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PLACENTA PREVIA, ITS CAUSES, DIAGNOSIS, AND TREAT-  
MENT; WITH THREE CASES, ALL MOTHERS AND  
TWO CHILDREN SAVED.<sup>1</sup>

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PLACENTA previa is that condition in which the placenta is abnormally implanted into the lower segment of the uterus, involving the cervix wholly or in part only. When the placenta covers a portion or part of the cavum cervicis uteri, there is placenta previa partialis or lateralis; whilst if the whole circumference of the cervix is involved the implantation is a "placenta previa centralis" or "totalis." In central implantation, the placenta is generally also very adherent to the sub-

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presented by the author -

jacent uterine tissues. Rigby's "unavoidable hemorrhage" is frequently applied synonymously to placenta previa. Partial implantation is infinitely less dangerous to both mother and child than central implantation; in the latter case the fetus is invariably lost and the mother in great danger of death by flooding. In "lateralis," there may be little if any danger from hemorrhage during pregnancy, and labor, even, may be practically normal. In "central implantation," the danger of hemorrhage is a standing menace from the period the lower uterine segment begins to develop, increases with the advancing gestation, and reaches its climax during the first active labor pains.

Placenta previa was first described by Paul Portal in 1685; six of his cases were "central implantations" and were adherent throughout. Five years later (in 1690) Frau Sigmundin, a midwife to the court of Brandenburg, advised "puncture of the membranes"; and nearly a century later Wenzel invented a stylet with a silver canula to draw off the liquor amnii. About the same time Bunsen recommended partial separation of the abnormally situated placenta, and Puzos taught how to dilate the os uteri gradually and intermittently with the fingers to induce labor pains. Trinichetti suggested total separation of the placenta in severe hemorrhage, to check the loss of blood (Milan, 1817, *Bibliot. Ital.*, tom. v., No. xlv., February); and Sir J. Y. Simpson applied it to, and executed the suggestion in, placenta previa. In 1761 podalic version was applied by Levret; and in 1776 another Frenchman, Leroix, introduced the tampon, while Moreau peeled a lemon and used it for a tampon. Wiegand, of Hamburg, became the warm defender of the tampon in 1808, since which period the tampon is universally applied and used by the obstetrician in divers modifications, as the colpeurynter, water bags, tents of various substances, etc.

Various views have been enumerated as probable causes of placenta previa. An arrested abortion may produce "previa" if the dislodged ovum find a resting place in the inferior uterine segment near the internal os. Placental implantation anywhere in the lower segment of the womb is abnormal—placenta previa. Sawyer's theory of rotation of the ovum during the first few weeks of pregnancy may become a fruitful cause of

previa in one of its forms (AM. JOUR. OBSTET., 1889, page 1077). According to Reamy, coitus postponed to the fifteenth or sixteenth day *post menses* is liable to be followed by previa if pregnancy result (AM. JOUR. OBSTET., 1889, page 543). Hofmeier theorizes that placenta previa is placenta developed within the decidua reflexa of the inferior pole of the ovum, whose most frequent cause is corporeal endometritis. This theory appears to have been demonstrated by Kaltenbach in a case of carcinoma of the cervix involving a womb in the fourth month of gestation (*Centralbl. f. Gynäkol.*, No. 40, 1889). The underlying pathological conditions producing leucorrhœa, etc., alter the uterine mucosa, destroy its texture, and, instead of the velvety covering, the internal surface of the uterine body is coated with glairy mucus or muco-pus, which hinders the impregnated ovum from getting a nest in the upper uterine zone; hence it falls or migrates downward, and is either lost or causes a previa. A similar result may be caused from flabby uterine walls (Siebold), enlarged *cavum uteri*; and age and hereditary predisposition (Kleinwächter) are also charged with contributing to the genesis of previa. I know of a family in whom the grandmother, mother, and two daughters had placenta previa, and each of them suffered severe flooding. In young primiparæ previa is relatively rare, but becomes more common as they advance in years. The largest number and greatest percentage are furnished by multiparæ. In Lauer's collection of 136 cases of previa, 60 per cent of the women had been pregnant five or more times, while only 8 per cent were among the primiparæ. Longaker's case of previa in two consecutive pregnancies (AM. JOUR. OBSTET., vol. xxii., 639) is eclipsed by Fitzpatrick's patient, who had previa in five successive gestations (*Lancet*, 14; *Le Bulletin Médical*, 1889, page 1510).

