5-1-1931

Treatment of placenta praevia

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TREATMENT OF PLACENTA PREVIA

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HISTORY

"There has been much discussion as to the accurate knowledge of the discovery of placenta previa, but there seems to be little doubt that Paul Portal in 1685 was about one hundred years in advance of other obstetricians, and was the first not only to diagnose the condition, but to be aware of its importance and dangers." Portal describes uterine hemorrhage from the os uteri. Although treatment did not come within the scope of his work he opened the cervix and delivered.(1)

Of Mauriceau's work, published in 1668, seventeen years before Portal's, the same author states: "The site of the placenta in the uterus has been described by various writers in various situations (De Graaf, seventeenth century). Evidently many of these obstetricians knew that the placenta could be attached to places other than the fundus, but no practical inference was deduced. This applies particularly to Mauriceau who punctured the membranes and left the case to nature for the first time."

From Hugh Chamberlen's translation of Mauriceau (1668) published in 1752, the following is taken:(2)

> "The coming forth of the Navel-string before the Infant, of which we have treated in the foregoing Chapper, is often the Cause of his Death, for the Reasons there given; but the coming first of the Burden, is yet much more dangerous: for besides that the Children are ordinarily Still-born, if they be not assisted in the very instant, the Mother like-wise is often in very great

peril of her Life, because of her great Floodings which usually happen when it is loosen'd from the Womb before its due time, because it leaves all the Orifices of the Vessels open, to which it did cleave, whence flows incessantly Blood, until the Child be born: because the Womb, whilst any thing continues there, doth every moment strongly endeavour to expel it, by which means it continually voids and expresseth the Blood of the Vessels, which are always open (as we have already often explain'd) when the Burden is so separated, as long as the Womb remains extended and cannot be clos'd, until it hath voided all that it did contain, and comes by the contraction of its membranous substance to stop them, by pressing them together. Wherefore if we ought to be vigilant to succor an Infant when the String comes first, we ought much more to be so when the Burden comes forth first, and the least delay is ever the cause of the Infant's sudden death, if the Woman be not speedily deliver'd; because the Infant cannot then stay long in the Womb without Suffocation, standing then in need of breathing by the Mouth (as is explain'd in the foregoing Chapter) the Blood being no longer vivify'd by the preparation made in the Burden, the Use and Function of which then ceaseth, from the instant it is separated from the Vessels of the Womb, to which it is join'd: For which reason there im-

mediately follows a great Flooding, which is so dangerous for the Mother, that without speedy help, she soon loseth her Life by this unlucky Accident.

"When the Burden is not wholly come forth, but lies in the Passage, some advise to put it back before the Child be fetched: but I am not of that Opinion; for when it comes into the Passage before the Infant, it is then totally divided from the Womb, at the bottom of which it ought ordinarily to be situated and fastned, until the Child be born: But because (as soon as it is wholly loosen'd, as it always is when it comes first) it becomes a Body altogether unnatural, it must never be thrust back, but on the contrary be fetch'd away; and at the very moment after bring the Child by the Feet, altho' it came naturally with the Head first. For what reason can there be to put it back, since it is so useless to the Infant, from the moment it is separated from the Womb, as cannot be deny'd? And such a Proceeding is so far from being useful, that this Burden would much hinder the Chirurgeon from being able to turn the Child as he ought, to bring it by the Feet.

"Wherefore, when it presents in the Passage, which may be soon perceiv'd, if they find every where a soft Substance, without the least resistance to the touch of any solid part; finding likewise the String fastned to the middle of it, and the Woman flooding ex-

tremely, as is ordinary at such times; Then, instead of thrusting it back, the Burden must be brought away, that so there may be more liberty and room to extract the Child according to the former Direction.

"The Burden being quite loosen'd from the Womb, and coming first in the Passage, must not be thrust back into it again: much less must it be put back, when it is quite come forth of the Body. Care must be only taken that the String be not cut till the Child be born, not out of hopes of any benefit from it to the Infant during the Delivery, but that so much time may not be lost before the Infant be fetch'd, which is then ever in great danger; as also the flooding may be the sooner stopt, which happens for the most part as soon as the Woman is deliver'd, for which Reasons it must be with all possible speed dispatch'd.

"Sometimes, notwithstanding this dangerous Accident, the Child may be born alive, of timely succoured; but it is then so weak, that 'tis hard to discover at first, whether it be living or dead.

