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POST-PARTUM HEMORRHAGE:

ITS ETIOLOGY AND MANAGEMENT.

BY

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POST-PARTUM HEMORRHAGE: ITS ETIOLOGY AND MANAGEMENT.

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The physician who, having had an extended practice in the department of obstetrics, has had the experience of a case in which every symptom seemed favorable for a happy and speedy termination of labor, and then suddenly without warning has been confronted with a post-partum hemorrhage which put to the severest test all the resources of his art, his past experience, and his mature judgment, will not fail to regard the subject of such hemorrhage as one at all times worthy of the highest consideration. Among the causes contributing to uterine hemorrhage is the want of tone in the uterine structures. In every such case careful inquiry will almost always reveal the fact that an excessive development of the vascular tissue has encroached upon the normal enlargement of the muscular structures, and thus rendered them weak, inefficient, and incapable of sustaining the shock incident to the parturient process. Taking this view of the subject here presented, the hemorrhage following the expulsion of the fetus will appear to depend more upon the abnormal or pathological processes than upon accidental or mechanical conditions. This view offers an explanation as to the extreme difficulty in effecting or maintaining uterine contraction, notwithstanding the adoption of the most approved means of accomplishing it.

Case I.—Mrs. W., aged thirty-two years, a multipara. Hemorrhage occurred immediately after the birth of twins at full term. The first and second stages of labor were easy and natural, lasting only six hours. The pains, however, were sharp, brisk, with abrupt endings and long pauses between them. There was no hemorrhage until after the birth of the second child, when the utero-placental sinuses failing to contract, hemorrhage sud-

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denly became alarming. The middle and lower segments of the uterine tissue were preternaturally soft and flexible. A limited portion of the fundal segment, however, appeared somewhat thicker and firmer, but the severe strain imposed upon it during the six hours of continuous labor so much exhausted it that it became impossible to bring it into a state of sufficient and permanent contraction. As soon as the hemorrhage became alarming my friend Dr. A. L. Norris arrived.

For a while it appeared that the patient would be saved. Full doses of ergotine, of opiates, and stimulants were given. Supra-pubic pressure and regular massaging were employed, also intra-uterine applications of hot water, cold water, and even ice, were tried; and tampons filling the vagina and the uterine cavity were also employed. These, instead of promoting uterine contractions, appeared to retard them. Electricity was also resorted to. Other methods of procedure were ventured upon, but they did not produce permanent contraction or arrest of hemorrhage. The patient speedily sank and died from the effect of the profuse hemorrhage.

Case II.—Mrs. R., aged thirty-four years, also a multipara; the first and second stages of labor were not unnatural, except each pain appeared marked by acute beginning with an abrupt ending and a pause noticeably long before the occurrence of another pain. As soon, however, as the placenta began to descend, a most profuse and alarming hemorrhage ensued; the patient quickly fainted and had an ashen, deathly paleness. Every effort was made for her relief; she died within twenty minutes from the first occurrence of the hemorrhage. At the autopsy, the vascular structures of the uterus were found unusually developed, while the muscular portions were weak and soft, and in many places showed only a rudimentary or a partially developed condition.

These two cases occurred in my earlier practice; since then I have been on careful watch for unusual occurrences and surprises, but have scarcely met with a case presenting such peculiar pathological conditions of uterine development. Undoubtedly, in a large percentage of the cases an atonic condition of the uterus exercises a most influential part in inducing post-partum hemorrhage. In all such cases there must be what the old masters used to term want of irritability and contractility in the muscular tissue of that organ. Excessive engorgement of the uterine vessels is often attendant on a deficiency of growth and of expansion of the normal textures during gestation. There is always a complex interlacing of the oblique fibres of the middle layer of the uterine muscular coat. This intermediate layer is essentially formed of flat bundles of transverse muscular fibres, also of longitudinal and oblique ones. In the midst of these are plexuses of large

veins. The veins through the medium of the capillaries are in direct communication with arteries and arterioles. The longitudinal fibres of the external and internal portions during pregnancy are at best but exceedingly thin and slender. The transverse fibres of these two layers are somewhat thicker and stronger but are largely distributed toward the Fallopian tubes and their immediate vicinity, and also toward the uterine cervix. Unfortunately, however, they do not afford much direct support to the central portions of the uterus.

