

INJECTIONS OF TINCTURE OF IODINE INTO THE CAVITY OF THE
UTERUS IN HEMORRHAGE AFTER DELIVERY.

BY JAMES D. TRASK, M.D.,

Late Prof. of Obstetrics, etc., Long Island Hospital College.

(Read by invitation, Oct. 20th, 1874, before the New York Obstetrical Society.)

THE reader of recent English medical journals must have taken notice of the deeply interesting discussions that have taken place, in reference to the treatment of severe post-partum uterine hemorrhages, by the injection of a solution of the perchloride of iron, properly diluted, into the cavity of the uterus.

This plan of treatment has been advocated of late years by Kiwisch, in Germany, and by Dr. Barnes, in England, and in England and in this country has come to be associated especially with the name of the latter.

At a meeting of the London Obstetrical Society, in February, 1873,¹ the merits of this expedient were discussed by many of the leading obstetricians of that city, and though on the whole the opinions expressed were decidedly favorable to its adoption, those who had seen most of its employment being apparently most pronounced in its favor, it was opposed by some as dangerous, and by others as unnecessary.

The principal objections urged against the practice were the occurrence of pain, shock, and in certain instances of symptoms of puerperal fever. The latter symptoms were attributed to the styptic injection being taken up into the veins of the uterus by their exposed patulous mouths.

The discussion followed the relation by Dr. Heywood Smith, of a case in which death was apparently caused by these injections employed to arrest an obstinate hemorrhage, which came on a few days after delivery and continued several days before it could be controlled. The protracted oozing had occurred, as was revealed by the autopsy, from the mouth of a still gap-

¹ Trans. Obstetrical Society, London, for 1873.

ing artery that was found at the site of the placental attachment. Dr. Smith believed that the iron had been taken up by the sinuses and carried into the veins of the uterus; since the veins were filled with an inky fluid that contained iron, and the uterus was itself stained by the same.

Dr. Routh related a case in which he injected equal parts of "tinct. of steel" and water. It checked hemorrhage effectually. All went on well till the third or fourth day, when puerperal fever set in, and she died. Dr. R. felt hesitation about resorting to its use again.

Dr. Grailly Hewit had a case in which hemorrhage was severe, and recurred in spite of ordinary remedies. A solution of *one in four* of the "tincture" was injected and restrained the bleeding. For three days she was quite well; pains then set in with puerperal peritonitis, and other grave symptoms, and death occurred in five weeks. The patient's life was doubtless saved by the injection, but its influence in producing her subsequent condition he could not decide.

Dr. J. Braxton Hicks had employed the iron injections a great number of times, and had made inquiries largely among those who had used it, without having seen or heard of any serious results.

Dr. Playfair defended the practice, and considered that the injection employed in the two fatal cases related was too strong. More than that, these were plainly cases of septicæmia occurring three or four days after the injection was used. Dr. Playfair had used the iron several times without any unpleasant consequences.

Dr. Holman had experienced many practical proofs of the safety and efficiency of perchloride of iron in post-partum hemorrhages, and never went to a labor without taking with him the means of employing it if necessary. The experience of other gentlemen was equally in its favor.

On the other hand Dr. Snow Beck had seen nine or ten cases in which death had followed the injection for post-partum hemorrhage, all the women presenting symptoms quite analagous to those known under the name of puerperal fever. According to Dr. Beck, the relaxation of the uterus allowed the canals of both the arteries and the veins to remain open, when the blood was poured out by the arteries, and any styptic injected was too

often taken up by the veins, conveyed into the general system, and caused the certain death of the individual. This had been verified on the post-mortem examinations he had been permitted to make.

Dr. Wynn Williams considered it had been clearly demonstrated by the history of the cases as detailed by the previous speakers, that the injection of the solution of perchloride of iron into the uterine cavity was accompanied by considerable risk. Dr. W., in place of injections, swabs out the interior of the uterus with a sponge saturated with equal parts of tinct. perchloride of iron and water, and leaves the sponge with a string attached, to be withdrawn, or subsequently expelled from the uterus.

Dr. Protheroe Smith recognized the dangers from the use of iron.

Dr. Bantock had used the injection once in a case of accidental hemorrhage a fortnight before full time, and death ensued in seven or eight hours, as he believed, in consequence of the injection.