"When it so happens, the Midwives do ordinarily, before they separate the Burden, put into a Skillet of hot wine, and imagine, with no small Superstition, that in case it comes to it self, the vapours of the warm Wine was the Cause of it, being convey'd, by means of the String, into the Infants Belly, and so giving

it vigour: But it is more credible, that being almost suffocated for want of Respiration as soon as it needed it, it begins now, by means of it, to recover from that fainting. But nevertheless, there is no hurt in keeping the Custom, tho' superstitious, since it can do no prejudice, and may satisfy pre-engaged spirits, provided Necessaries be not neglected, in being blindly carried away with this Conceit."

From the above it is readily seen Mauriceau had a good understanding of the position of the placenta, its danger to mother and babe, and treatment. He was probably the first man to describe it.(3)

Those early to recognise the condition were Leveret, Rigby, De Graaf and Portal. Rigby gave a very definate differential diagnosis between accidental and unavoidable hemorrhage, also suggested the present nomenclature. Earlier he felt that the hemorrhage was vaginal but later described it as coming from the os uteri. Other early workers were Giffard, Roederer and Smellie.

From Mauriceau's works it is evident that version was the first treatment suggested and it is practised with little variation today in some parts of America.

The following is taken from Burns, written in 1809:(4)

"When flooding depends upon this cause (placenta previa) venesection, cold, and the usual remedies may moderate or check it for a time; but the only radical

> cure is delivery. This, however, is, at first, difficult or impossible to be accomplished, from the tightness of the vagina and the firmness of the os uteri. The best practise, therefore, is to restrain the hemorrhage by cold applications, or a plug until the parts will more readily admit of distention. We then introduce the fingers to dilate the os uteri, and either separate the placenta, or push our hand through its substance; after which, we lay hold of the feet, and deliver slowly. I say slowly, because precipitation is useless, as well as dangerous, the body of the child acting as a plug, and restraining the bleeding....Flooding, from any cause, and especially this one, is the most dangerous accident, and the greatest risk to which a pregnant woman is exposed."

Burns' observations and practices of 122 years ago with the possible exception of venesection and application of cold, coincide with those of many practitioners today. Such conservative treatment, with its appalling maternal and fetal mortality, surely deserves investigation to determine if better results may not be obtained with other methods in certain types of cases. In 1898 Tait first advocated Caeserian section.

INCIDENCE

The incidence varies in different parts of the world. Statistics show a variance of from 1 to 130, to 1 to 1500 in various sectors.(5) Multiparae are affected about ten times as

frequently as primiparae and the greater the rapidity of the pregnancies and the larger the number of children the greater the incidence of placenta previa.

ETIOLOGY

There are many theories as to the cause of placenta previa but they may all be considered as due to one cause and that is in the endometrium. Endometritis has been demonstrated many times by curittage following placenta previa. In succeeding pregnancies a normal implantation has occurred and following delivery a normal endometrium has been demonstrated.(1)

The first theory is called the basal implantation theory. It asserts that the ovum after fertilization is inserted in the lower uterine segment. The placenta being basal to the area of implantation the clinical result is a central placenta previa. Again theorizing as to the cause for this lower implantation, it is said that the ovum seeks healthy endometrium in an endometritic uterus.

The second theory is the capsularis implantation theory which states that the placenta is developed in connexion with the decidua capsularis as well as with the decidua basalis. This variety determins a lateral or partial placenta.

A third theory is that because of defective vascularity of the decidua it becomes necessary for the placenta to spread over a large area for nourishment, a portion covering the os only as a coincidence.

The fourth theory explains it in a similar manner but with atropic or inflamatory changes as a basis.

TREATMENT

When one approaches the subject of the management of placenta previa, he is immediately confronted by a most marked diversity of opinion as to the mode of proceedure to be instituted. This must needs be true, if we but consider the variations in the types of placenta previa, the question of primiparity or multiparity, the term of pregnancy, the condition of the mother and baby, and also the relative value of the baby as determined by the number of living children already in the family. In addition we must consider the local conditions, such as the size and softness of the cervix, the presence or absence of labor pains, the condition of the membranes and the amount of bleeding. When to the above complex picture is added the diverse modes of proceedure which may be instituted, considering from simple rupture of the membranes to abdominal caeserian section is it astonishing that placenta previa is often badly handled?

A glance at the maternal and fetal statistics for this condition is sufficient to prove to us that the prognosis for both parties is most serious, especially if the treatment is not adapted to the individual case.