In the cases in which the uterine vascular tissue is preternaturally developed, and in which the mucous glands and follicles are much increased, the evolution of the central planes of the muscular structures becomes encroached upon. They, therefore, present but a deficient and feeble development. Indeed, all the elementary cells entering into the formation of the muscular coat become more fusiform, their oval nuclei do not have the requisite length; the fibre-cells appear but partially formed or immature, and their whole structure microscopically becomes commingled with abnormal or perverted tissues of an adventitious character. A case illustrating in some measure deficient development of the central uterine muscular tissue occurred recently in my practice:

CASE III.—Mrs. O., aged twenty-one years; second labor. The history of the patient showed that during her first confinement, which was also at full term, there was troublesome post-partum hemorrhage. At the time I was called I found that the os and cervix had undergone dilatation, and that the head of the fetus had entered the pelvic brim. The presentation was occipito-anterior. Finding that pains were becoming inefficient and that the equatorial segments of the uterine structures were thin, soft, and incapable of sustaining prolonged efforts at propulsion, I administered ether and effected delivery by the application of the long forceps. Gentle pressure and methodical massaging of the fundal portions aided in accomplishing easy and safe expulsion of the secundines. The vessels of the fundus were large and tortuous. The funis was above the normal size, but its length scarcely exceeded seventeen inches. Hemorrhage soon followed, necessitating continued pressure over the fundus uteri, and the application of a firm bandage, and the introduction of intra-uterine tampons of iodoform gauze and wool. The central uterine walls, anteriorly, were found to be thin and distended. They were similar in deficiency of development to the tissues found in a case of a woman to which I was hurriedly called, who had sustained spontaneous rupture of the uterus in labor. The hemorrhage, at the

time, was controlled. Some ten hours later the uterine walls relaxed and a brisk hemorrhage ensued. A resort to the same means for controlling the hemorrhage finally checked it altogether.

In this connection I might incidentally remark that in some cases of uterine inertia, and also in post-partum hemorrhage, forcible compression or friction for aiding in the accomplishment of more active uterine contraction may be attended with serious results. A resort to such vigorous measures may lacerate or rupture the attenuated muscular planes and the plexuses of veins and arteries with which they are often so plentifully interlaced. The site or location of the placental attachment exercises an influence in restraining or in producing hemorrhage. If the attachment is at the fundus, the hemorrhage may be but trifling. Sometimes ectasis of the fundal vessels, sometimes certain lesions, and sometimes solid edema of the parts induced by perverted secretion or by inflammatory changes may prevent immediate contraction, and thus give rise to troublesome or profuse hemorrhage. When the attachment is at the fundal segment and the structures in the vicinity are otherwise normal, there may be immediate and permanent closure of all the sinuses with scarcely any loss of blood. If the attachment is at the lower uterine segment, the thick and unyielding condition of the textures induced by inflammatory and other changes incident to the cervical portion, may materially interfere with the tonic contraction necessary to prevent occurrence of hemorrhage at this part. The size of the placenta and its area of attachment are not unimportant factors for consideration in post-partum hemorrhage.

A placenta may be thick and bulky and yet its diameter may scarcely attain to that of a normal one. In such a case the expulsion of the placenta may follow almost immediately on the birth of the fetus without the occurrence of excessive hemorrhage. In another case the depth of the placenta may be much less than normal and yet its area of attachment may be very extended. In such a case, to which I was once called, the placenta appeared as flat as a pancake; its vessels appeared small and insignificant, yet the uterine sinuses were so open, distended, and deep, that the normal uterine contractions exercised over them for some time only partial control. In

addition to the normal features of the placenta, there may be a proliferation of the placental vessels, constituting an extra or supplementary lobe. The retention of such a mass even after the placenta has been expelled, may give rise to profuse hemorrhage. I have notes of a case to which I was once hurriedly called, in which there had been only a partial separation and expulsion of the placenta. On collecting the detached parts that had been expelled, and washing and placing them on a clean surface, it was discovered that the placenta was cotyledonous; that is, the several cotyledons appearing on the uterine surface were continuous through the mass of the placenta to its fetal surface. The medium or union of connection between the several lobes was very fragile. It was found necessary to administer again an anesthetic and to employ the curette in accomplishing the removal of the retained portions of the placental mass. After that there was no further troublesome hemorrhage. Undue length of the funis may be productive of post-partum hemorrhage. In the case in which hemorrhage from this cause occurs, the funis is usually found coiled about the neck, body, or about one or more of the fetal extremities.