Dr. Barnes, who had seen this patient, was disposed to agree with Dr. Bantock in regard to the case, but considered the fatal termination probably due to shock. In some cases Dr. Barnes admits there is reason to believe that the iron enters the uterine vessels; that there is a certain amount of suction action induced by the relaxed state of the uterus, and by the lateral or semi-prone position of the patient on her back; and he recommends that "the uterus be grasped firmly between the two hands of an assistant during the injection."¹ He moreover urged, that the evils of such an occasional accident were vastly out-balanced by the benefits of the operation, as this was to be resorted to only in cases in which ordinary means had proved ineffectual.

Thus far, it will be seen, no satisfactory explanation had been proposed, of the manner in which the iron thus introduced into the venous system of the uterus gives rise to symptoms of septicæmia.

At a meeting of the Obstetrical Society subsequent to the discussion referred to, Dr. W. S. Playfair, who at the previous meeting had stated that he "had used the perchloride of iron in many cases, and only once unsuccessfully, nor had he seen any evil consequences," reported that he had, a short time be-

¹ British Medical Journal, Jan. 11, 1873.

fore, employed the iron in a case in which, although as he believes, it saved the patient's life, the injection was followed by "very grave and even alarming symptoms." Dr. Playfair says,² "when the iron was injected, although the hand was in the uterus, and the clots within it had been as much as possible removed, blood was still pouring out abundantly. The powerful astringent at once corrugated all the blood and coagula it came in contact with, and these hardened clots filled up the uterus, and the canal of the vagina. In due course, these began to decompose, and septic absorption took place. By the fingers and intra-uterine injections, they were gradually broken down and removed. The improvement unquestionably dated from the expulsion of the two large and decomposing coagula on the sixth and seventh days of delivery."

Dr. Playfair would, in view of such an occurrence, by no means lay aside the use of this remedy, but seek to secure the expulsion of the coagula, as soon as possible after all risk of hemorrhage had ceased.

Dr. Braxton Hicks, at the February meeting, had reported a case in which the injection was used with success, but twenty four hours afterward pains arose, and it was found that the uterus contained hard, blackened coagula which it could not expel. These were broken up and washed out, and the patient did well.

It is quite certain, that the explanation of the admitted occurrence of septicæmia after these injections, is to be found, not in the mere entrance of iron into the uterine vessels, but in the retention within the uterus and in its vessels of the coagula necessarily formed, and their subsequent decomposition.

It is quite remarkable that this objection to the use of a salt of iron for such a purpose has not before been urged. Those who have had occasion to use these preparations for controlling hemorrhage in various *cavities* of the body, have often had reason to look upon their use with disfavor, and even disgust; since the blood when acted upon by the iron salt forms an extremely tenacious and refractory clot, which proves too often a source of great irritation, and by its presence may defeat the success of any operation. Dr. Emmet has for several years

¹ *Obstet. Jour.*, May, 1873. See *Am. Jour. Med. Science*, July, 1873, p. 273.

discarded these preparations in all operations involving the cavity of the uterus, the vagina and the rectum. Dr. Lente, writing of the proposed introduction into the rectum of a sponge with its cavities filled with persulphate of iron, says: "Whoever has had to deal with a rectum or vagina after it has been so treated would require to be pretty thoroughly alarmed, and at his wit's end for a resource, before he would adopt it."¹

Dr. J. Byrne, Surgeon to St. Mary's Hospital, refers to the persulphate, as an agent than which he can conceive nothing more "filthy and abominable," under all circumstances, as a uterine or vaginal styptic. Of course these objections do not apply to the use of pledgets of cotton properly moistened with a solution of the iron salt.

From the known behavior, therefore, of the salts of iron in their action upon blood, it might reasonably have been anticipated that serious drawbacks would be encountered in their employment within the cavity of the uterus. We have already seen, that such have been experienced in several instances, by those who have resorted to these injections in post-partum hemorrhage, but the true solution of the ultimate ill-effects following the injections, at the time of this discussion, was not understood. Retention of coagula within the cavity of the uterus leads to their decomposition, and this is the unquestionable source of the septicæmia that has followed.

Dr. Barnes seems not to suspect this, and in referring to one of the fatal cases reported in the course of the discussion says, "Dr. Routh's case was one of septicæmia, for which he certainly could not blame the perchloride;" and seeks an explanation of the accident in the fact that "flooding predisposes powerfully to septicæmic fever."

Dr. Braxton Hicks, also sympathizing with Dr. Barnes in his estimate of these injections, expressed his belief that pyæmia might result from depression after severe hemorrhage where no injections had been used.