Given, then, a case upon which the diagnosis of placenta previa has been made, what shall be the routine? There can be but one safe rule to follow and that is to empty the uterus.(11) This is done by the proceedure which will preserve the mother's life and the integrity of her pelvic structures and at the same time give the baby the best possible chance. The only exception to this rule of emptying the uterus immediately is the woman

whose baby is nearly viable, who has bled only slightly and who will place herself in a hospital under the constant supervision of trained nurses and attendants. Temporizing under these circumstances may be justifiable, but if repeated hemorrhages occur, the indication is to terminate the pregnancy.

The principles of treatment are three in number: check hemorrhage, prevent infection and prevent shock and anemia.

The seriousness and most efficient treatment of placenta previa demand hospital care. Upon admission, the condition of each case must be determined, presence or absence of bleeding, determination as to how much blood has been lost. This is a very important point and one which is some times overlooked. Unless the operator knows the blood pressure, hemoglobin and red cell count of his patient, he does not know the reserve supply of her vitality and success or failure may depend upon that knowledge for blood lost acutely will show itself in the rapid pulse rate, but repeated losses extending over some days may not accelerate the pulse much and yet another sudden loss may terminate fatally.

Vaginal examination is not advised because of danger of sepsis and disturbance of a potential bleeding area.(6) In rectal examination it is usually possible to distinguish the thickened mass of placenta between the examining finger and the presenting part even though there is no dilation of the os. While the diagnosis of placenta previa made in this way is of course not as certain as if one inserted the finger into the os and actually felt the placenta, it is vastly more important

to avoid all vaginal examinations than to make an accurate diagnosis of the variety of placenta previa. Abdominal examination reveals practically the same condition as any normal case, and in most cases the fetal heart is heard. In cases of premature separation of the placenta the abdominal findings are very different. The uterus is usually tense and somewhat distended and the fetal heart is usually not heard; never in complete separation of the placenta. The location of the uterine bruit is also of considerable help in the diagnosis of placenta previa. It is often possible to trace this bruit into the lower uterine segment and across the symphysis pubis, whereas if the placenta is normally situated the uterine bruit is not heard over the lower uterine segment.

A word may be said about several proceedures. As the indications or justifications of their use is limited the discussion will be very brief.

I. No treatment. A certain small number of cases of marginal placenta previa terminate favorably without treatment.

II. Tamponade. The tamponade may be used in case of alarming hemorrhage while transporting the patient to the hospital, or by the interne while waiting for the attending man. The danger of sepsis is very great.

III. Vaginal caeserian section. Vaginal caeserian section is dangerous to mother and babe. After the seventh month the technical difficulties almost make it an impossibility.

In cases of complete or partial placenta previa there are

only three methods worthy of consideration, they are: caeserian section, the cervical bag, and Braxton Hicks version without extraction.

"In this country Braxton Hicks version has never been popular and is very little used today. Abroad however, it is still used extensively. The mortality rate for the mother from this method is seldom lower than 6 or 7% and more often 10% and the fetal mortality is naturally very high because the best results for the mother are obtained when no extration is performed, the child being used merely as a tampon. With its excessive mortality for both mother and baby this method should be considered only when facilities for better proceedures are not available. The physician should remember that by proper maniuplation the baby can be used as a tampon to control hemorrhage, but should be used only where there are no facilities for caeserian section and when a cervical bag or packing is not available."(6)

At the present time with good roads, hospitals in the smaller communities and increasing numbers of patients availing themselves of prenatal care making early diagnosis possible, it is rarely that such an emergency would arise. Usually it is to the patient's advantage to avoid all manipulation until proper facilities are available. The bag method would naturally offer about the same results for the mother as the Braxton Hicks version without extraction and it follows that the fetal mortality would be somewhat lower.

The following data was obtained from thirty cases taken from the available records of the Methodist, Lutheran, Immanuel, University, St. Catherine, St. Joseph, Covenant and Clarkson Hospitals:

Abdominal Caeserian Section - Fourteen Cases

Maternal Mortality 14.28% Fetal Mortality 7.14% 2 not in viable age

Podalic Version With Bag - Eight Cases

Maternal Mortality 12.50% Fetal Mortality 85.71% Only living child -- Spastic right leg, flacid right arm, definite signs of cerebral hemorrhage

Abdominal Caeserian Section - Fourteen Cases

Maternal Mortality 14.28% Fetal Mortality 7.14% 2 not in viable age

All Other Treatment - Fifteen Cases

Maternal Mortality 13.33% Fetal Mortality 91.66%

Marginal Placenta Previa

Version and Bag	One Case	Babe and mother lived
No Treatment	One Case	Babe and mother lived

Other statistics show:(6)

Treated by Older Methods

Total Cases 2,117 Maternal Mortality 9.68%

Caeserian Section

Total Cases 262 Maternal Mortality 1.78%

In Peckham's(7) series of 146 cases there were sixteen maternal deaths, thirteen from hemorrhage, one from shock, one from nephritis, one from infection. From the figures above, hemorrhage stands out as the greatest danger to the mother. Any method of treatment therefore should be instituted only if it does lessen the chances of hemorrhage. The reasons for post partum hemorrhage are: first, injury to the cervix and lower uterine segment brought about by manipulation necessary to extract the child

through the birth canal; second, general atony of the patient or shock resulting from previus loss of blood and the effect of this condition upon the contractile power of the uterine muscle.

