

A STUDY OF 250 CASES OF PLACENTA PREVIA*

WARD F. SEELEY, M.D., DETROIT, MICH.

(From the Divisions of Obstetrics and Gynecology, Wayne University College of Medicine, Harper and Herman Kiefer Hospitals)

ALTHOUGH significant improvement in its treatment has been made in the past twenty-five years, placenta previa still remains one of the major obstetric problems, as little or no light has been shed upon its preventability, or etiology. That obstetrics is not an exact science, and cannot be practiced by formulas, can be no better illustrated than in the treatment of cases of implantation of the placenta in the lower uterine segment. In cases apparently identical in their inception, the end results with like treatment may be far apart. It is by interchange of experience among us that improvement is made, and even then what is one man's meat may be another man's poison, in so far as the application by the individual obstetrician of various procedures in treatment is concerned. It is with this in mind that I am presenting for your consideration and criticism, our experience for a period of ten years in the management of placenta previa.

Material

The material for this review is composed only of proved cases of placenta previa, and consists of patients encountered with this complication in a period of ten years, 1933 to 1942. In order that an adequate cross section of patients of widely varying economic and social status may be obtained, it is taken from the obstetric divisions of two hospitals, with different types of clientele. Harper Hospital is a private hospital with a small percentage of nonpay patients, while at Herman Kiefer Hospital, all cases are of the kind that require public assistance and are used for teaching purposes.

Incidence

A total of 31,996 deliveries occurred during the ten-year period, and among these placenta previa was encountered in 250, an incidence of 1 in 128. A high incidence is to be expected in hospital practice according to the reports of all observers.

TABLE I. AGE GROUPS

15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to								
16	44	78	59	42	11								
PARITY													
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
49	59	41	22	32	13	6	11	7	3	0	4	2	1

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The high percentage of cases (54 per cent) occurring in the age group 25 to 34 bears out the commonly made observation, that placenta previa occurs most in the middle childbearing period.

Our material shows that placenta previa occurs about five times as often in multiparas as in primiparas. In private hospital practice, the condition is more common in primiparas than in clinic practice. Thirty-nine cases occurred in primiparas in the former group of 101, while only 10 of 149 cases were primiparas in the clinic group.

Placenta previa seems to be more prevalent among whites. Of 250 cases only 51 occurred in colored women, in spite of the fact that our nonpay patients are comprised of a high percentage of colored.

TABLE II. LOCATION OF PLACENTA

Marginal	133
Lateral	67
Central	50
Total	250

The difficulties associated with making an accurate classification of placenta previa, according to location, need no elaboration to a group of experienced obstetricians. Every effort has been exerted in the attempt to have our grouping as nearly correct as possible. We find that 53.2 per cent were marginal, 26.8 per cent were lateral, and 20 per cent were central.

While every means advisable is used to make a correct diagnosis of the location of the placenta, we believe that the amount of blood lost, or being lost when the patient is first seen, should be a better guide to treatment than the amount of os covered by the placenta. In our experience, more blood is lost, at times, with the marginal than with the central type.

TABLE III. CONDITION OF PATIENT

	GOOD	FAIR TO POOR	VERY POOR
Vaginal delivery	90	78	23
Cesarean section	42	16	1
Total	132	94	24

Of paramount importance in treatment and prognosis, is the condition of the patient when first seen. Table III gives our estimate in the 250 cases studied. Those classified as "Good" had no serious blood loss, as shown by clinical observation, pulse rate, blood pressure, blood count, hemoglobin readings, etc. Those called "Fair to Poor" have had sufficient loss of blood so that their condition can readily be discovered clinically, and confirmed by laboratory findings. We have classified as "Very Poor" those patients entering in really serious condition with massive blood loss, marked pallor, rapid thready pulse, frequently with air hunger, with hemoglobin readings below 50 per cent,

and with marked drops in blood pressure. I believe it is significant that of the women treated by cesarean section, only one case was in this "Very Poor" group.