Case IV.—Not long since I was called in consultation where there had been some hemorrhage and a peculiar sensation at the anterior and fundal portions of the uterus. The cervix was well dilated and the head of the child had entered the pelvic brim, but made no further descent. Forceps was applied. As soon as the child emerged from the vulva the placenta followed. The funis was found coiled round the neck and body of the child, leaving less than ten inches of the funis free between the child and the centre of the placental mass. The most remarkable thing about the case was that there was a knot in the funis seven inches from the umbilicus. The knot was not tight; respiration was established before the knot tightened so as to arrest circulation. The hemorrhage which followed was profuse; the patient suddenly became pale and fainted. By the use of nitrite of amyl, tincture of opium, stimulants, supra-pubic pressure, and of a firm binder, and the intra-uterine irrigation of hot and cold water, the hemorrhage was brought under control.

The cause of the hemorrhage was evidently a too rapid separation and expulsion of the placenta from the undue shortness of the disengaged section of the cord.

Other factors sufficient to give rise to hemorrhage might

be here enumerated. Post-partum hemorrhage may be dependent upon some form of laceration extending into the vaginal or vulval canal. In one case to which I was called, I found a laceration extending to the upper portion of the vulva, including the artery at the base of the clitoris. The application of aseptic animal sutures to the torn structures effectually arrested the hemorrhage. The presence of uterine fibroids or morbid growths may be an exciting cause of hemorrhage. Retained placenta from adhesions between the serous and muscular coats of the uterus, either in whole or in part, may give rise to profuse hemorrhage. So, also, may placenta previa, whether it be of central or marginal implantation. The same is true in cases of retention of the placenta after abortion occurring at any period of utero-gestation. Irregular or hour-glass contraction of the uterus may be a prolific source of post-partum hemorrhage. The late Dr. Fordyce Barker[1] mentioned cardiac disease as prominent among the causes. He, therefore, expressed his preference for chloroform in obstetric practice.

There can be no question that not only chloroform, but also sulphuric ether, is capable of conserving the nerve force and of preventing exhaustion and uterine inertia. There is, I believe, still much misapprehension on the part of some accoucheurs in reference to the advisability of using anesthetics in cases in which there are affections of the heart, lungs, and of other important organs. My own experience and observation when anesthetics are judiciously used, fully justify me in making the statement that they are of incalculable benefit in lessening many of the dangers incident to the parturient process, and particularly in cases of uterine inertia dependent on the exhaustion of the system generally. In cases of advanced or serious renal affection, chloroform may be the safer of the two anesthetics.

On this point, however, I will not enter into a further discussion, for I am not unaware that I have already ventured to walk upon that forbidden ground from which "I would fain keep aloof." Atony and deficiency of the uterine muscular

[1] Braithwaite's Retrospect. Part 95.

tissue are likely to occur in women who have borne several children. Frequent dilatation and expansion of the uterine walls interfere with the normal nutrition of the muscular fibres, rendering them weak and susceptible of being easily overcome by the parturient process, especially in cases of lingering labor, or in cases in which instrumental interference has been too long deferred. I have been called to cases of excessive hemorrhage which appeared to be due solely to coagula or to fibrinous masses of blood which had not been expelled but had been allowed to remain. Notwithstanding there may have been a preternatural activity of some of the uterine fibres, hemorrhage has followed and has been the source of much alarm. In every such case, after the removal of the retained clots, hemorrhage has ceased, the cavity of the uterus closed, and the patient has been relieved of the distressing symptoms. It is, indeed, surprising to observe how much disturbance and even ultimate mischief a few small coagula may occasion, and what marked, sudden, and permanent relief may be afforded by their thorough removal.

Post-partum hemorrhage is especially apt to occur in cases of women who are of "relaxed habit," or in those who belong to that class of persons termed "bleeders." Mrs. W. and also Mrs. R., who died of uterine hemorrhage, as mentioned in this paper, had the history of belonging to this class. Mrs. W. had suffered in her previous labors from hemorrhage; her mother had frequently suffered from hemorrhage. The same was true in regard to Mrs. R.

In the *Boston Medical and Surgical Journal*,[1] Dr. Horace Thurston reports a case of post-partum hemorrhage, in which the patient died in forty-five minutes from the attack. In her first confinement, twenty months previous, she narrowly escaped with her life from flooding. Her mother suffered from excessive flooding in seven successive labors, and was barely saved from the exhaustion due to loss of blood occurring in one of them.

Locations of great altitude are sometimes the exciting or predisposing cause of hemorrhage. A friend of mine who has

[1] Vol. lv., 1857.

had an extended practice in obstetrics in a section of the high tablelands of this country, has noticed this peculiarity. In India post-partum hemorrhage is of more frequent occurrence, it is said, than in England. Another cause of hemorrhage after the expulsion of the placenta, is the speedy occurrence of the birth of the fetus after the rupture of the membranes and evacuation of the liquor amnii.

