

# Obstetric Clinic

THE woman about to become a mother or with a new-born infant upon her bosom, should be the object of trembling care and sympathy wherever she bears her tender burden, or stretches her aching limbs. The very outcast of the streets has pity upon her sister in degradation, when the seal of promised maternity is impressed upon her. The remorseless vengeance of the law brought down upon its victims by a machinery as sure as destiny, is arrested in its fall at a word which reveals her transient claim for mercy. The solemn prayer of the liturgy singles out her sorrows from the multiplied trials of life, to plead for her in her hour of peril. God forbid that any member of the profession to which she trusts her life, doubly precious at that eventful period, should hazard it negligently, unadvisedly or selfishly.

OLIVER WENDELL HOLMES

4th of the Series

## PLACENTA PREVIA\*

CHARLES A. GORDON, M.D.,

*Emeritus Professor of Obstetrics and Gynecology, State University College of Medicine at New York City*

ALEXANDER H. ROSENTHAL, M.D. AND JAMES L. O'LEARY, M.D.

*Assistant Professor of Clinical Obstetrics and Gynecology, State University College of Medicine at New York City*

*Associate Obstetrician and Gynecologist, St. Catherine's Hospital*

*Brooklyn, New York*

DEFINITE advances in the diagnosis and management of placenta previa have occurred within the past decade. Discard of formerly used methods of therapy has simplified the modern treatment of this obstetric complication. Clinical experience has shown a high degree of safety in expectant management with worth while increase in fetal salvage. The great need for large amounts of compatible blood is more apparent than ever.

\* \* \* \*

CASE I. A thirty-two year old white female, para III, had suffered a badly lacerated cervix as a result of previous deliveries. Five weeks prior to term a vaginal hemorrhage occurred at home. Upon admission to the hospital x-ray examination failed to disclose evidence of placenta previa, so the patient was discharged after three days. Five weeks later the membranes ruptured spontaneously. On the following day after the onset of labor pains excessive vaginal bleeding recurred. The ambu-

lance surgeon who attended the patient estimated that 500 cc. of blood had been lost.

On admission to the hospital the blood pressure was 80/50, pulse rate 100 and hemoglobin 75 per cent. The fetus was in vertex presentation and the fetal heart was heard. Weak uterine contractions had been present for four hours. Vaginal examination showed the cervix dilated to 3 cm. and a partial previa. Braxton Hicks' version was performed, a 1-pound weight attached to the protruding foot and spontaneous delivery awaited. After an intravenous administration of glucose solution was finished, the blood pressures ranged from 140 to 160 systolic. Labor progressed satisfactorily and the patient was in good condition three hours after admission. Ten minutes later she went into shock. She was pulseless, with blood pressure 64/50. Intravenous administration of hypertonic glucose was begun and a blood transfusion followed. At the completion of the transfusion the fetus had been delivered spontaneously to the umbilicus. Without taking the patient

\* Cases are from the Committee on Maternal Welfare of the Medical Society of the County of Kings, Brooklyn, N. Y. The views expressed are those of the authors.

out of shock position delivery was completed. The cervix was said to be completely dilated. The fundus rose to the umbilicus just before delivery of the head. The stillborn fetus weighed 3,100 gm. A large, soft tumor mass was felt to the right of the uterus. After expression of the placenta vaginal examination revealed a large rent in the right lateral wall of the uterus. Hysterectomy was performed and a tear about 10 cm. long was noted in the right lateral wall of the uterus extending through the cervix. During the operation the patient was pulseless except for an interval near the completion of the procedure. A total of 2,500 cc. of blood had been given. The patient died on the operating table as the operation was being completed.

*Questions.* (1) Can a diagnosis of placenta previa be made on the history alone, by x-ray examination alone or by a combination of these two alone? Will rectal examination aid? (2) Does the onset of labor initiate or aggravate hemorrhage? Who is likely to suffer the more profuse hemorrhage, the primipara or multipara? Why is previa more common in the multipara. (3) What place has Braxton Hicks' version in the treatment? Was it the proper procedure, and if not, what should have been done for this patient? (4) Was blood transfusion given early? (5) Should this patient have been permitted to go home after her first hospital admission without ascertaining the cause for her hemorrhage?