In 16,414 cases of labor Collins found placenta previa 11 times—that is, 1 in every 1,310 accouchements. There were 46,000 cases of labor in Berlin in one year, and according to Lauer 65 of them were previa—that is, 1:723. Kleinwächter estimates the frequency at 1:800 or 1,000, but other authorities give a much smaller ratio.

Aside from the danger of hemorrhage in the later months, previa may be the causal factor of an abortion (Hofmann,

“Gerichtliche Medizin”), in the earlier months of pregnancy, from interplacental hemorrhage, or from fatty or calcareous placental degeneration (King, Longaker, and others).

In labor, premature or at term, there may be, and often is, serious interference to the parturient function from prolapse of the funis, from too short a cord; and, especially in negro women, from intramural fibroids (Brown, *AM. JOUR. OBSTET.*, vol. x., 39; Morris, l. c., xix., 312), from myoma<sup>1</sup> (Chadwick), from carcinoma (Kleinwächter), from laceration or fissure of the cervix (Leopold), from great distention of the womb; or contraction of the fundus uteri may seriously check or abolish the force of the labor pains (Olshausen); and twins, especially if there be only one placenta, are complications that may jeopardize the mother's life. There may be a serious obstacle to labor in central implantation of the placenta, as in Mundé's case, in which the placenta centralis was an impediment, although it was minus a cord, the cord being attached to a second placenta situated on the left side above the cervix (*AM. JOUR. OBSTET.*, vol. xv., 629 et seq.). The placenta may be spread or expanded over the entire ovum (Bartlett, l. c., xix., 851), or the placenta in twin pregnancy may be fused (Hofmeier, l. c., xxi., 1104; in the specimen the twins were not separated by membranes, the fetuses were surrounded with blood), not only offering obstructions to labor, but inclining to hemorrhage at the same time. In totalis, with general adhesions of the placenta, hemorrhage will be very severe (Morrill, l. c., xx., 619). In twins with double placenta, the hemorrhage may become severe, and one or both may die (Hanks, l. c., xviii., 948). Hydrocephalus would require puncture of the child's cranium to remove the fluid and collapse the skull; and in spina bifida complicating placenta previa, Mackinnon tore through the coverings of the cyst and delivered the fetus (l. c., xxi., 707).

The many sudden deaths in labor with placenta previa have, I believe, been generally attributed to the results following severe hemorrhages, but it appears that the possibility of the entrance of air into the sinuses of the uterus by aspiration has been wholly ignored. The literature being very scanty on the

<sup>1</sup> Hickinbotham also reports a case of previa complicated by a large myoma, upon which the placenta was attached. Perforation, sepsis, recovery (*AM. JOUR. OBSTET.*, xiv., 908).

subject, I have been able to find only two cases—Kramer's and Vavra's—in the references at my command. In Kramer's case of placenta previa centralis, turning had just been completed; a uterine contraction and contraction of the abdominal muscles followed; the patient collapsed and died. "Post-mortem examination revealed the right heart distended with air; in the deeper layers of the decidua the open mouths of veins were seen, through which air had entered. No air was present in the uterine veins; that which entered when the uterine and abdominal contraction relaxed and the blood pressure in the abdominal veins became negative had passed at once into the heart" (*Am. Jour. Med. Sci.*, vol. xevi., 319; *Zeitschr f. Geburtsh.*, Band 14, Heft 2). In Vavra's case of placenta previa (*Centralbl. f. Gyn.*, 1, 1890), the hemorrhage, postpartum, necessitated tamponnade of the uterine cavity, for which iodoform gauze was used. Only a few strips were inserted when cyanosis suddenly came on, respiration ceased, and death followed. The autopsy disclosed air in the veins of the broad ligaments, in both internal spermatic veins, in the inferior vena cava, in the right side of the heart, and in the pulmonary artery. Anemia and pulmonary edema were present (*Am. Jour. Med. Sci.*, 1890, p. 430). We must not forget that air embolism is not an unknown quantity in various surgical conditions, and in parturition in placenta previa the abnormally placed placenta offers an aspiratory tendency which is very remote indeed in normal pregnancy and normal labor.

