation, and but for this strength and resistance the child could not be carried to full term. If this resistance has not been overcome by the preparations of nature for the final liberation of the child, the muscular fibres creating this resistance are quite as amenable to the contracting power of ergot as any other portions of the uterus, and by this contracting force the muscles of the neck are drawn firmly together below the child, to use a homely but expressive illustration, as the farmer draws the purse strings around his cash, and the child is securely tied up in the uterus and must remain there until relaxation occurs. The ergotic contractions of the uterus are often so persistent that we may have to wait

a long time for this relaxation to take place and permit the labor to proceed.

It is proper to state in this connection that in women of relaxed fibre and roomy pelvis, or if there be danger from post partum hemorrhage, and the os uteri be sufficiently dilated to admit of the easy passage of the child, and the child's head be well down upon the perineum and beginning to emerge through the vulva, it is proper to give a decided dose of ergot to prevent hemorrhage. Even then the life of the child may be sacrificed if delivery from some unforeseen cause should be delayed beyond a reasonable time. Another objection to the unnecessary use of ergot in ordinary practice is the frequency with which after-pains appear to follow its administration, and continue from twelve to thirty-six hours in spite of opiates. They are often so terribly distressing that the patient, instead of being in that quiet, serene and happy state of tranquility that the trying, indescribable ordeal through which she has just passed entitles her to, is restless, anxious, and suffers pains as intense, and, in some instances, in the aggregate equal to those of parturition.

Prof. H. C. Wood will be accepted as reliable authority for some of the precautions against the improper use of ergot here mentioned. If ergot be given in small doses during labor, the pains are simply intensified. In doses large enough to have a decided effect their character is altered. They become not only more severe, but much more prolonged than normal, and finally the intervals of relaxation appear to be completely abolished, and what had been intermittent expulsive efforts are changed into one violent, continuous strain. If the resistance be sufficiently great, it may endanger the safety of both the mother and the child. The dangers to the mother are three-fold; convulsions or congestions of the brain; from the long-continued force of the blood upon the brain, rupture of the uterus, not a very frequent occurrence, but one much to be dreaded, because it is almost necessarily fatal; the third source of danger is to the soft parts. If they be unrelaxed and sufficiently unyielding, there will be rupture of the perineum. The

improper use of ergot is far more serious in its effects on the child than upon the mother. Living a dependent life in utero, and yet subject to the same laws in regard to its needed supply of oxygen that characterizes its independent life after birth, whatever deprives it of blood freshly aerated by the mother's lungs and supplied through the placental circulation, destroys the child in the womb as certainly as closing the air passages by strangulation would cause its death from asphyxia after its existence became dependant upon the external air.

During a violent uterine contraction the passage of the blood from the placenta to the child must be interfered with, or, in other words, the supply of oxygen to the fœtus is temporarily suspended, so that its life depends upon the aeration of the blood during the intervals between the pains. If the intervals be much shortened, the life of the child is greatly imperiled, and if they be abolished it must be destroyed unless delivery occurs in a very short time. If we consult the older masters in midwifery we shall find that the medicine was then recommended at improper times and resulted in the death of multitudes of children, the larger proportion being still-born, but a considerable proportion were lost by convulsions a few hours after delivery, and their deaths traceable to their having imbibed the poison of the ergot while in utero, and its baneful influence continuing upon their organization even after they had ceased to be subject to its immediate operation. Dr. Ramsbotham says, in speaking of inducing premature labor, that "ergot does exert in some instances a prejudicial influence over the fœtus in utero ; for of the fifty-five children born after the administration of the medicine, though thirty-three were born alive, five died in convulsions speedily after birth." As evidence that he recommended its use for the expulsive powers it possesses, it is only necessary to call attention to a table in which this author sums up the difference in the time which elapsed between the puncturing of the membrane and the expulsion of the child in those cases where the medicine was administered, and in the cases where not given, as follows : In 36 cases where the medicine was not administered the average was 74 hours,

while in the 55 cases where the medicine was administered the average amounted to only 26 hours. When we take into consideration his report of 55 cases where the medicine was administered, in which 22 were born dead and 5 died of convulsions speedily after birth, it would appear to be an innocent means of child murder.

After detailing the above statistics, he comes to the following conclusions, which he volunteers in the way of advice: "When the ergot is used, presuming that it exerts and renders manifest its specific influence over the uterus, it would appear to be the best practice not to persist with the medicine until the time when the child is on the point of being born, but rather to give only (?) eight or ten doses, and to desist from its use when the os uteri has acquired the diameter of half-a-crown or a crown piece, then rupture the membranes." "By acting in this way, prolonged compression on the funis and the placenta will be prevented, while at the same time the quantity of the medicine taken by the mother will not have been sufficient to occasion any injury to the child's health in the generality of cases."

In our own country, Dr. Meigs delivers some very significant words of warning when he says: "A labor is effected by the contraction of the muscular fibres of the womb, aided by the abdominal muscles. If all the powers employed in a labor could be accumulated in one single pain, lasting as long as all the pains do, no woman probably could escape with life from so great an agony, except that small number who are met with whose organs, happily for them, make no resistance, but open spontaneously, like a door, to let the fœtus pass out. By a beneficent law of the economy, the pains of labor are short, not lasting more than thirty or forty seconds in general, and returning once in three or six minutes.

"Under such pains or contractions, however powerful, the fœtus is safe; for, as soon as the contraction is over, it lies in the womb, free from pressure, and the placenta, which during the contraction had been violently compressed betwixt the womb on which it lies and the child within the cavity, that placenta, I say, recovers its circulation and continues during the absence

of the pain to perform all the bronchial offices that belong to it. But if an ergotic pain is produced to last thirty minutes, in a case where the placenta is on the fundus uteri, and to be jammed for thirty minutes against the child's breach, without an instant of relaxation, who can doubt that the circulation is either wholly or nearly abolished, and that when the child emerges at last from the mother's womb it will emerge quite dead, or in a profound asphyxia, from the long suspension of its placental circulation.

"Multitudes of children are born dead from this very cause, by the imprudent exhibition of a medicine which as certainly excites spasms of the womb as *nux vomica* does that of other muscles of the body."

In the March number (1879) of the *Detroit LANCET* I contributed a paper on "The therapeutic value of ergot," in which was enumerated a number of diseases in which practitioners, reasoning from its physiological action, had discovered that it was indicated as a valuable therapeutic agent. Prominent among these were hemorrhage from the uterus, lungs, stomach, nose, bowels, bladder, in a word, all classes of passive hemorrhage; purpura hemorrhagica, varicose veins, hemorrhoids, the vomiting of pregnancy, tumors of the uterus, metritis, leucorrhœa, profuse menstruation, incontinence of urine, vesical paralysis, pneumonia, gonorrhœa, gleet, diarrhœa, dysentery, cardiac debility, congestions of the brain and spinal cord, typhoid fever, yellow fever, and inertia of the uterus, in which it is an indispensable remedy for increasing both the force and frequency of the contractions and the expulsive power of the uterus in parturition. So valuable and potent a remedy as ergot, indicated in the treatment of so wide a range of diverse diseases, like many other good remedies, must necessarily have some contra indications for its use—there would be some conditions in which its administration would work injury instead of good. To have included these in the former article would have extended that paper beyond proper limits, so this became a necessary sequel, to point out the precautions requisite to the safe administration of ergot.