Symptoms and Diagnosis

Painless, causeless bleeding, particularly if occurring in the last trimester of pregnancy, is the classical symptom, and has been invariably present.

I do not believe it necessary or advisable to confirm a diagnosis of placenta previa in all cases by vaginal examination; and particularly in those in which delivery by cesarean section is contemplated. A sufficiently accurate working diagnosis can be made in many instances by other means.

Two aids to diagnosis I have found to be of considerable help; viz., the location of the placental souffle, and the use of the x-ray.

If heard best low in the abdomen above the symphysis, in cases with suspected placenta previa, I think the location of the placental souffle to be of considerable significance. While attempts are always made to locate it, these are easily omitted from the written record which accounts for the fact that I have record of them in only 71 cases. Of these, it was heard low above the symphysis in 59, and not heard in 12.

X-ray diagnosis was attempted in 32 cases, proved to be placenta previa, by the use of an opaque medium in the bladder, or by the soft tissue technique. In 24, a positive confirmatory diagnosis of placenta previa was made, in 3 the diagnosis was questionable, and in 5 negative. A correct diagnosis was made in 75 per cent of patients.

TABLE IV. METHOD OF DELIVERY

<i>Vaginal</i> 191	
(A) Expectancy	58
(B) Rupture of membranes	26
(C) Bag insertion	105
(D) Braxton Hicks' version	2
<i>Cesarean Section</i> 59	
(A) Classical	10
(B) Low cervical	44
(C) With supravaginal hysterectomy (Porro)	5

It is evident from Table IV, that widely varying methods of delivery have been used. This I think is to be expected in any series of cases that represents a true sampling of a large metropolitan population. Our patients come from all social and economic levels, and their condition when first seen precludes treatment of a single type. In this connection it is interesting to note that in 101 placenta previa cases from Harper Hospital, cesarean section was the treatment of choice in 41, while in 149 cases from the Herman Kiefer service, only 18 cases of section occurred.

Patients of private physicians, who have had adequate prenatal care, and who are seen with the first bleeding are much more likely to be

candidates for section, than nonpay patients who frequently enter in serious condition. All the more is this likely to be true if the patients are paras i or ii, at or near term, with both mothers and babies in good condition.

Four of six attending obstetricians at Herman Kiefer Hospital also do their private obstetrics at Harper Hospital, enough I think to appreciably influence the trend of treatment over a period of ten years. And yet, these men, who have a comparatively high cesarean rate in private practice, do not throw their influence toward a higher rate at Herman Kiefer Hospital. Again the answer is found in the types of material encountered, regardless of the comparative simplicity of treatment by the abdominal route. That good results for both mother and child with cesarean section are obtained, will be shown in our mortality tables, but only, I believe, when we do not overstep the bounds of sound surgical judgment.

Preference for the low cervical operation is marked, 44 of 59 cesarean sections being of this type. There have been no serious technical difficulties and we agree with Greenhill and others, that at times, the low incision is of distinct advantage in the control of bleeding from the placental site.

In delivery by the vaginal route, "expectancy" was chosen as most appropriate for 58 mothers and 59 babies. By expectancy we mean that no active treatment, aimed at delivery, was instituted, and labor was allowed to continue, under close observation, until complete dilatation of the cervix. From then on, labor was terminated according to indication. Thus, spontaneous delivery occurred in 40, forceps in 10, version and extraction in 5, and breech extraction in 4. Of 26 patients in whom rupture of the membranes was the only active treatment in the stage of dilatation, labor terminated spontaneously in 11, forceps were used in 2, version and extraction in 8, and breech extraction in 5.

The insertion of the dilatable bag for control of hemorrhage, and to aid in dilatation was thought to be the best treatment for 105 women, and 110 babies. After which delivery was spontaneous in 64, forceps delivery was done in 9, version and extraction in 14, and breech extraction in 18.