Hemorrhage may be frequent and alarming, or gestation may progress normally. In lateralis, hemorrhage may be the exception; but the nearer the abnormally situated placenta approaches a centralis or totalis, the greater the danger of hemorrhage, as a rule. So long as the upper segments of the uterus increase in dimensions (Barnes) the danger of flooding is small; but once the cervix begins to develop, it grows more rapidly than the placenta—in fact, grows away from it, to prepare for the parturient function; the placenta in previa is outstripped in growth, and hemorrhage results (Jaquemier). The source of the hemorrhage is laceration of the utero-placental vessels (Hamilton), from the uterine side (Mackenzie), during uterine contractions (Barnes). Matthews Duncan considers this hemorrhage as accidental during the period of gestation,

and as unavoidable when labor has commenced. When the cervix is only partly covered by the placenta, the uninvolved portion may dilate sufficiently to permit passage of the fetus without hemorrhage (Scanzoni); this is, of course, impossible in placenta previa centralis. Duncan estimates the limit of the spontaneous detaching area at 4.5 inches, and Barnes at 6 inches in diameter—sufficiently large to permit birth, or at least extraction. If the placenta becomes separated and is expelled before the child is born, all hemorrhage ceases (Simpson).

In the early months of pregnancy hemorrhage may be caused by fright, fatigue, or excitement; one of the principal causes is perhaps excessive coitus (King and others). Excessive lifting, injuries of various kinds, and even severe straining at stool may induce flooding. At term, excessively strong membranes, the delayed evacuation of the amniotic fluid, a short funis, may directly produce hemorrhage; and the abuse of oxytoxics has caused hemorrhage in placenta previa.

During the first six months of gestation hemorrhage is not so apt to occur as after. When the lower uterine segment takes on rapid growth, the low-down placenta is a formidable menace and an ever-increasing danger as pregnancy approaches its close. Labor begun, the hemorrhage is most severe during the pains, and subsides somewhat in their intervals. Death may be sudden. A single gush, in the hemorrhage of previa, may collapse or exsanguinate the patient.

In the early months of pregnancy a diagnosis of placenta previa is almost impossible. The first warning is a hemorrhage. This hemorrhage comes unexpectedly, may be much or little, and may recur at longer or shorter intervals. However, this bleeding must not be confounded with a flow which recurs monthly in some instances, lasts from a few hours to a week, and is, apparently, a menstrual anomaly during the course of gestation. I have observed ten such cases in fourteen years. There was no abnormality in any case, the placenta was not in the lower segment in any one of them, pregnancy was normal in all, and labor was normal in each. The occasional oozing from the softened cervical mucosa should not be confounded with the hemorrhage from previa. In the former case the "show" will be very light, while in the

latter there will be considerable loss of blood. Varicose veins of the vagina may suddenly burst and thus simulate the hemorrhage of previa.<sup>1</sup> Fatigue and excitement rarely induce hemorrhage in normal pregnancy, and frequently cause flooding in previa.

Ballotement is useless in placenta previa (Gendrin). The cervix may be very long (three inches in Galabin's case) and rigid (*Med. News*, January, 1877). The location of the placental bruit will leave no doubt in the examiner's mind; it may be discovered by using a long, curved wooden stethoscope in the vagina, as suggested by Wallace and ridiculed (?) by Verardini. The auscultation of the abdomen will aid the diagnosis by exclusion, or by absence of the usual sounds in the upper uterine zones.

The belly is said to be less prominent in previa than in normal pregnancy. The head of the fetus is higher up. In thin persons palpation will reveal absence of the placenta in the upper and middle uterine zones (Meigs). Spencer made a diagnosis of previa in seven cases by external palpation of the abdomen; the diagnosis was subsequently verified (*Trans. London Obstet.*, vol. 31, 1889). Palpation is not difficult, but is useless in very fleshy abdominal walls. No anesthetic is required. The examination must be made in absence of pains; it must be gentle; it may be prolonged or repeated. The patient should lie flat on her back; bladder and rectum must be empty, the abdominal muscles relaxed. When the placenta lies in front of the head, it feels like a spongy or boggy mass between the examining fingers and skull. Its edge feels like the segment of a circle, within which touch is obscured. On the outside of the edge the child's parts can be easily distin-

<sup>1</sup> Benington (*Medical Press*) reports that a woman was subject to sudden, unaccountable hemorrhages, simulating the flooding of placenta previa, in a number of successive pregnancies. On examination of the vaginal tube, the veins were found to be very large and prominent, projecting into the vagina—in other words, they were varicose. Shortly after the examination the patient was taken with a violent hemorrhage. On another and immediate examination the appearances were changed: the veins collapsed, and one of them was ruptured. This rare variety of hemorrhage is mentioned by very few authors (*Le Bulletin Médical*, 1890, page 65). It is highly probable that many of the so-called menstrual periods during pregnancy are derived from the same source.

guished. Impulses to the head are not clearly felt through the placenta, but beyond its area they are distinctly propagated.

