TREATMENT OF SUDDEN SEVERE POSTPARTUM HEMORRHAGE.*

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Entirely appropriate to the hemorrhage that sometimes occurs after labor is the popular term "flooding." Such furious bleeding as may occur after a labor it is the lot of the general surgeon but very rarely to meet. Postpartum hemorrhage is *the* obstetric emergency, for here more depends on quick perception, rapid judgment and swift action than in any other condition incident to pregnancy. Even placenta previa and eclampsia, the other two furies of obstetric practice, do not demand such preparedness for complications as does postpartum hemorrhage. Reference is had only to those rare cases where during or after the placental stage, blood gushes from the genitals in a manner which is appalling and places in a few moments the life of the woman in acute jeopardy.

Some authors say that these cases are preventable, that they are due to improper care of the third stage, that a man who has many cases of postpartum hemorrhage has himself to blame (Spiegelberg), but they all recommend drastic measures for stopping hemorrhage and speak with a positiveness that comes only from experience.[1] Michaelis[2] reports a case where, after each of three labors, blood "rushed out like from a barrel with the bottom knocked out," and in the next two labors he removed the placenta at once. It is said that in Prussia a woman dies of postpartum hemorrhage every day,[3] and fatal cases that have occurred in skillful hands are well known. No doubt a large number of cases of bleeding in the third stage can be prevented by proper attention and conduct throughout labor, and there is no doubt that a woman ought almost never to die under such circumstances, but sometimes pathologic conditions exist that defeat every effort of the physician, and the woman bleeds to death under his hands, than which no catastrophe is more terrible.

Investigation of the causes of these hemorrhages bears directly on the physiology of the third stage, the study of the natural mechanism of hemostasis after the birth of the child.

The vessels of the placental sites are simply spaces between the muscular lamellæ, lined with a layer of endothelium, the vessels leading to and from these sinuses quickly losing their coats. Toward the end of pregnancy, according to Leopold, some of these vessels become thrombosed. Immediately after the birth of the child, sometimes even as the child is leaving the uterus, the placenta becomes wholly or partly detached, the sinuses passing from the uterine wall through the serotine decidua to the intervillous spaces of the placenta are cut squarely off, and may be seen on the placenta as open vessels, and felt on the placental site, being filled with clotted blood. Hemorrhage occurs from these sinuses, more or less with every labor, but nature has a very efficient and instantaneous method of controlling it. As the uterus contracts down on its lessened contents, the muscular lamellæ and bundles become superimposed on each other, they are felted together, the various layers slide in many directions on each other, also obliquely from without inward so that the wall thickens. The blood-spaces lying between these shifting layers are compressed, bent and twisted, and mechanically occluded as if ligatured. Some of them are surrounded by circles of muscle, so that the term "living ligatures" is quite apt. The efficiency of this mechanism of hemostasis depends on the vigor of the contraction of the uterine muscle and on the amount of its retraction or muscle elasticity.

Another factor in securing hemostasis is the thrombosis in the vessels themselves. Nature provides for hemorrhage during labor by increasing the total amount of the blood and augmenting its clotting power. This factor is of secondary importance and is relied on by the accoucheur only when absolutely necessary. In the study of the causes of hemorrhage, postpartum, failure of one or other function will be noted, to which must be added another cause, accidental, i. e., lacerations.

Failure or insufficient clotting of the blood can not give rise to the hemorrhages under consideration. Cases of persistent oozing of blood during which the patient's life slowly drains away may be due to this. Hemophila rarely causes death in women, or the class would soon be extinct, as the tendency is transmitted through the female. The writer believes that syphilis

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[1] Dohrn: Die Behandlung des Nachgeburtzeitraumes, Jena, 1898.
[2] Michaelis: Neue Zeitschrift für Geburtskunde, Band iv.
[3] Siepen: Deutsche Med. Woch., 1893, No. 21.

can cause a temporary hemophilia by altering the blood and the walls of the fine vessels.