Better results are undoubtedly obtained by those methods employing a gradual dilatation of the os, including Braxton Hicks version without extraction and cervical bag, but it should be remembered that any method causing any stretching whatsoever of the placental site is prone to give rise to post partum hemorrhage even though there be no apparent laceration of the cervix. Autopsies showed no apparent laceration of the cervix in several of Bill's(6) cases and yet there was uncontrolable hemorrhage from the placental site sufficient in amount to cause death.

It is reasonable to assume that the relatively poor contractile power of the lower uterine segment is not sufficient to control the bleeding when the sinuses are located in that part of the uterus. It follows that if there had been no dilatation and stretching of this portion of the uterus that hemorrhage post partum would not be probable from the placental site. The only method by which this may be accomplished is abdominal caeserian section.

In the central and partial varieties the placenta lies almost entirely in the lower uterine segment. In the marginal type enough of the placenta is in the lower uterine segment to make the general conclusion that all placenta previa if there is little or no dilatation of the os should be treated by abdominal

caeserian section.

Equally as important as the method of delivery is the prophylaxis of general atony of the patient or shock due to loss of blood with the resulting lowered efficiency upon the contractile power of the uterine muscle.

All patients with placenta previa do not require a blood transfusion but it should be borne in mind that in estimating a patient's condition the average normal obstetrical case loses approximately 600 cc. of blood.(8) Added to this figure must be the estimated blood loss from the partial separation of the placenta prior to labor due to the dilating lower uterine segment, as well as an estimate of the blood lost above the normal figure because of the inability of the lower uterine segment to contract upon the placental sinuses. The only knowns in the above equation are the 600 cc. lost in normal delivery and the approximate amount lost prior to labor. This approximation may be fairly accurate because most of the blood lost will show itself on the outside, due to the placental site being over the os, which is not the case in accidental separation when concealed hemorrhage is the rule. This makes two unknown quantities which necessarily makes the indications for transfusion somewhat difficult, but it is better to give an unnecessary transfusion than to hesitate and lose a mother from the effects of hemorrhage. In some clinics(6) a systolic blood pressure of less than 100 and a red count less than 3,000,000, if the hemorrhage has had sufficient time to reveal itself in a red cell count, are con-

sidered indications for transfusion. The appearance of the patient and other evidence of impending shock are of course considered. The vicious circle that is apt to occur is quite evident. Blood loss, atony of uterus resulting in greater blood loss, resulting in further atony with death the probable result. Transfusion before or during delivery would necessarily be better because a smaller amount of blood transfused would prevent atony of the uterus, for if given as a last resort enough blood to make up for that already lost plus sufficient quantity to restore an ineffieient uterus that is also loosing blood plus a safe margin above that that is absol tely necessary for the restoration of the atonic uterus.

Because of the importance of keeping away from the placental site the operation of choice is the classical caeserian section. In case of suspected infection the low cervical is preferable.(9)

The question of "once a caeserian always a caeserian" comes up. This thought is not necessarily true in clinical practise because each case presents a separate problem and in doubtful cases decision need not be made until the second stage of labor.(10)

In cases of marginal placenta previa when there is sufficient dilation of the os at the time of the first hemorrhage, delivery by forceps is permissable when the membranes are ruptured allowing the fetal head to decend into the cervical canal to control hemorrhage.

Conclusions

For the best results for both mother and babe, treatment

in a hospital is required.

The patient should be sent in without vaginal examination or packing.

If indicated a prophylactic blood transfusion should be performed and sufficient quantity given to insure the safety of the patient.

Regardless of the condition of the child a caeserian section should be performed, if there is little or no dilatation of the os, for the condition of the babe has no bearing on the choice of delivery.

In cases of marginal placenta previa, if the os is dilated, and the fetal head engaged, and the hemorrhage is being controlled, forceps may be used. If the head remains high, podalic version may be used.

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