Intravaginal examination will reveal an elongated cervix with thickened and softened walls, imparting a spongy sensation to the examining fingers; and if the external os is somewhat patent, the boggy placenta, with its uneven surface and pulsating vessels, may be distinguished. If there was a previous hemorrhage, the coagula present will readily break down under the pressure exerted by the fingers, but the placenta cannot be so impressed.

Extrusion of the placenta before birth of the child is by no means impossible. In one of my cases it was born more than three hours in advance of the child. Barlow, Baudelocque, Chapman, Collins, Merriman, Osiander, Perfect had each one case; La Motte, Lee, Smellie reported 3 cases each; the elder Ramsbotham had 5 cases; Sir J. Y. Simpson collected 141 authentic cases of this kind. The placenta may be born in advance of the child's body, either a few minutes or many hours (eighteen hours in Collins' case). The fetus is, of course, always still-born.

In central implantation, strong pains may force the head through the central portion of the placenta—Portal's twenty-ninth observation. Three pains drove the head through the placenta in White's case; and Inglesby made a similar discovery in an autopsy on a woman dead from hemorrhage in labor.

In partial implantation mother and child fare infinitely better than in central implantation. In centralis the child is invariably dead when born, and the danger to the mother from hemorrhage is very great, especially if she be anemic.<sup>1</sup> Simpson collected 399 cases of placenta previa, of which 134 were fatal, 1:3. In Reade's statistics of 512 cases of turning, 131 died, 1:4. In King's 240 cases with a mothers' mortality of 50, the percentage is 22.50, or 1:5; the children's mortality is 135, or 57.20 per cent (AM. JOUR. OBSTET., vol. xiii., 743 et seq.).

<sup>1</sup> In Loviot's case of placenta centralis in an anemic multipara, version and extraction were done, and the placenta removed without hemorrhage; but the uterine inertia continued, and, although no further bleeding became manifest, death resulted from exhaustion. Stimulation failed. There were no indications of thrombosis (Bull. de la Soc. Obstét. de Paris, 7, 1889; also an abstract in Am. Jour. Med. Sci., March, 1890).

Churchill's estimate is 1:3; Barnes' is 1:10.4. In Lomer's collection of 178 cases treated by prompt delivery, the mortality is only 4.5 per cent for the mothers.<sup>1</sup> Le Page saved all of his 21 cases by prompt artificial separation of the placenta from the lower uterine zone. Obermann treated 15 cases in private practice by version and slow extraction, using the child as a tampon; all recovered.<sup>2</sup> He objects to the expectant method, and to prove his assertion presents the following figures from Credé's clinic: 64 cases of previa, of which 7 mothers and 34 children perished. These 64 cases were divided into two groups: First group, 49 cases (one of which was moribund when brought to the hospital) were delivered by combined version and slow extraction, with a mothers' mortality of 2.1 per cent and a fetal death rate of 62.5 per cent, or 30 children. Second group, 15 cases, not delivered the same way, gave a mothers' mortality of 5, or 33.33 per cent; children's death rate 4, or 26.6 per cent. In the first group, 17 of the 48 children were born before the seventh month, hence were very immature; leaving these out, their mortality is 42 per cent. On the other hand, Nordmann leans toward expectancy, and bases his conclusions on data derived from Leopold's clinic: 45 cases, divided into three groups, as follows: First, 15 cases treated by colpeurynter and spontaneous delivery; all mothers saved, and children's mortality is 16.6 per cent. Second, 23 cases, foot brought down and child immediately extracted: 4 mothers died, or 17.3 per cent, and the children's mortality is only 5.8 per cent. Third, 6 cases, version; a foot being brought down, the case was left to Nature or subsequent extraction; two mothers and all children perished. In induced premature labor, the mothers' mortality, according to Byford, is only 1 death in 53 or 54 cases, and two-thirds of the children may be saved.