Atony of the uterine muscle, lacerations of the parturient canal, or as often happens, both together, give rise to the severest postpartum hemorrhage. Among the causes of uterine inertia in the third stage may be mentioned primary uterine inertia manifested in the first and second stages, either in uteri congenitally malformed or infantile or poorly innervated or weak from general asthenia; too rapid delivery—the uterus has not time to adapt itself to its diminished contents, and fatal bleeding may occur before it can gather itself together; irregular separation or retention of the placenta or part of it, or clots, interfering with the contraction and retraction of the uterus; habit, depending usually on a chronic endometritis or a myometritis.[4]

The lacerations that may cause dangerous hemorrhage after labor are tears of the cervix involving the circular artery, and especially lacerations of the lower uterine segment when the placenta is situated there. This is what makes rapid extraction in placenta previa so dangerous. The other injuries bleed freely, but they do not render the woman's life so quickly precarious. These lacerations are never due to a normal labor, and, unless the uterus ruptures spontaneously, are always the result of operative interference. A combination of atony with laceration, as is likely to occur when the placenta is inserted low in the uterus, bringing the placental site within the area that may be injured in delivery, gives the most profuse bleeding, as occurred in one of the cases to be reported, where the blood gushed out as from a hydrant, with a rushing noise.

Hemorrhages like these, which if not checked at once lead quickly to a fatal termination, are fortunately rare. The writer, in a practice that is mostly pathologic and operative, has met with only four cases in seven years. In the service of the Chicago Lying-in Hospital Dispensary, where 750 labors are handled each year, by young physicians, postpartum hemorrhage is not infrequently met with, sometimes quite severe cases, but there has always been time to get assistance and we have lost no woman from this accident in over 2000 labors.

The treatment of all cases of postpartum hemorrhage begins with the prophylaxis, and also with the preparedness to meet it when it occurs.

When the first and second stages of labor are characterized by weakness of the uterine contractions, flooding is likely, the inertia being carried over to the third stage. When any of the causes mentioned previously is present, the attendant should be ready for trouble in the third stage, especially if the woman gives a history of previous "floodings." When the labor has been terminated by forceps or version and extraction, especially in placenta previa, or if cervix incisions have been made, severe bleeding may be anticipated. Forewarned is forearmed.

Every labor should be conducted with a view to prevent complications, this one in particular. The patient should not be allowed to become exhausted by long labor. Food, usually liquid, should be administered at not too long intervals, and the same may be said of chloral and morphin, to secure rest and recuperation during a prolonged stage of dilatation. In cases where the conditions for forceps are fulfilled, the instrument should be applied before the powers of the woman are completely exhausted. The tendency to hemorrhage is greater after the use of chloroform, and the uterus must therefore be more carefully guarded.

In normal delivery the expulsion of the trunk should not be hastened, the child should not be dragged out of the uterus, and this warning applies with especial force to operative deliveries. Ergot should not be given during labor; its tendency to imprison the placenta is now generally admitted. As the child emerges, a hand should follow down the uterus, and if it does not retract promptly, it should, by gentle massage, be stimulated to contract. Brisk manipulation should be avoided, as it interferes with the normal mechanism of the third stage. After a careful trial of the purely expectant plan of treatment of the placental stage, the writer can not recommend it for all cases. In labors that are perfectly normal, in women of good constitution where the uterus has shown itself worthy of confidence, the expectant method advocated so strongly by Ahlfeld is in place.[5] It has its strongest advocates and gives it good results in foreign maternities where the cases are healthy peasant women. For the women of the higher classes, especially those who have enjoyed several years of refined inactivity, the uterus requires close guarding. The modern trend toward athletics for women will therefore please the accoucheurs.