*Answers.* A history of painless, apparently causeless hemorrhage in the third trimester of pregnancy should make a presumptive diagnosis of previa. Abdominal examination may be significant. The presenting part is unengaged because of the presence of the placenta in the lower segment and there is an increased frequency of abnormal presentation. The incidence of transverse presentation is so high as to lead one to suspect previa when this malpresentation occurs. A placental bruit is difficult to recognize and is unreliable; the placenta may be implanted posteriorly. X-ray examination employing either the cystogram or the soft tissue technic is often used but an absolute diagnosis cannot be made without vaginal examination. With the exception of massive hemorrhage or fetal distress few would subject a patient to cesarean section without such confirmatory evidence.

*Rectal examination in patients with painless bleeding is definitely contraindicated.* It may initiate or aggravate bleeding and can do little more than determine that the presenting part is in the pelvis, information which as a rule can be acquired by abdominal examination. It also carries risk of infection, for the examining finger transports bacteria from the lower vagina where they are more numerous to the area of placental separation. The clotted blood then affords excellent culture media for their propagation. If, however, labor is active, the presenting part deep in the pelvis and the bleeding not massive, rectal examination may be done and may disclose an effaced cervix closely applied to the vertex. The palpation of sutures and fontanelles rules out placenta previa. The progressive dilatation of the cervix may then be followed with rectal examination. Premature labor is occasionally accompanied with vaginal bleeding considerably greater than the "show" and without any apparent cause such as placenta previa, placenta ablatio or cervical lesions.

It must not be forgotten, however, that the onset of labor may initiate or aggravate hemorrhage in patients with previa. Hemorrhage occurs from the area of separated placenta in the region of the cervix, and the taking up and dilatation of the cervix during the first stage of labor may cause separation or widen its area. Multiparas are more prone to profuse hemorrhage than primiparas. It may be that the explanation lies also in this direction, possibly due to greater taking up of the cervix in formation of the lower uterine segment. The incidence of previa increases with multiparity and any cause for atrophic endometrium. Decreased vascularity tends to favor spread of placental formation over a wider area; this is substantiated clinically by the wider and thinner placentas seen in previa.

*Braxton Hicks' version is obsolete.* Not only is the fetal mortality associated with this procedure very high but also the maternal mortality is increased. Technically this is an extremely difficult procedure, especially if the fetus is not small. The two fingers of the operator that are inserted through the cervix have difficulty in locating, recognizing and grasping a foot, only to find, then, that it cannot be pulled through the cervix without added manipulations. The increased vascularity of the cervix and lower segment in previa makes for a sponge-like tissue that is occasionally so friable

that it may be torn with the ease of moist blotting paper; thus rupture of the uterus may result as shown here. In the occasional instance of association of a footling or complete breech in a multipara with low implantation of the placenta (defined later as including the marginal type) and a non-viable or dead fetus, pulling down a foot may be feasible. This procedure is justified only if it can be accomplished easily through an already sufficiently dilated cervix. It must never be followed with extraction. This particular patient was further predisposed to rupture of the uterus in that she had a dry uterus and extensive old cervical lacerations, one of which may have given way. The treatment should have been immediate transfusion and cesarean section.

Blood transfusion was not given early enough in this case. *The need for blood in this and other serious complications of pregnancy and labor is so great that no patient should be delivered in an institution where large amounts of compatible blood are not immediately available.* A patient who is suspected of previa should be typed for the Rh factor and blood grouping on admission to the hospital and at least 1,000 cc. of compatible blood kept near her until the pregnancy is terminated and danger of hemorrhage past. Plasma is a poor stopgap, ineffective if hemorrhage has been profuse and dangerous if it is pooled. Since plasma has no oxygen-carrying power but aids only in maintaining the blood pressure, the patient eventually becomes anoxic and irreversible shock occurs. *Blood given after irreversible shock has occurred is worthless.* Intravenous crystalloids should be used only during the time necessary to obtain blood, for their effect is temporary. When used in large amounts they are actually harmful.