Some of the first questions that demand an immediate answer at the first visit to a case of previa are: Will this hemorrhage be dangerous to the patient? Will it be a continuous

<sup>1</sup> Lomer's tables contain Hofmeier's 37 cases with one death; Behm's 40 cases, no deaths; his own 101 cases with 7 deaths, or 178 cases with 8 deaths, or a mortality of 4.5 per cent. His paper appeared in the *AM. JOUR. OBSTET.* some years ago, and is worth a careful perusal.

<sup>2</sup> The statistics of Obermann from Credé's clinic in Leipzig are in abstract in the *AM. JOUR. OBSTET.*, vol. xxi., page 780; Nordmann's figures from Leopold's Dresden clinic will be found on the same page.

menace and jeopardize her life? Shall gestation continue in its course? or shall labor be induced prematurely (Greenhalgh) in this case; and if so, shall *accouchement forcé* be practised (as first suggested by Guillemeau)?

When the hemorrhage is slight or infrequent, an effort should be made to overcome the danger and guide the patient safely through until the end of pregnancy. Quietude, the horizontal position on the back, simple but easily digested and nourishing food, easy stools and unconstrained micturition, are among the first essentials in the treatment of the dangers of placenta previa. Excitement, fatigue, and exposure must be avoided. Cold drinks acidulated with dilute phosphoric, hydrochloric, plain or aromatic sulphuric acid, made into a lemonade with sugar and water, will be useful to allay thirst and check hemorrhage. The juice of both lemon and lime may be allowed in lemonades. Grapes and fruits may be allowed *ad libitum*. Nuts must be interdicted. When required, exhibit opium *pro re nata* to quiet irritation, and ergot in small doses (Dubois), or some other oxytotoxic, to check hemorrhage.<sup>1</sup> The cinchona salts are useful only in malarial intoxication. Very cold compresses applied to the lower portion of the abdomen quickly stopped the hemorrhage in one of my cases. The hands immersed in very hot water almost instantly checked the hemorrhage in one of Baudelocque's cases. Sinapisms to the back (Velpeau), cups applied above or below the nipples, between the shoulders, or over the loins, have been useful in checking hemorrhage. Electricity, both faradic and galvanic, has been successfully employed to check bleeding. If anemia result from the hemorrhage, wine and analeptics will be in order. Plenty of good beefsteak, served to suit the patient's taste, is frequently more valuable to restore the waning vitality than drugs. Some of my patients have eaten from two to four pounds daily for weeks at a time, with the most satisfactory results. Milk and eggs are very useful. But anything in the line of foods that cause flatulence or constipation must be excluded from the diet. Coffee and tea should be sparingly used, and if they cause nervousness, inter-

<sup>1</sup> Petresco accords *Bryonia alba* hemostatic powers equal to ergot or hamamelis, and prefers to use its most energetic glucoside, "bréine" (Jour. Méd. de Paris, 1890, page 21).

dicted. Cocoa and chocolate may be allowed in moderate quantities.

If ordinary means fail to control the hemorrhage, tamponing may be resorted to. But in all operations or manipulations that may be necessary, two short but very important rules should be rigidly adhered to and carried out: first, avoid shock; second, be absolutely clean and aseptic.

A vaginal tampon alone will be of very limited use; cervical tamponnade is essentially necessary to check hemorrhage and induce labor pains. Quickly dilating substances are necessary. Sponge tents must be used with care. Barnes' series of dilators are easily applied or placed in position, and then distended with hot or cold water, etc., thus checking hemorrhage and dilating the os at the same time. Metallic dilators are worse than useless in placenta previa. Dexterity and gentleness are required in the manipulations to avoid eclamptic spasms and prevent unnecessary injury to the cervix. If the cervix is fissured or the seat of an old laceration, the utmost care will be necessary to prevent rupture of the womb in very low placental implantation.

The vaginal tampon may be constructed from cotton, jute, tow, wool, or strips of gauze, and may be charged with antiseptics, alum, or tannin. Vinegar, recommended more than a century ago, and lately so highly extolled by Goodell, is a powerful hemostatic that served me well in one of my cases twelve years ago. Instead of the vaginal tampon, large rubber bags may be used, distended with hot, cold, or ice water. Ice, or ice and salt mixed, will check hemorrhage by the cold produced. Hot or cold water injected into the vagina or thrown against the os will increase the pains and cause contraction of the blood vessels. In severe or continued bleeding, ice-bags placed on the abdomen above the pubes will materially aid the tamponnade in stopping the hemorrhage.