I am fully aware of the criticisms that have been aimed at the use of the bag and its many supposed disadvantages, such as predisposition to malpositions, inefficiency in control of hemorrhage, infection, etc., and can only say that these have not occurred to an extent to discourage us in its continued use. Malpositions after the use of the bag have occurred so infrequently, as to be statistically unimportant. Control of hemorrhage has been excellent, and I have found no case of failure while the bag was in situ. While infection is a well-known complication of placenta previa, in general, I have found no increase in morbidity after the

use of the bag as compared with other methods of treatment with delivery from below.

On the other hand, I am confident that in many cases entering as emergencies, with massive blood loss and profuse bleeding, the insertion of the bag has controlled hemorrhage to permit of blood transfusion and other supportive measures which have been lifesaving. It is of little use in these cases to allow the patient to lose blood faster than it can be replaced. The use of the bag is a more exacting form of treatment from the viewpoint of the obstetrician than is cesarean section, as it requires constant attention to detail and indefinite periods of waiting for its expulsion. Serious bleeding can occur above it, unobserved externally, if it is not promptly removed once its purpose is served. Of value in vertex positions, particularly, is the use of small doses of pituitrin, once the bag is removed, to help wedge the head firmly against the placenta, or careful version and slow extraction can be done to advantage in many cases. If the placenta does not separate immediately it is removed manually, followed frequently with the insertion of a gauze pack.

I have no fault to find with the obstetrician who can limit his treatment of placenta previa to simple rupture of the membranes and cesarean section. As has been seen, we use both these methods. However, in our material, there is a group of cases which is not suitable for either of these; for them we use the dilatable bag.

TABLE V. MORBIDITY AND MORTALITY

By the commonly used criteria 78 cases were morbid post partum, 31.2%; maternal mortality, 7—2.8%; vaginal delivery, 6—3.1%; cesarean section, 1—1.7%.

PARA	DURATION	CONDITION	DILATATION	PLACENTA	TREATMENT	CAUSE OF DEATH
(1) iv	6½ mos.	Very poor	Complete	Centralis	Rupt. Memb. V & E	Transfusion reaction
(2) iv	7 mos.	Very poor	Complete	Centralis	Rupt. Memb. Spont.	Hemorrhage
(3) iv	9 mos.	Fair	4 cm.	Lateralis	Bag, V & E	Not known, autopsy, Anesthetic (?)
(4) iii	9 mos.	Poor	2 cm.	Centralis	Low cervical section	Acute dilatation of heart, circulatory collapse
(5) vi	9 mos.	Poor	5 cm.	Lateralis	Bag, Breech ext.	Hemorrhage
(6) ii	6½ mos.	Fair	4 cm.	Lateralis	Bag, V & E	Hemorrhage
(7) iii	8 mos.	Very poor	6 cm.	Centralis	Bag, Breech ext.	Septic pneumonia 12th day

A total of 7 cases died, 6 after vaginal delivery, and 1 after low cervical cesarean. Reference to Table V will show, in more detail, the facts pertinent to these cases. One case dying after transfusion, and one probable anesthetic death possibly could have been avoided. In the case of the posttransfusion death, the Rh factor was not determined which, in the light of later knowledge, might have accounted for it.

Of the total of 250 cases delivered, 263 babies were born. There were 13 twin pregnancies, and 4 malformations incompatible with life, a high incidence, confirming the experience of most writers—91 babies did not survive, a gross mortality rate of 34.6 per cent.

There were 56 neonatal deaths, of which 31 were nonviable prematures, and 3 had malformations incompatible with life.

Thirty-five babies were stillborn, of which 18 were nonviable prematures, and 1 had malformation incompatible with life.

TABLE VI. FETAL MORTALITY

Total deliveries:	263
Total deaths:	91
Gross rate:	34.6%
Neonatal deaths:	56
Nonviable prematures	31
Malformations	3
Total nonviable	34
Stillborn:	35
Nonviable prematures	18
Malformations	1
Total nonviable	19
Net fetal death rate	14.4%

It is a questionable procedure to arrive at a net fetal mortality rate for placenta previa, because prematurity and fetal malformations are an inherent part of the risk in this complication of pregnancy. However, if the usual practice is followed and the above deductions are made from the gross death rate, it is found that 34 babies born alive and 19 stillborn were nonviable, a total of 53. Thus, the net fetal death rate is 38 or 14.4 per cent.