\* \* \* \*

CASE II. A thirty year old white female, para IV, during a severe coughing spell in her thirty-sixth week of pregnancy had a vaginal hemorrhage amounting to a few ounces. This was followed with intermittent spotting. On abdominal examination the vertex was found in the right iliac fossa and the fetal heart was heard. On vaginal examination the cervix was found well formed, admitting one finger easily, and the edge of the placenta was identified close to the internal os. The membranes were ruptured artificially following which the head dropped into the pelvis. An abdominal binder

with lateral pads was then applied so as to fix the fetus in position. Hemostasis appeared satisfactory for twenty-six hours when hemorrhage recurred. There was no labor. The patient was then transfused with 500 cc. of blood, taken to the delivery room and a Voorhees bag introduced. Bleeding was controlled and within two hours irregular contractions occurred. Eight hours after introduction of the bag it was expelled and this was followed by spontaneous delivery of a living fetus. All attempts at Credé's expression failed. Three operators attempted the expression. After forty minutes the placenta was manually extracted. Postpartum hemorrhage could not be controlled by massage and oxytocics, and the patient died three hours after delivery of the placenta.

CASE III. A thirty-nine year old female, gravida VIII, para VII, pregnant eight months, suffered a sudden profuse vaginal hemorrhage at home estimated as between 1 and 2 quarts of blood. When admitted to the hospital she was in moderate shock. On vaginal examination the edge of the placenta was felt just through a cervix that was dilated 4 cm. Morphine, intravenous glucose solution and a transfusion of 500 cc. of blood were given just prior to the examination. The membranes were ruptured artificially and this controlled the bleeding.

Spontaneous delivery of a stillborn fetus followed within a few hours. About one-half hour after delivery of the placenta the patient received a transfusion of 750 cc. of blood. Her condition was described as good. The uterus suddenly relaxed one-half later and profuse hemorrhage recurred. The uterus and vagina were packed but the patient continued to bleed through the pack and died within the hour just as another transfusion was begun.

*Questions.* (1) Is Case II one of placenta previa? (2) In Case II was the introduction of the bag proper therapy after recurrence of the hemorrhage? (3) Is the third stage of labor any different in previa? Should postpartum hemorrhage be feared? (4) What role did the uterine pack play in the death of the patient in Case III? (5) How good is an abdominal binder? How good are the lateral pads used to fix the fetus in position?

*Answers.* Case II is a case of placenta previa. Certain authors of modern texts have now agreed that since the degree of encroachment of the placenta on the internal os may

change with labor, the diagnosis of the type should be made at the time of the first vaginal examination. Case 11 formerly would have been classified as marginal placenta previa. It has been further agreed that the term "marginal" should be discarded and all such cases included in the group called low implantation of the placenta. If the internal os is covered partially by placenta, the term "partial" is used; if completely, "total." The name "central," previously used synonymously with total, is not advisable since it implies a symmetric implantation of the placenta over the internal os of the cervix, and this usually is not the case. We will follow this new nomenclature.

We have given up use of the Voorhees bag in the treatment of placenta previa. Patients so managed generally need further therapy when cervical dilatation permits the bag to fall out, and are at this time not good candidates for further treatment. Manipulations incidental to introduction of the bag traumatize the highly vascular lower segment and profuse bleeding may occur. When the bag falls out or if the pains lag, the operator may be tempted to perform internal version and extract the fetus; this is particularly hazardous. The bag also tends to cause malpresentation by displacing the presenting part and occasionally may have to be replaced because of leaking. Infection may result from its use.

When rupture of the membranes is employed in the treatment of low implantation of the placenta and hemorrhage recurs, simple traction on the scalp by means of Willett's forceps is advocated by some. We have had but little experience with its use. A 1-pound weight attached to the forceps should be hung over the edge of the bed. This slight traction is generally enough to cause hemostasis; a heavier weight should not be used. Even a 1-pound weight may produce slight scalp wounds. When possible the clamp should be applied close to the occiput to maintain flexion of the fetal head. It may be removed when the scalp is seen through the distended vulva.