Let it be understood here that two lives are at stake; that the child's depends on the least disturbance of the placental circulation; and that the mother's hangs in the balance, by a hair, as it were. Her danger from hemorrhage is great. Save both, if possible, but the greatest effort must be made to save the mother.

If hemorrhage be severe, or alarming, or uncontrollable,

labor must be induced at once artificially. If pains have manifested themselves, the liquor amnii should be drawn off by passing a tube or catheter through the placenta or between it and the cervix; the membranes may be ruptured also, and the fingers used *à la Puzos* to increase the force of the pains and dilate the os sufficiently to effect delivery. The separation of the placenta in centralis has led to convulsions in artificial dilatation of the os (Hinton, *Med. and Surg. Reporter*, vol. xxxv., 457); hence all needless irritation should be avoided. Remember, in totalis there is no time to lose!

If the os is dilated or dilatable, and there is no hemorrhage, let labor take its course, but be prepared for emergencies. If urgency be demanded, follow Tyler Smith's advice—to turn is the operation in placenta previa. If the placenta is in the way, peel up a portion of it to get room for seizing and bringing down the feet (Barnes). Do not pass the hand through the placenta, because it increases the hemorrhage; the danger of flooding must be repressed, not encouraged. If the oozing continues and uterine contractions are feeble, the contents of the uterus may be pressed down to check the hemorrhage (Burge, *N. Y. Med. Jour.*) and improve the pains. The child's body is a living tampon that will check all hemorrhage so long as it compresses the bleeding surfaces, without endangering the maternal parts by irritation or by septic infection.

In the following conditions the placenta should be separated and delivered before the child is born: first, in severe or excessive hemorrhage when the fetus is not yet viable or is dead; second, in exhausting hemorrhage when the os is insufficiently dilated; third, when the liquor amnii is evacuated and fails to expedite labor; fourth, in contracted pelvis; fifth, when the uterus is too firmly contracted to permit version; sixth, in exhaustion of the mother (Simpson, "Select Obstetric Works"; "Encyc. Sci. and Art of Obstetrics").

If, after birth of the child, the placenta is removed, and hemorrhage persists because the uterus does not contract, or contracts imperfectly, and the usual methods have failed to induce healthy action, introduce a sponge saturated with dilute acetic acid or vinegar into the cavum uteri, and knead the uterine walls between the hand in its cavity and the

other hand externally, to produce contractions of the womb. Duehrssen alludes to seventy-nine cases of puerperal bleeding of great severity in which the uterus was tamponed with iodoform gauze, and the hemorrhage was promptly checked. Not a case was lost. The hemorrhage should be controlled, however, before the patient is exsanguinated, by prompt tamponade of the uterine cavity (*Berliner Klin. Wochenschrift*, No. 44, 1889). Invert the patient, *i.e.*, let her lie on the back, with the head lower than the pelvis; for, according to certain natural laws, water cannot flow up hill, neither can blood. If the preceding measures fail to stop the hemorrhage, there is one left that will be successful—compression of the abdominal aorta. My friend Dr. N. Senn has applied it ~~for~~ <sup>ago</sup> twenty years with satisfactory results. La Torre and Misrachi have both successfully treated the hemorrhage of placenta previa with remarkable results by compressing the aorta abdominalis (*Nouvelles Archives d'Obstétrique et de Gynécologie*, Avril et Octobre, 1889).

In threatening heart failure from the loss of blood, diffusible stimulants, such as ether, musk, amyl nitrite, aromatic spirits of ammonia, alcohol, whiskey, etc., may be exhibited internally, but the best and most certain way is to inject them under the skin. Caffeine is a powerful stimulant to both heart and brain (Coppola, *La Medicina Contemporanea*, 1886). This remedy may be employed hypodermatically in doses of one, two, or three grains. Finally, injections of saline solution deep into the tissues, or infused into the veins,<sup>1</sup> may be tried with a hope of success. These saline solutions are easily prepared and used anywhere, at any time or place, and do not require experts or trained assistants. The following is Miculicz' saline solution :

Sodii Chlor.....	6
Sod. Bicarb ..	1
Aq. destil.....	1,000

M. S. Inject from one to three pints at a temperature of 100° F.

Infusion of defibrinated blood may be resorted to, but is not

<sup>1</sup> Harrington courageously saved his patient, in whom an ante-partum separation of the placenta had caused an almost fatal hemorrhage, by infusing sixty-six ounces of saline solution (*AM. JOUR. OBSTETRICS*, xix., 553; *Boston Medical and Surgical Journal*).

without danger, and direct blood transfusion is mentioned only to be condemned as impracticable and dangerous.