The uterus should be given time to accomplish the complete separation of the placenta, when the latter can be expressed by the gentlest pressure on the fundus. Thirty minutes have usually been found sufficient, and unless there is hemorrhage, internal or external, the third stage should not last less than this. The last stage of labor requires more care than the other two. The uterus must not be allowed to fill up with blood, as it may contain enough to lose the woman. The hands should be kept aseptic, so that internal interference may not be delayed when needed. As to the value of strychnin, quinin, viburnum, etc., in preventing hemorrhage, the writer has had little experience.

Half of the battle is won if the accoucheur is prepared for all emergencies. A physician has not the moral right to assume charge of a case of labor unless he has at his fingers' ends the various means of controlling hemorrhage, both surgical and obstetric, and unless he has prepared himself in advance for accidents of this kind. The preparation for every labor should preview hemorrhage. There should be at hand at least five yards of sterilized or antiseptic gauze for packing the uterus, sterilized vinegar, a sterile douche-bag, and the kettle should be full and boiling. The obstetric outfit should contain two pairs of double vulsellum forceps, long uterine packing forceps, a broad perineal retractor, not too long, in addition to full-curved round needles and a long needle-holder, for sewing up lacerations. These instruments should always be boiled with the forceps, or in preparation for other operative deliveries. An apparatus for the injection of saline solution under the skin should never be wanting in the obstetric bag, and the hypodermic syringe should be in working order. The feeling that he is prepared for all emergencies gives the accoucheur a confidence that is soon reflected in his work, and in the patient, and repays many times the trouble necessary to carry out these details. Forearmed is forewarned.

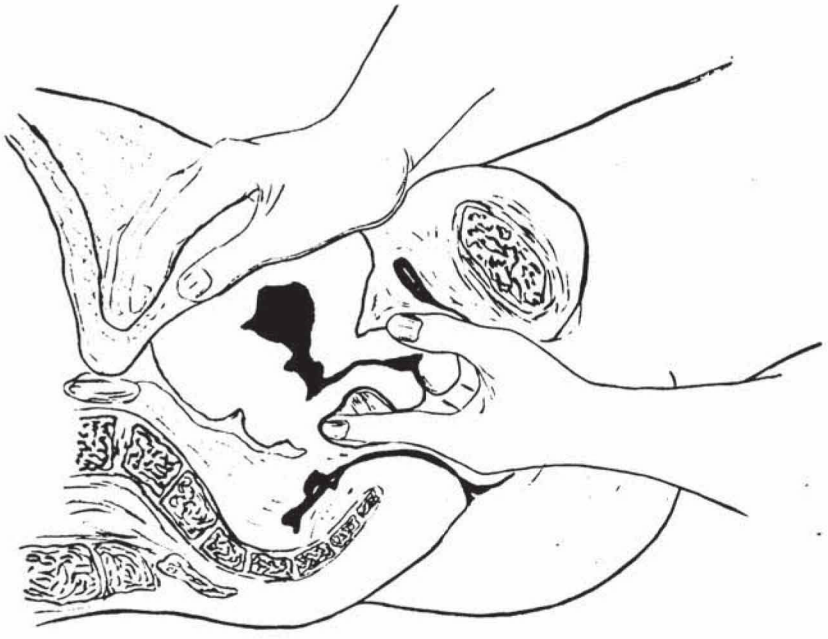
[4] v. Weiss; Archiv. für Gynäkologie, Bd. 46, Heft 2.

[5] Ahlfeld: Lehrbuch der Geburtshilfe, 1898. Seite 161.

The treatment should be quick and decisive, because the suddenness of the loss of blood has a great deal to do with the amount of shock attending it. Patients often rally from severe hemorrhage with surprising quickness, which is due to recovery from the shock. The recovery from a dangerous loss of blood is less rapid. Women that have suffered continual or small losses of blood throughout several weeks stand hemorrhage during labor poorly, as is exemplified in cases of placenta previa.

If the placenta has not been delivered, it should be removed at once; vigorous massage till the uterus hardens, then a strong Credé expression. If unsuccessful, it should be removed manually. The severity of the bleeding may indicate the latter procedure at the start.