That septicæmia not unfrequently follows injection of the salts of iron into the cavity of the uterus must be regarded as established. The important question arises, are there other agents at our command which can be substituted for the salts of iron, equally efficient in controlling hemorrhage and free

¹ Amer. Jour. Med. Science, July, 1873, p. 18.

from the risks incident to these? Dr. Protheroe Smith, in the discussion referred to, raised this question, and urged upon the members of the Society the trial of the undiluted tincture of matico, which he regards as a powerful styptic. No other substitute than this for the salts of iron seems to have been suggested by any member present.

The perusal of this discussion brought forcibly to recollection an article published many years ago, commending the injection of tincture of iodine into the uterine cavity, as a means of checking hemorrhage after delivery. On search this article was found in the library of Dr. Purple of this city, in the *North American Medico-Chirurgical Review*, Vol. 1, 1857, communicated by M. Dupierriis, M.D., Havana, Cuba, whose name appears as one of the Corresponding Fellows of the New York Academy of Medicine. This article was published at a date when injections of the uterine cavity under any circumstances, were but little practiced, and it seems to have failed to attract the attention which the originality and boldness, as well as the success of the expedient, deserved. As this is the only record of the practice which, so far as I am aware, has been published, I have thought a brief abstract of the cases would be instructive.

CASE I.—Hemorrhage after delivery of a double-headed monster by forceps. Friction of the abdomen and compression of the aorta were tried ineffectually. Injection of tincture of iodine suggested itself, and so soon as it could be procured, a half-ounce of the tincture, diluted with an ounce of water, was thrown into the uterus through a tube passed into the interior. The “liquid was immediately rejected by uterine contraction,” and she had a favorable recovery.

CASE II.—Patient was very feeble and anæmic, with contraction of the pelvic outlet. She grew weak, the extremities became cold, and internal hemorrhage was apprehended. The forceps were applied and the head extracted, “followed by a considerable quantity of blood.” The hand being introduced in search of the placenta, no uterine contraction was induced. Iodine injections were now employed in the same manner as in the previous case and the inertia and hemorrhage ceased.

CASE III.—Was seen in consultation with two others. Con-

siderable hemorrhage had followed the expulsion of the foetus. Attempts made to remove the placenta had failed. Many means had been resorted to ineffectually; one of the physicians continued to compress the abdominal aorta, notwithstanding which the blood continued to flow. She had frequent convulsions, dyspnoea, syncope, and cold sweats over the body, the breathing too was accompanied by rattling, the pulse disappearing at every faint. Iodine injections were proposed by Dr. D. and the necessary materials sent for. In the meantime stimulants were given, the hand introduced, and the placenta, which was partially detached, was removed by the fingers, "but all means employed to cause the womb to contract still proved useless," and the uterine hemorrhage continued. So soon as procured, tincture of iodine was injected "in the same way as in the preceding cases, and the results were equally successful, causing cessation of the hemorrhage and of the uterine inertia." Great difficulty was experienced in bringing about a rally from the immediate effects of the loss of blood. She was made to breathe ether or rum, and when faint the vapor of ammonia. For seventy-two hours she remained in a condition of extreme peril, but finally recovered.

Dr. Dupierris assures us of the success of this practice in every form of uterine hemorrhage, whether immediately after delivery or later in the puerperal period, or occurring as menorrhagia.

These cases certainly were not inferior in gravity to those reported as treated by injections of the iron salts, and that recovery should have taken place in Case III. is very remarkable; but even in this case, we see that the stimulus of iodine was sufficient to excite the apparently extinct reflex action, and secure contraction of the womb.

As regards the mode by which the remedies act which are ordinarily employed for checking uterine hemorrhage, there is of course no dispute. Whether it be cold in its various forms, pressure or frictions, peripheral irritation stimulates the muscles of the womb to contraction, causing compression of the blood-vessels and cessation of the flow. In certain cases the nervous centres can no longer be roused, the uterus remains flaccid, and the hemorrhage uncontrollable.

It is in these cases, fraught with imminent peril, that Dr.

Barnes conceives styptic injections may be profitably employed, to procure contractions and corrugation of the inner surface of the uterus. By this means the flow of blood is arrested in the act of pouring from the open mouths of the vessels which become sealed up by coagula; and it is to these cases that Dr. Barnes would confine its use.