If rupture of the membranes is elected as treatment for placenta previa, particular attention must be paid to the degree of previa as well as the condition of the cervix. The cervix must be sufficiently dilated and the degree of encroachment of the placenta on the internal os little enough to permit the vertex to come down against the placental edge for hemostasis. Rup-

ture of the membranes has its greatest value when labor has been established, for the vertex can then be more confidently expected to press against the placenta. The condition of the cervix is of greater importance than the degree of previa. Rupture of the membranes should not be elected in the primipara before the onset of labor, nor in any case in which a long, uneffaced, undilated cervix is encountered. As indicated elsewhere it is inadvisable if hemorrhage is massive even if the status of the cervix and the degree of previa satisfy the aforementioned conditions. These patients are likely to have marked vascularity of the cervix and lower segment and are best treated with cesarean section. Actually its safest use is in the multipara with no more than moderate hemorrhage from low implantation of the placenta. Antibiotics are of value since the onset and progress of labor may be delayed and patients with placenta previa are predisposed to infection, largely because of blood loss. In patients who fail to go into labor after rupture of the membranes or in whom labor is of the inertia type it is not safe to use pituitary extract even by the slow drip intravenous route. Even this new and safer method of administration may cause rupture of the friable lower segment of the uterus. When bleeding continues after rupture of the membranes, cesarean section may become necessary.

When the placenta is implanted largely in the lower segment of the uterus, the mechanism of spontaneous separation and extrusion may be impaired and retarded. The inability of the lower relaxed portion of the uterus to contract as effectively as the upper segment may delay separation. Further, poor contractility of the lower segment where large blood vessels have formed as a result of previa may prevent effective hemostasis.

Hemorrhage may also result from lacerations in the highly vascular, friable lower uterine segments and cervix. The patient is predisposed to postpartum hemorrhage which when superimposed on inadequately treated antepartum hemorrhage may be sufficient to cause irreversible shock and death. The operator must be prepared to be prompt in manual removal of the placenta should hemorrhage accompany faulty or delayed separation. Manual removal of the placenta is not regarded as a dangerous procedure if it is done properly and not too late. The prophylactic use of antibiotics makes

the risk of subsequent infection minimal. One should not wait until blood loss is great before attempting it since undue haste is more likely to result in trauma to the uterus. The technic is not difficult. Under anesthesia the external hand manipulates the fundus while the internal hand follows the cord to the placenta and then separates it from the uterus. Once the cleavage plane is located, separation becomes easy. After separation the placenta and membranes may be delivered into the vagina by traction on the cord. The hand remains in the uterus to explore thoroughly for retained cotyledons of the placenta or possible rupture of the lower segment of the uterus. Combined internal and external massage will help to produce uterine contraction and hemostasis. With this technic reintroduction of the hand into the uterus is not necessary and this reduces the risk of infection.

In a previous article in this series on postpartum hemorrhage we asserted that the uterovaginal pack is valueless. In placenta previa, with the increased friability of the lower uterine segment, packing is not only ineffective in producing hemostasis but also may cause rupture. The patient in this case actually died of postpartum hemorrhage. If immediate transfusion and hysterectomy were substituted for the packing, she probably would have survived.

The abdominal binder is a relic of the dead past. And the lateral pads? Too much is expected of them.

\* \* \* \*

CASE IV. A twenty-eight year old white primipara was admitted to the hospital at twenty-eight weeks of gestation because of slight vaginal hemorrhage the previous day. Slight bloody vaginal discharge was noted on admission. The presentation was vertex and the fetal heart was heard. A cystogram suggested placenta previa. It was decided to follow the expectant plan of treatment and, accordingly, the patient was kept in bed in the hospital for the next three weeks. During this time only occasional slight vaginal bleeding was noted. At the end of this period a sudden gush of blood occurred. The staff decided to examine the patient vaginally, with the idea of rupturing the membranes or performing cesarean section if previa was found. However, examination in the operating room failed to

disclose placenta previa and the patient was sent back to bed. There was no further bleeding until five days later when a second sterile vaginal examination found the internal os completely covered by the placenta. A transfusion of 500 cc. of blood was given and a lower segment cesarean section performed under general anesthesia. Her postoperative course was characterized by the symptoms and findings of sepsis, and she died of peritonitis six days after the operation.

*Questions.* (1) How valuable is the x-ray diagnosis of placenta previa? (2) How dangerous is a single or repeated vaginal examination in placenta previa? How should the vaginal examination be done? (3) Is expectant management of placenta previa ever justified? (4) When should cesarean section be performed for a patient with placenta previa?