If the flooding occurs after the third stage, the most successful remedy is the compression of the uterus. One hand gathers the cervix together and holds it tight, the outside hand forces the fundus down on the inside hand, at the same time massaging it vigorously. The uterus is bent like the letter V and its walls crowded together. The effect, especially if there is atony of the uterus, is immediate; if there is laceration it is not so good.



Compression of the aorta is valuable in these cases. If unprepared to enter the uterus, the hand may press the aorta against the spine, giving time, as the late J. H. Etheridge said, to "collect your wits." All the blood is not shut off from the uterus as the spermatics are given off above the point of compression, but that the procedure does check the hemorrhage the writer can testify.

Another method that may sometimes be employed is pulling down the cervix by means of the vulsella, to the outlet or even farther. The vessels are put on the stretch and, being spirally wound, their lumen is thus cut off. Preparatory to sewing up the cervix this method may be useful, but it may be used alone and for atony in appropriate cases. In one case a physician in the country thus held a hemorrhage in abeyance for two hours, till aid could be gotten from a neighboring town.

The sovereign remedy against hemorrhages that come from atony of the uterus, as well as those that come from lacerations involving the large vessels, is the tamponade of the uterovaginal tract. The writer must express gratitude to Dührssen[6] for having placed in our hands this effective method for meeting a painful emergency. The method may be used when the foregoing ones have not stopped the bleeding definitely, or when the gush of blood is so great that a few moments will jeopardize the patient, and it should be employed in all cases before the woman is exsanguinated; not as a last resort. It is important to save the woman as much blood as possible, because the convalescence is not so tedious, and complications in the puerperium, as heart clot, embolism, fever, not so common. Women often carry the effects of a great loss of blood for years.

The method is simple. The anterior lip of the cervix is grasped with a vulsellum forceps and given to an assistant, the posterior lip being likewise held by the operator. With a long uterine packing forceps, the uterus is packed tightly from the fundus down, with gauze from a jar held near the vulva, or from a roll held in the same hand that holds the posterior lip, in the absence of some one to hold the jar. Three to five yards one yard wide may be used, sterilized, borated, or washed out in iodoform, as preferred. The writer uses plain or borated gauze wrung out of lysol solution.

After packing the uterus the vagina is packed also, using cotton, and tightly. The uterus does not expand and fill up with blood. In two cases, however, a slight oozing took place through the tampon, which, though not dangerous, seemed undesirable and to be avoided if possible, so the writer, acting on a suggestion received somewhere in Vienna, did the following: After packing as much gauze into the uterus as it would hold—three to five yards—the two lips of the cervix were brought together over the tampon, by the vulsella, and sewed together tightly, completely closing up the uterus. In two cases in which this was done the effect was immediate, but as an additional precaution the vagina was also packed. In twenty-

[6] Dührssen; Die Utero-Vaginal Tamponade mit Iodoformgaze bei Postpartum Blutungen. Berliner Klinik, Heft 75.

four to thirty-six hours the vaginal packing was removed, likewise the stitches in the cervix. The uterine tampon was left for another twenty-four hours or two days, when it also was drawn out gently, a little at a time. This is the first time to my knowledge that this operation has been published in this country, and it certainly deserves further trial.

Thus far but little has been said about finding out what causes the hemorrhage, atony or laceration. In the kind of hemorrhages under consideration there is no time for this; to stop the bleeding is the first duty of the attendant. He may at once see where the flow comes from and direct his energies there. If assured that uterine action is deficient, massage, compression of the uterus, a hot, 120F. douche, the use of vinegar, the tampon, may be employed in order, or as may be governed by the urgency of the case, always remembering not to wait with the most efficient means of all—the tamponade—till it is too late.

A cervical laceration should be sewed up, if there is time; if not, one should tampon the whole parturient canal. Ergot is given in all cases, but one should not wait for it or trust to it.