My own experience with placenta previa is limited to three cases. In one of them the awful gush of blood frightened me, but by quick work I saved both mother and child. In one case, a centralis, the expulsion of the placenta hours before birth of the child in all probability saved the mother from fatal hemorrhage, with very little to spare. One of the cases was very puzzling at first and annoying afterward. They are briefly told as follows:

I. This was a IIpara. She was in charge of a midwife. When I arrived the floor and bedding were saturated with blood. The patient was in collapse, bloodless, and appeared to be dead. The heart action was very feeble indeed. The placenta lay between the thighs of the parturienta, and had been born more than three hours, I was told. The hemorrhage had ceased altogether. There were no pains whatever. The head was too high up for forceps delivery. In the relaxed condition of the patient version was easily done. The manipulations produced no pains whatever, and delivery was not difficult. The child, a female, weighed six and one-half pounds. It was a "centralis." The mother rallied and made a slow but perfect recovery. She subsequently had two normal pregnancies, and the children were both born alive in normal labor.

II. This was a IIIpara. The first indication of the presence of placenta previa was a severe hemorrhage, following previous excitement, in the seventh month of pregnancy. It was a "partialis," involving about two-fifths of the cervix on the left side and posteriorly. The hemorrhage was checked by quietude on the back in an exaggerated horizontal position. The diet consisted of nourishing and easily assimilable food. The second hemorrhage, in the beginning of the ninth month, was severe but brief in duration. The treatment was ergot and opium in small doses, acidulated drinks, and an inverted position in which the patient was kept on her back for three days. The hemorrhage stopped and the patient went to term without further mishap. Labor was practically normal; the hemorrhage during active labor pains was very light. Both mother and child well a year later.

III. This was a primipara. The first six months of pregnancy presented each a flow of blood lasting from two to three days, seeming to be an ordinary, painless menstrual period. Nothing was done to stop the flow. In the seventh month the hemor-

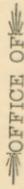
rhage became very severe, but was checked by cold applications to the abdomen, acid drinks, and quiet in the inverted position. The diet was plain, nutritious, and easily digestible. The bowels were kept soluble. Fatigue, excitement, and labor were interdicted. The eighth and nine months were repetitions of the seventh. The implantation was a right lateral, involving about one-half of the cervix. The patient went to term. The first active labor pains started the hemorrhage.<sup>1</sup> The uninvolved portion of the cervix—the os externum—was soft, and, with the assistance of my fingers *à la Puzos*, the dilatation was soon sufficiently large to permit me to apply my long Hodge forceps to the head at the brim and deliver quickly. A frightful gush of blood followed the child's body. The placenta was quickly separated and removed, and the clots turned out of the non-contracting womb. A sponge saturated with vinegar was introduced into the uterine cavity to check the hemorrhage, which, combined with friction and kneading of the relaxed uterine walls, soon brought on powerful contractions and cessation of the hemorrhage. Both mother and child were saved.

*Bibliography.*—In addition to the quotations in the text, the following works were also referred to in preparing this paper: "Real Encyclopaedie der Gesammten Heilkunde"; "Reference Handbook of the Medical Sciences"; "Wenzel, Kuenstliche Fruehgeburt," 1818; the obstetric works of Cazeaux, Siebold, Meigs, Miller, King, Parvin, etc.

296 W. WATER STREET, MILWAUKEE, WIS.,

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<sup>1</sup>The fluid extract of *Cimicifuga racemosa*, in doses of five to eight drops twice or thrice daily, during the latter months of pregnancy, may perhaps diminish the tendency to hemorrhage during the active pains by relaxing the muscular fibres of the uterus (and vagina), and diminish or suppress the cramp-like pains so often observed in the irregular dilatation of the os uteri externum in placenta previa. Snyder-Kurse has a very sensible article on this subject in *Journal Méd. de Paris*, 1890, page 21, of which an abstract is given in *Journal de Méd., de Chirug. et de Pharmacol.*, Jan. 20th, 1890.



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HOURS: { 8 to 10 A. M.  
1 to 3 P. M.  
7 to 8 P. M.

Milwaukee, 26 May

1880

My Dear Doctor Billings:

Please accept enclosed Reprint for and place it into the library of the Surgeon General's Office and oblige by

Yours Truly  
H. P. Wenzel