*Answers.* In experienced hands the x-ray diagnosis of placenta previa may be of some aid. The cystogram is generally not as accurate as the soft tissue technic. In the cystogram about 40 cc. of air or a radiopaque solution such as a 12.5 per cent solution of sodium iodide is instilled into the bladder. With pressure applied to the fundus anteroposterior and lateral plates are taken. When the fetus is in vertex presentation, placenta previa will generally cause a widening and asymmetry of the space between the fetal vertex and the bladder shadow. In the soft tissue x-ray technic an attempt is made actually to visualize the placenta. If it is found in the upper segment, placenta previa is ruled out. In the most expert hands it is said to have an accuracy of 80 to 85 per cent and is favored over the cystogram method. Indirect light coming from an ordinary goose-neck lamp is better than the x-ray viewing box in searching for the placental shadow. In both x-ray methods the lateral plate is more valuable than the anteroposterior plate, for the placenta is generally implanted largely on either the posterior or anterior wall of the uterus. When x-rays are taken, a full view of the fetus should be obtained, for congenital malformations of the fetus which occur frequently with placenta previa may be recognized.

From a practical point of view x-ray diagnosis cannot be relied upon to make the diagnosis. Vaginal examination is the surest method and is recommended. When properly carried out a single vaginal examination is safe. *It*

April, 1951

*should be performed only in the operating room with all preparations made for immediate treatment should previa be found. Nurses and assistants should be scrubbed and standing by. One thousand cubic centimeters of blood should be on hand since the examination may separate more of the placenta, displace a clot and precipitate severe hemorrhage.*

As in this case placenta previa may be present and yet not found if great care is not exercised in the examination. One should first be familiar with the feel of the placenta. It is quite characteristic and can be described as spongy, granular or gritty. One may practice by taking a placenta after delivery and placing it over a circle made by the fingers and then feeling it through the circle with the eyes closed and rubber gloves on. It must be distinguished from a blood clot. The examination should begin by spreading the vagina widely with specula and carefully inspecting the cervix for erosion, polyps, varices, carcinoma or evidence of trauma. The vagina must also be inspected. (In a recent case seen by one of us a patient thirty weeks pregnant gave a history of spontaneous, painless hemorrhage, but on speculum examination evidence of trauma to the cervix and vault of the vagina could be seen. The patient later admitted an attempt at self-induction.) A finger should then *gently* be introduced through the internal os of the cervix. Since the cervix in placenta previa is generally larger, softer and more patulous, this can usually be done. One should not poke at the placenta since this will separate more than is necessary and aggravate the hemorrhage.

Vaginal examination may be made extremely difficult by finding a rigid, closed, uneffaced cervix, but this is unusual in cases of placenta previa. One must not dilate such a cervix but be content with fundal pressure and feeling about the portio vaginalis of the cervix through the lower segment of the uterus. If the fetal skull is felt all about, previa is unlikely. Occasionally one may get the sensation of a mass between the fetal head and lower segment on one side; this may suggest previa.

The single vaginal examination done just prior to cesarean section is reasonably safe. A second vaginal examination, however, some days after the first and followed with cesarean section is considerably more dangerous. Although the original examination may have been carefully performed, bacteria are carried into

the bloody area of placental separation. A later examination may disturb the area of infarction in which bacteria are multiplying in excellent culture media, encourage invasion and result in fatal peritonitis later postoperatively.

The expectant treatment of placenta previa may be made safe. The initial hemorrhage is rarely if ever catastrophic, and apart from cervical manipulation or the onset of labor, even recurrent hemorrhages are not apt to be fatal. The gravity of placenta previa must not be minimized, yet it is clear that if the patient is not actively bleeding and can remain in a hospital under close observation with adequate amounts of compatible blood immediately available, the expectant plan can be followed. It should be borne in mind that the multipara is more prone to sudden and profuse hemorrhage. Fetal salvage can be increased with expectant management. Deferment of treatment for even two to three weeks will often materially increase the chances for fetal survival. One must arbitrarily set a definite date after which expectant treatment is no longer indicated. This probably lies between the thirty-fourth and thirty-sixth week. The estimated size of the fetus will undoubtedly influence one's judgment considerably.