Success in stopping the hemorrhage is defeated if the patient dies of the loss of blood, so that together with the above treatment one must employ measures to combat the anemia. The remedy here is par excellence, .6 per cent. salt solution, either under the skin or injected into a vein; 116 ounces, nearly a gallon, have been injected in a few hours, with the most happy effect. Among the hypodermic stimulants, camphorated oil and strychnin are most worthy of confidence. Ether should be injected only to tide the patient over a dangerous syncope. The foot of the bed should be raised as soon as the patient may be left alone, the body being inclined at an angle of 25 degrees. She should be kept warm by means of external heat and by not being exposed more than is absolutely necessary. Hot coffee, water and wine should be given by mouth, and saline solution per rectum; if the patient is tamponed the bowel will hold two quarts, and it is absorbed with surprising quickness.

By these measures the total amount of the blood can be rapidly brought nearly up to the normal, but if the woman has lost more than one-half of her oxygen carriers, the red blood-corpuscles, she will usually die. It takes weeks and months to replace these. It has often occurred to the writer that human blood ought to be injected into these women, and since the inevitable clotting has heretofore prevented this, why not mix it with saline solution and inject the mixture? Professor Hall of the Northwestern University Medical School, is now experimenting on this suggestion, and as soon as the results on dogs justify it the procedure will be tried on the human. Thus far the experiments have had little success.

In conclusion, the writer desires to briefly report five cases of postpartum hemorrhage exemplifying these modes of treatment:

Case 1.—Mrs. X., observed at the Cook County Hospital, IXpara, O. L. A., in labor 48 hours. In the absence of any disproportion between the head and the pelvis, after complete dilatation, because of weak pains, head not engaged, axis traction forceps were applied. Delivery was accomplished easily, the child living, but immediately after, with the expulsion of the placenta, a great rush of blood almost arterial in color occurred. Prompt, firm compression of the aorta by Dr. A. R. Edwards, assisting, checked the hemorrhage at once, till a hot douche could be prepared, which, combined with external and internal massage, produced uterine contraction. The compression was kept up for about ten minutes without damage, certainly to the benefit of the patient. The uterus even then did not contract well but filled up with clots, which were expelled on the next day, over a pint in amount. The patient recovered slowly from her anemia.

Case 2.—Mrs. S., Italian, observed in the service of the Chicago Lying-in Hospital Dispensary, October, 1896, Xpara, aged 38 years, has had difficult deliveries, the last being operative by the writer, pendulous abdomen, breech extraction. This labor has lasted three days, pains weak, head movable in the inlet, no disproportion between the child and the pelvis, cervix completely dilated but hangs down like a cuff, loosely. Axis traction forceps applied, easy delivery; child slightly asphyxiated but recovered. While attending to this a furious hemorrhage occurred and blood poured out as from a pitcher. The left hand immediately grasped the cervix, the fingers closing it from all sides, while the assistants, Drs. Shanks and Bluhm, forced the uterus sharply down on the hand. While doing this the child was resuscitated by the other hand and soon the uterus gathered itself together into a firm contraction which effectually stopped the hemorrhage. It was only the promptest action that saved this woman's life. A hemorrhage of such severity could not last over thirty seconds and the patient survive.

Case 3.—Miss X., Ipara, aged 21 years, was observed in consultation with Dr. Mattheson, July, 1897; albuminuria, general anasarca, probably a chronic nephritis; O.D.P., slow, tedious, exhausting labor, head rotated to transverse diameter; easy forceps delivery; living child; slight perineal laceration; profuse hemorrhage; placenta expressed by a hard Credé. Hemorrhage continued severe, coming from the uterus, from a deeply lacerated cervix—the cervix had retracted over the head—and from the perineal tear. Two vulsellum forceps were put on the cervix and it was drawn to the vulva, which checked the hemorrhage slightly; then a large perineal retractor was placed in position. Owing to the field being constantly filled with blood it was impossible to see anything, and the blood could not be sponged up quickly enough to see where to pass sutures. Something had to be done quickly. The cervix was pulled down, and then pressed against the large perineal retractor by means of a gauze packing pushed well into the anterior fornix. It was left thus for fifteen minutes, the uterus being closely guarded the while, and then the gauze and vulsella gently removed, great care being taken not to disturb the parts. The bleeding had ceased. The perineum was then repaired and the patient made a slow but good recovery.