In the teachings of all the schools, the essential difference in principle upon which post-partum uterine hemorrhage from the unimpregnated uterus, or from cut surfaces, should be treated has always been a cardinal point. The veriest tyro knows that, in flooding after delivery, uterine contraction must be secured or his patient lost. The suggestion therefore that the mouths of the vessels may be plugged up by the local use of a powerful styptic, in cases in which contraction cannot be secured, has attracted, as may be supposed, much attention. Previous to the introduction of the per-salts of iron we had no astringent sufficiently powerful to suggest such a practice.

While these local effects are undoubtedly produced, it seems more than probable that even the injection of the salts of iron, when it produces a beneficial result, does so more usually by arousing the uterus by its peculiar stimulus to contract; in this differing in no respect from frictions, cold and pressure. This is confirmed by the statement made during the discussions before the Obstetrical Society, by Dr. Sell of New York, "that at the University of Vienna, which could boast of 7,000 to 9,000 deliveries annually, the employment of such injections was the treatment upon which reliance was placed in post-partum hemorrhages, provided ergot and injection of cold water did not arrest the bleeding." According to this authority a weak solution of ferrum sesqui-chloridum, $\bar{5}$ i ad aquæ 1lb. was gently injected and repeated till the hemorrhage ceased. It is plain enough that the success of such injections cannot depend upon the coagulation of the blood in the orifices of the exposed uterine vessels, as Dr. Barnes contemplates, but upon their power to excite the motor nerves of the uterus.

We have also the direct testimony of reported cases. In the *British Medical Journal* for March 7th, 1874, in a case in which $2 \bar{5}$ tinct. perchloride of iron to $8 \bar{5}$ of water was used, "it not only controlled the bleeding, but caused firm and persistent contractions of the uterus." In the same for April

4th, Case I., perchloride one part in four "was followed instantly by firm contraction, very different to the weak flabby contractions which were felt before, and by arrest of hemorrhage."

Case II.: "Perchloride one part in eight, firm contractions immediately followed" and bleeding ceased. In the No. for May 9th, is a case in which one part of liquor ferri perchloridi was mixed with five or six of water, and the hand was expelled, and not a drop more blood lost. Dr. Barnes explicitly recognizes the efficiency of these injections in provoking contractions of the uterus. Though he expressly limits their employment to "cases where the uterus could not be made to contract, where he could not rely upon reflex excitation, when grasping the uterus must at length be abandoned, then it was that the perchloride came in as a new power to save life in the last extremity;" though again he describes the still running blood as being instantly seized at the mouth of the blood-vessels which become sealed up by coagula, so that the system has time and opportunity to rally, and by and by the contractile power returns, yet at another place he declares that he had "often had his hand in the flaccid bleeding uterus to clear out placenta and clots, and felt the inner surface of the uterus contracting, corrugating, crinkling under the contact of the iron as it flowed, stopping the bleeding and expelling the hand."

Since the cases here described are those in which all hope of exciting contractions by ordinary means was gone, it is plain that we must recognize in the salts of iron, if nothing more, a most powerful accession to our means of exciting reflex action when it had seemed hopelessly extinguished.

By reference to the cases of Dr. Dupierris, it will be seen that the injection of diluted tincture of iodine in like manner promptly induced reflex action, and rescued the patient from the extremest peril, when all ordinary means of inducing uterine contractions had failed. The *tincture of iodine* and the *salts of iron* are thus brought into direct comparison as exciters of apparently extinguished reflex action in the uterus; and there seems to be good grounds for believing that the one may be at least quite as efficacious in this respect as the other. It is, of course, premature to draw conclusions from the few cases of the employment of iodine which can now be presented, but the power of iodine to induce contractions even of the

fibres of the unimpregnated uterus is a matter of experience. Reference has been made to the employment of tincture of iodine as a hæmostatic, by Dr. Emmet, at the Woman's Hospital, in operations upon the uterus. Churchill's tincture of iodine undiluted is used in his practice with the most satisfactory results when applied, for example, to the surface exposed after removal of a fibroid. We have seen in these operations the flow instantly cease, and the mixed fluids suddenly forced out through the os from the sudden contraction of the muscular fibres of the womb, directly upon the injection of the iodine. The experience of Dr. Dupierris confirms the hæmostatic power of tinct. of iodine in all forms of hemorrhage from the unimpregnated uterus as well as in post-partum bleeding.

Dr. Fordyce Barker informs me that during the past year he has treated with perfect success, a case of very severe hemorrhage following miscarriage, by injecting about an ounce of undiluted tincture of iodine.