Discussion

No discussion of placenta previa in modern times is complete without reference to blood transfusion, and the use of blood plasma. Their use with us is so common as to be routine in all but the mildest cases of bleeding. Patients have received at times, before, during, and after delivery, as much as 3,000 to 3,500 c.c. of blood. While plasma is very valuable, it does not fill the place of whole blood in cases with massive hemorrhage. There is considerable time consumed in typing, cross-matching and Rh factor determination while the patient continues to bleed. The use of plasma during this period is a valuable adjunct. At times, washed red cells have been used. All cases of suspected placenta previa should have the benefit of hospitalization, and blood for transfusion should be available for them. Bill of Cleveland was among the first to call our attention to the reduction in mortality possible when these conditions are fulfilled.

Apparently, the best results in the treatment of placenta previa are obtained by the obstetrician in the care of his private patients (mor-

tality 1.9 per cent). The intelligence of the individual patient is an important factor. Many tragic cases are the result of failure of the woman to report mild bleeding in the last trimester to her clinic or to her physician.

We have had no experience with Willetts' scalp traction but from the reports of experienced observers, believe that it has merit in properly selected cases, and intend to try it when the opportunity presents itself. One academic objection to its use in the case of prematurity might be the difficulty of application of the forceps to the snugly fitting scalp of a premature infant.

In studying placenta previa in a metropolitan area, I believe it important that sampling, as widely as possible, in all social and economic strata, be done. For this reason, material from two hospitals with widely varying types of clientele has been studied. This analysis shows marked difference in treatment, especially in the use of cesarean section. That this occurs with staffs that, to a large extent, are interlocking, and where the attending obstetrician is free to exercise his own best judgment, leads to the conclusion that treatment must vary greatly with the conditions encountered, considered in the broadest sense. I believe that each case should be individualized. The obstetrician should have an open mind, free from prejudice in favor of one or another form of treatment. Treatment should conform to the immediate need of the patient, and should not be based on preconceived ideas of the operator.

Summary

For a ten-year period, 1933 to 1942, there were 31,996 deliveries at Harper and Herman Kiefer Hospitals, among which there occurred 250 cases of placenta previa, 1 in 128.

Placenta previa is found in primiparas and multiparas in the ratio of 1 to 5.

It is more common in whites than colored.

It occurs most commonly in the middle childbearing age.

A high percentage of twin pregnancies and fetal malformations is to be expected.

A large group was satisfactorily managed by expectant treatment during the stage of dilatation, or by simple rupture of the membranes.

The insertion of the dilatable bag gives good results in cases adapted to its use.

In properly selected cases cesarean section can be used to the advantage of both mother and child.

Seventy-five per cent of cases were correctly diagnosed by x-ray in the group in which it was used.

Blood transfusion should be available to all patients with placenta previa. An acceptable mortality rate cannot be expected without it.

Maternal mortality in 250 cases of placenta previa taken from a large metropolitan area was 2.8 per cent.

Gross fetal mortality was 34.6 per cent, net 14.4 per cent.

1551 WOODWARD AVENUE

Discussion

DR. T. K. BROWN, St. Louis, Mo.—Cases of pregnancy with painless, causeless uterine hemorrhage in the last trimester should be hospitalized as soon as possible with the tentative diagnosis of "Placenta Previa." The diagnosis should be confirmed promptly by history, physical findings and perhaps roentgenological methods. Treatment should be instituted at once with the following purposes: (1) arresting hemorrhage; (2) emptying the uterus as promptly as is safe; (3) insuring control of hemorrhage after delivery; (4) counteracting anemia; (5) preventing infection.