Case 4.—Wife of Dr. K., Ipara, aged 22 years; three weeks over time; great abdominal distension; marked panniculus adiposus; labor, December, 1898, lasting thirty-six hours; pains irregular and weak; pelvis normal; child very large; O. L. P., arrest in the transverse diameter, cervix effaced, os size of the palm. An urgent indication for the termination of labor being present, on the part of the mother, the cervix was stretched with the fingers, but, as it tore, it was incised three-quarters of an inch on each side; hemorrhage moderate; forceps, rotation prompt and not forced, cervix retracting easily and gently above the head, which was delivered without difficulty; shoulders gave great trouble; episiotomy; child living, weighing 11¼ pounds; slight bleeding during the third stage, and when the placenta came, eight minutes later, there was quite a gush of blood.

While threading needles for the perineum a furious hemorrhage occurred; blood poured out in a thick stream as from a faucet, and with a rushing noise audible to the bystanders. The cervix was immediately grasped in the manner described and the uterus was massaged and compressed from above, by Dr. Todd; no appreciable effect; two vulsella on the cervix and downward traction; no effect, blood welled out from the cervix in a deep red lake. One bleeding artery could be caught in the anterior lip of the cervix, but the body of the blood came from the uterus, probably from laceration of some large blood-vessel, but there was no time to hunt for it, so the uterus was packed with gauze, three and one half yards one yard wide being used. Blood still flowed briskly along the tampon in spite of its tightness, so the cervix was sewed together over the gauze, closing the uterus up completely. Now the vagina was perfectly dry, but as an additional precaution, it was also packed lightly.

The patient was severely shocked but recovered after vigorous stimulation. The packing of the uterus and the sewing of the cervix were apparent to all present—life-saving. The gauze and sutures were removed at the end of twenty-four hours; no hemorrhage. The patient had a peculiar run of fever, the diplococcus of pneumonia being found in the lochia, but recovered.

Case 5.—From the service of the Chicago Lying-in Hospital

Dispensary, February, 1899; Xpara, flat, rachitic pelvis, always difficult labors; general state of health poor; shoulder presentation, hemorrhage, partial premature detachment of the placenta; version, extraction, laceration of the lower uterine segment, severe postpartum hemorrhage, which came from the uterine atony as well as from the laceration; manual removal of the placenta, laceration and vagina packed; patient's condition critic, writer summoned; patient still oozing, pulse thready, 80, extreme anemia and shock; gave two quarts of salt solution under the breasts, and after reaction had been partly established the packing was removed. This started a violent arterial hemorrhage from a deep lower uterine segment laceration, which did not stop with any of the means employed till both the uterus and cervix were tightly plugged with gauze. Then there was a slight oozing through the tampon, so the cervix was sewn over the tampon as in the last case, and the vagina also packed tightly, six square yards of gauze being used.

The woman almost died on the table. Nearly two quarts more of salt solution were injected under the skin, the vessels absorbing it greedily. Two quarts were given per rectum and the patient carefully stimulated. She was in a critic condition for four days. At the end of thirty six hours the vaginal packing was removed, also the sutures in the cervix. The bleeding started up again when the gauze in the uterus was disturbed so this was left till the next day, when it came without trouble. The patient had no fever and is just getting up. Her convalescence will be tedious.

The removal of the gauze is an important matter, and one should be well prepared to pack and sew again if necessary. In New York a patient was lost at the time of the removal of the gauze in a case quite similar to the above.

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