It is but justice to Dr. Emmet to state, in this connection, that the power which tincture of iodine possesses of stimulating the muscular fibres of the womb to contraction suggested to him its applicability to the treatment of uterine hemorrhage after labor, and that he has for several years insisted upon the feasibility of its use and its certain efficiency.

Adopting Dr. Emmet's suggestion, Dr. G. T. Harrison has recently treated with success a case of serious post-partum hemorrhage, by injecting a drachm of Churchill's tincture of iodine.

Should further employment of tinct. iodine prove, that by our estimate of its claims as a uterine hæmostatic it is not over-rated, it will be seen that it is adapted to most of the cases in which Dr. Barnes now regards the salts of iron as affording the only hope.

But we have seen that it is not as an excitor of uterine action that the use of the iron solution is advocated, *but as a means of closing the mouths of the vessels by coagula when contractions can no longer be provoked.*

We have satisfactory evidence that the solution of the iron salt, of the strength employed by Dr. Barnes, may act in this manner alone.

On this point we have the evidence of Dr. T. Snow Beck :

“The use of the perchloride is sometimes not followed by any perceptible contraction or by only partial contraction, by which the flow of blood is arrested and the way to injurious impregnation of the general system is left open.” In a case reported in the *British Medical Journal*, May 2, 1874, it is stated that perchloride of iron was injected, “no pains ensued, *the uterus remained large*, there was no further loss.” She sank in three hours; sinuses were found filled with coagula, the uterine tissue tinged of a dark color.

Prof. Lusk has favored me with the following memoranda of three cases occurring in Bellevue Hospital, in which iron was employed, and which are here introduced. In Case I. Prof. Lusk informs me the uterus remained flaccid, notwithstanding the hemorrhage was arrested.

July 18th, 1871.

CASE I.—Louisa King, æt. 20. Primipara.—After twelve hours labor, the os dilated fully and the head began to engage. Anterior lip compressed against cervix. Pains good. After four hours further effort, forceps were applied, but no advance was accomplished.

Ten hours labor; as the woman was exhausted and no progress had been made, forceps were reapplied and the woman delivered of a living child. Chloroform given during nearly entire labor. Delivery of child was followed by excessive hemorrhage. Woman nearly exsanguinated before it could be controlled. Other means having failed, compression of the abdominal aorta was resorted to, and the uterus was injected with liq. fer. persulph. and water equal parts. Hemorrhage was checked. For the two days following the woman did well. On the third, septicæmic symptoms were developed—lochia became excessively offensive, respiration stertorous, pupils dilated, and general paralysis. Died at the conclusion of the third day.

Diagnosis—septicæmia and embolism.

No autopsy.

July 8, 1871.

CASE II.—Annie Clinton, æt. 28. Primip.—After four hours labor, os dilated. Half an hour later uterus suddenly enlarged and pulse became thready—ice was applied, ergot given, and

assistant made firm pressure over the fundus—forceps applied and child delivered—alarming hemorrhage followed—ice placed in vagina and over uterus—hand introduced into uterus without effecting contractions—hemorrhage arrested by injecting liq. ferri persulph. and water equal parts.

Woman recovered without a bad symptom.

July 9th, 1871.

CASE III.—Eliza Moore, æt. 23. Breech case.—Length of labor 9 hours; birth of child followed by alarming hemorrhage, controlled by liq. fer. persulph.

She made a good recovery.

In what proportion of cases the uterus fails to contract, after these injections, and life if saved at all is saved by the simple coagulation of blood in the orifices of the vessels, we have no means of knowing. Neither do we know that the fatal cases in which symptoms of septicæmia are developed are confined to those in which no contraction takes place, *but it is in these last that we have all the conditions for this accident.*

After reading the history of four fatal cases, one of which was that of Dr. Heywood Smith, related by Dr. Snow Beck in the *British Medical Journal*, in which autopsies were made, one cannot hesitate to adopt the language of Dr. Beck when he remarks, "It is singular how these cases are repetitions of the same fact with only a slight modification." After the completion of a natural labor, the uterus becomes sufficiently relaxed to allow the blood to escape from the open ends of the torn arteries. Efforts to induce contraction fail, when a solution of perchlorid. ferri of varying strength is injected into the cavity of the uterus. After the injection of the perchloride, the hemorrhage ceases at once or very soon afterwards; the patient revives, and all things appear to be going on favorably till about the third day, when the usual series of fatal symptoms commence. "In the examination after death, the vessels are found more or less filled with an ink-black colored fluid, which from its similarity to the secretion on the inner surface leaves no doubt that some of this fluid has entered these canals through the open orifices at the inner surface of the uterus." The his-

tory of the cases of Drs. Routh and Hewit, and Prof. Lusk correspond with these. We now know that the fatal symptoms subsequent to these injections are due, not to the mere introduction of iron into the veins, but to septicæmia from the decomposition of the coagula.