Hemorrhage may be arrested by the administration of vitamin K, rupture of the membranes, insertion of a bag or cesarean section. The uterus may be emptied as promptly as is safe by rupture of the membranes, insertion of a bag or cesarean section. Hemorrhage after delivery may be controlled by drugs, packing, and perhaps suture of the placental site. Anemia should be counteracted by the transfusion of Rh negative blood before, during, and following delivery. Plasma transfusions may be used to combat "shock" but do not supply the necessary cellular elements to correct the anemia. Infection may be prevented by the use of proper technique, administration of vaginal antiseptic instillation, limitation of interference to a minimum, and removal of any pack in eight to ten hours.

Watson and Gusberg have recently reported definite improvement in maternal and fetal mortality and maternal morbidity by the use of cesarean section in the treatment of placenta previa in comparison with their results following use of the bag.

In the analysis of Dr. Seeley's cases, central placenta previa was encountered in 1 out of every 5 cases. In such cases, delivery by cesarean section is the method of choice.

As to the condition of the patients when first seen, 20 per cent were classified as "very poor" but only one case in the group was delivered by section. Would it not have been possible to have improved the condition of these patients by proper treatment and then to have delivered some of them by cesarean section?

Over 50 per cent of this series of cases was treated by the insertion of a bag. I still fear the danger of infection associated with the use of a bag. The fetal morbidity for the 250 cases reported was 31.2 per cent. Was there any difference in morbidity in the group that was "bagged" as compared with the remainder of this series?

Marginal placenta previa was reported in 133 patients. Nevertheless, only 26 cases were treated by rupture of the membranes. It would seem that this method of treatment could have been employed frequently.

Among 101 private patients, of whom 39 were primigravida, 41 cesarean sections were performed. These patients were in good condition and the results could be expected to be satisfactory. In contrast, among the 149 clinic patients, of whom 10 were primigravida, only 18 cesarean sections were performed. Perhaps in this latter group the indication for cesarean section could be broadened and used as the method of delivery after proper prophylactic treatment.

Low cervical section was performed in 44 instances among the 59 cases delivered by section. One must consider the increased hazard of encountering the placental site at operation in this particular group of cases. The loss of blood may be

increased definitely and perhaps to a dangerous degree. By the use of classical section this difficulty may be obviated. However, the placental site might be sutured, if necessary, more readily after low cervical section. Postpartum bleeding can usually be controlled by the use of a pack.

Dr. Seeley and his co-workers are to be complimented on their satisfactory maternal mortality rate of 2.8 per cent and should continue to individualize the treatment of their cases of placenta previa in the future.

DR. EDWARD A. SCHUMANN, Philadelphia, Pa.—The whole subject of placenta previa continues, even after the hearing of this excellent paper, in my mind as the most confused chapter in obstetrics. Neither the cystogram with an opaque medium nor the soft tissue x-ray has proved satisfactory as a diagnostic method in our hands except as corroborative evidence in well-established cases. The diagnosis by vaginal examination has even offered difficulties to me. If one passes a finger through the cervical canal one can tell, but who dares? As to the difference between a lateral and marginal position, this is often merely an academic decision.

When we come to the subject of treatment the chapter becomes still more confused. I would be very happy to have outlined to me the treatment of placenta previa in a woman six and a half months pregnant who desires a child. I know of no satisfactory treatment except expectancy, which sometimes is feasible and sometimes not. Given the case of a primipara shortly before the viability of a child, when the child is desired by both parents, I think it is the duty and necessity of the obstetrician to lay the dangers of expectant treatment clearly before the parents and have them make the decision as to whether the woman should be permitted to go on with her pregnancy facing the danger of a severe hemorrhage. The full responsibility should be placed on the parents.

As to the treatment of placenta previa after the viability of the child, I would accept the form of treatment that best suits the capability of the obstetrician. In my own cases, I am more influenced by the condition of the cervix than any other factor. Given a soft or partially dilated cervix I believe any of the methods of treatment will be successful and will give the excellent results produced by Dr. Seeley. Where the cervix is dense and does not render itself easily dilatable, I think cesarean section is the only method. In a member of my own family, cesarean section would be practiced almost invariably with a viable child and a placenta previa.