For a prophylactic against the occurrence of hemorrhage, it is safe to encourage the evacuation of the waters before the final expulsion of the child through the vulval or vaginal outlet. Pressure or support over the fundal uterine segment as the child recedes from it, will greatly aid in keeping up continuous or regular uterine contraction, and thus lessen the risks of the occurrence of severe hemorrhage. The administration of ergotine and ergotinine will assist in reëstablishing normal contraction. Hypodermatic injections of ergotinine should be used after the expulsion of the placenta. As a prophylactic in cases of anticipated hemorrhage, it may be used before the placenta has been expelled. When used hypodermatically its physiological action is often speedily and permanently manifested. The administration of ergot or even ergotinine is more satisfactory in the milder class of cases. In cases in which hemorrhage is profuse, intra-uterine injections will be of most material service. In persons of full or plethoric habit cold water may be employed; in those who suffer from nervous affections or who are chilly, water from 115° F. to 125° F. is to be preferred. In some cases the alternation from hot to cold water will be most beneficial. In two cases, at least, by this method I am confident of having saved life. Doubtless, when hemorrhage is arrested by such employment of hot water, it is owing to the formation of thrombi more or less extended into the vascular tissues on the uterine surface. The employment of cold has a reflex action; it gives a toning effect to all the tissues; it facilitates the constriction of the muscular coat of the dilated vessels.

Caffeine is an agent of great benefit in uterine hemorrhage I have used it in connection with benzoate of soda and distilled or pure water. This may be used hypodermatically. Dilute acetic acid and also common vinegar are useful when employed

externally over the abdomen, in stimulating to action the nervules, and in hastening contraction of the arterioles. Stimulants should always be at hand. The application of some form of electricity will aid in some measure in promoting contraction of the uterine muscular fibres.

In cases in which hemorrhage is anticipated, the early administration of quinine may in a large measure serve to keep the hemorrhage under control. The occurrence of certain pains may, as already stated, lead us to anticipate post-partum hemorrhage. If the pains are acute and brisk, with abrupt ending, and followed by unusually long pauses, we may infer that there is a deficiency of nerve force. This may lead to atony of the muscular structures and to failure to effect contraction of the uterus and closure of the utero-placental vessels. Dr. F. H. Davenport[1] reports a case in which he attributes the less profuse post-partum hemorrhage to the use of quinine two and three hours before the birth, ergot as soon as the os was fully dilated, and the alternate application of heat and cold to the uterus. In each of the patient's two previous confinements, according to her history, she came near dying of uterine hemorrhage. In cases in which hemorrhage proceeds from the lower section of the uterus, or from the upper portion of the cervix, the application of iodoform wool and gauze and of styptics or of iodine, will be of service. I have great confidence in the employment of nitrite of amyl; it is an arterial and cardiac stimulant of the most extraordinary power.

Another method for consideration is the resort to intra-venous injection or transfusion. The advisability of its employment and the dangers attending its use, are matters for determination in each individual case.

I might here add, that resort to alcoholic intra-venous injections for their dynamic or tension effect will often be found most beneficial. My early experience with the employment of intra-venous injections was in cases of epidemic Asiatic cholera, and in cases of great hemorrhage from gunshot wounds occurring during an extended service in the late war

[1] Boston Medical and Surgical Journal, vol. cxiii.

of the Rebellion. My later experience favors adoption of the method of hypodermatic injection or transfusion of spiritous saline solutions. This method, which is applicable in other cases in which there has been great loss of blood, is more convenient, is safer and is more likely to be followed by favorable results.

Other methods adopted for controlling hemorrhage have been found in tamponading the vagina and cervix, in the employment of elastic pressure, in the use of ether spray externally, in full doses of opiates and in the use of stimulants, in the local use of injections of iron alum, of perchloride of iron, in the administration of emetics to excite vomiting that through the vascular sympathy between the uterus and the stomach there may be set up firm uterine contraction. Some recommend for overcoming hemorrhage to put the child to the breast at the earliest moment. My own experience is particularly favorable to this last-mentioned practice.

Compression of the abdominal aorta may be tried. This may, in some measure, for a short time, give us control over the hemorrhage by saving the last of the vital current which would otherwise flow out. By this means we may be enabled ultimately to save the patient when all other means have failed us. For the approval of this procedure we have the high authority of Barnes, Churchill, Caseau, Chailly, and of Simpson, as well as many of the older writers, including French and German authors. Ploucquet and Saxtorph were advocates of this practice. My teacher, the late Dr. D. Humphreys Storer, used to emphasize the importance of making compression of the abdominal aorta in the final endeavor to prevent such loss of blood.