It would seem that the degree of liability to disaster after the injection of iron salts depends upon the completeness with which contractions of the womb are secured. A contraction of the muscular fibres sufficient to compress firmly the blood-vessels and to empty the uterus must effectually prevent the retention of coagula in the uterine cavity, and possibly the formation of thrombi in the vessels.

In the discussion referred to, exception was taken to the strength of the injection employed; but while this is by no means unimportant, it is yet plain that the stronger solutions are much more likely to induce the contractions upon which the woman's safety really depends than are the weaker, and that the local action of even the strongest solutions, independent of the coagulation they produce, cannot be held accountable for the disastrous results.

In comparison with *iron, tinct. of iodine* has the advantage, so far as we know, of being perfectly safe; at any rate, free from the evils incident to the employment of iron. Besides this, we have the direct antiseptic influence of the iodine upon the uterine and vaginal mucous membrane. The application of iodine to the lining membrane of the uterus is, probably, of all things the surest means of counteracting a tendency to absorption of septic matter into the system after delivery. Since adopting the practice of injecting tr. iodine after operations upon the interior of the uterus, Dr. Emmet has not encountered a single case of septicæmia. As contrasted with the salts of iron in this respect, it would seem as if there could be no room for hesitation in the choice. From the local action of iodine not only is nothing to be feared, but even advantage to be anticipated, while from the local action of iron much may be apprehended. As an excito-motor agent, iodine is probably at least equally good, while incapable of causing the formation of thrombi in the uterine vessels. In view of these facts one would feel justified in resorting to the iodine earlier than to the iron, and in this respect also an advantage may be gained for the

patient, since the use of iron is expressly limited to cases deemed hopeless under ordinary management.

We all know how impossible it is to limit the use of any expedient to the cases for which it is expressly designed. Thus was it with Simpson's plan of detaching the placenta, distinctly limited by its author to cases of extreme severity in which the life of the child was of the least moment, and yet employed by not a few as early as the state of the os would permit. The same is true of the subject under consideration. Dr. Hicks, a practitioner of deservedly large influence, had used the iron injections a "great number" of times. No matter how extensive a man's practice may be, he can scarcely have met with a "great number" in which the conditions are those which Dr. Barnes prescribes; and indeed, as we have already seen, we find Dr. Barnes himself acknowledging the influence of the injection in causing the womb to contract. In those instances in which the event shows that reflex action may still be excited by a new and efficient stimulant, there surely is no need of the *coagulating* power of the injection. We must admit that a stop may be put to the loss of blood by the local action of the styptic as the blood flows from the open vessels, and that in the absence of reflex action, the woman, if she recovers, must owe her life to the injection as a styptic alone; but these cases must be exceptional, and form but a very small proportion of those in which it has been resorted to.

In recapitulation we may briefly say that we have sought to show:

1st. That a very considerable proportion of cases in which the injection of salts of iron has apparently saved life, have been those in which it accomplished this end not in virtue of its local styptic action, but because of its power to excite reflex action when cold, friction, pressure etc., have failed.

2d. That when it produces coagulation of blood in the orifices of the blood-vessels there is danger that the coagulation may follow the vessels into the substance of the uterus, producing dangerous thrombi, and that the blood already collected in the cavity of the uterus also may become converted into a hard, intractable coagulum which the uterus cannot expel, and which may, after a few days, decompose and give rise to septicæmia.

3d. That there is evidence for believing that as an excitor of dormant reflex action, tinct. iodine may be substituted for the iron with positive advantage, from its efficiency as an excitor and from its antiseptic properties.

If these points are established, the use of iron salts in a solution sufficiently strong to induce coagulation of blood in the uterine vessels should, at any rate, not be resorted to until tinct. iodine has been tried and failed.

In conclusion, I would distinctly disavow the position of claiming positively for iodine a superiority over the iron. More facts are needed to warrant this. I have simply sought to present the considerations that render it extremely probable that the one will be found an advantageous substitute for the other, when it shall have received at the hands of the profession a sufficient trial.