DR. JOSEPH L. BAER, Chicago, Ill.—I have been waiting for some one to emphasize the fact that obstetric hemorrhage has displaced puerperal infection as the number one cause of maternal deaths in the United States. Not having heard it, I again bring it to attention. For many years all of the specialty societies, including this one, have been emphasizing the educational needs for the prevention and treatment of puerperal infection, which now has taken second place. It now behooves us to embark on a more vigorous program of education for the men in general practice who are the ones to see the patients with premature separation of the placenta and placenta previa. We must emphasize first the extreme importance of bleeding in the third trimester of pregnancy so that those patients will be immediately hospitalized and be given the benefit of early expert consultation. If that can be accomplished, we will definitely lower our maternal mortality from obstetric hemorrhage.

Vaginal examination is not merely permissible but highly desirable. Of course, in the delivery room precautions must be taken against the possibility that the examination will precipitate further bleeding. The sensation given by a thickened area in the lower uterine segment between the finger and the presenting part, which in these patients can usually be impressed into the pelvis, since the infants are so frequently premature, is definite evidence of the low implantation. Subse-

quent treatment then is a matter of individual choice. In many instances simple rupture of the membranes with adequate drainage of the liquor amnii should take precedence over the abdominal approach.

DR. F. H. FALLS, Chicago, Ill.—I should like to ask how one would differentiate between placenta previa and carcinoma of the cervix without a vaginal examination? X-ray in placenta previa in our hands has been very unsatisfactory.

Inserting a bag to facilitate the delivery in placenta previa increases the danger to the fetus from compression of the placenta by the bag. This is particularly so if the cord happens to be inserted at the lower side of the placenta, for in that event when the bag is blown up, you stop the circulation of the cord.

When doing a low cervical cesarean section for placenta previa, you may cut through the placenta and thus divide the large vessels of the fetal surface. This is analogous to cutting the baby's throat, and from under such circumstances you have to hurry to get the baby out and the cord clamped in order to prevent bleeding. This is an important cause of fetal death. In a good many of these cases there may be justification for doing a classical operation thus avoiding injury to the placenta by the knife.

My last point concerns the cause of the bleeding in placenta previa. We think it is associated with the contraction of the uterus and the formation of the lower uterine segment. We believe that if there were a way of stopping the contractions, we might reduce the chances of full separation of the placenta. In the last five or six years, therefore, we have been giving progestin until viability of the baby was attained and then doing a cesarean section.

DR. FRED L. ADAIR, Chesterton, Ind.—The advocacy of expectancy or delay in treating placenta previa is extremely hazardous, and if generally adopted would lead to an increased mortality. It should not be carried out under any circumstances except in a special hospital and with expert care.

We have felt at the Chicago Lying-in Hospital that rectal examinations are never justified in placenta previa and that when a vaginal examination is made, it should be done as promptly as possible with everything in readiness to take care of the case by the most expert treatment. In many cases, however, the very simple procedure of rupture of the membranes is of great value in the management of these cases.

DR. GEORGE W. KOSMAK, New York, N. Y.—In closing I would like Dr. Seeley to state whether the insertion of the bag was extra- or intraovular.

DR. SEELEY (closing).—In advocating the use of the dilatable bag, I might remind you that the majority of our cases in which it was used were brought to us by ambulance and showed more than 4 cm. of cervical dilatation. A large proportion of them are multiparas and I do not know any way of controlling the hemorrhage except by the use of the bag. If you could see our material I think you would doubt that they were cases for cesarean section.

Replying to the question as to infection after the use of the bag, I would say that we have not been able to show any more morbidity with the use of the bag as compared with other methods for delivery from below. All of our men except one have favored the use of the intraovular bag. The extraovular bag has been used in a certain percentage of these cases, the argument being, of course, that the extraovular bag would be likely to give a lower percentage of fetal deaths.