The expectant plan of management at home is not recommended. If hemorrhage should occur, much time is lost before adequate therapy is instituted. When patients are followed expectantly in the hospital, repeated estimation of the hemoglobin may be necessary; it is particularly indicated after an episode of bleeding. The Talquist method is unsatisfactory because of the great margin of error. The hemoglobin must be kept at at least 70 per cent, by transfusion if necessary.

The modern treatment of placenta previa includes termination of the pregnancy by cesarean section or by induction of labor from rupture of the membranes. Cesarean section is more often indicated. It should be elected when the previa is partial or complete or when there is an undilated, uneffaced or primiparous cervix. Massive hemorrhage is best treated this way despite the degree of previa for it may indicate marked vascularity of the lower uterine segment and cervix, a condition which makes vaginal delivery hazardous. Advances in technique now offer greater safety for the patient. Abdominal delivery tends to retain the limited hemostatic power which the lower uterine

segment possesses and thus danger of postpartum hemorrhage after cesarean section is less than after vaginal delivery. The undesirable and dangerous sequelae from trauma to the cervix and lower uterine segment are avoided. Hemorrhage can be promptly controlled since delivery is generally quickly accomplished. There is also considerably greater fetal survival. Shock is an immediate contraindication to any form of operative treatment. Since hemorrhage, however profuse, tends to be intermittent and rarely kills, there is time to treat the shock. *This must include massive blood transfusion.*

We perform the lower segment operation for placenta previa. During this procedure the placental implantation site may be seen. Wallace clamps are placed on the margins of the uterine incision which are brought up into view and inspected. Bleeding vessels may easily be identified, clamped and ligated. It is routine during this cesarean section to give blood by transfusion for bleeding may be profuse. The choice of the anesthetic agent is important. If active bleeding does not make speed necessary, general anesthesia should not be selected. A fetus already in jeopardy because of maternal blood loss will become more anoxic from respiratory depression after delivery. Local anesthesia supplemented by intravenous drip sodium pentothal® or regional anesthesia such as epidural or fractional spinal anesthesia are preferred. It is good to have a pediatrician in attendance as anoxia and prematurity demand expert attention.

\* \* \* \*

CASE V. The patient was a white thirty-two year old female, para III, who during her thirty-fourth week of pregnancy suffered a moderate vaginal hemorrhage while asleep at home. Her physician inserted a vaginal pack and transported her to the hospital. On general and abdominal examination she was thought to have a normal pregnancy. The vaginal pack was removed the following day with slight recurrence of vaginal bleeding. A sterile vaginal examination showed a small, bleeding polyp and it was concluded that this was the cause of the bleeding. Accordingly she was sent home.

More severe bleeding occurred eight days later and the patient was readmitted to the hospital. Vaginal examination now showed a partial placenta previa. A lower segment cesar-

ean section was performed. There was some difficulty in extracting the placenta but this was finally accomplished. The fetus was alive. During the patient's postoperative period she continued to bleed moderately from the vagina and the cause for this was never ascertained. She showed clinical evidence of spreading peritonitis postoperatively and despite the use of some sulfonamides and antibiotics died six days later.

*Questions.* (1) Is the use of a vaginal pack ever indicated in placenta previa? (2) Does the finding of a cervical polyp or erosion necessarily exclude previa? (3) When should just a speculum examination be made? (4) What is a likely cause for the continued postoperative bleeding? (5) What was the cause for difficulty in placental removal?

*Answers.* The use of a vaginal pack is never indicated. It is not only useless but also dangerous.

The finding of a cervical polyp or erosion which bleeds when touched with a cotton applicator is presumptive evidence of the cause for slight vaginal bleeding. But, as in this case, it does not exclude placenta previa which should be suspected despite the presence of such cervical lesions if hemorrhage has been more than slight. However, when the expectant plan of management is followed because of the prematurity of the fetus, simple, cautious, sterile vaginal speculum examination in the hospital is all that is necessary for initial slight vaginal bleeding. Such speculum examination is indicated shortly after the patient is admitted to the hospital. Carcinoma of the cervix associated with pregnancy occurs frequently enough to be borne always in mind. The marked increased rate of growth of the carcinoma in such patients makes early diagnosis and treatment imperative. A delay of a few weeks during expectant management will make the prognosis graver. In at least 20 per cent of patients with vaginal bleeding in the third trimester of pregnancy and before the onset of labor neither speculum or digital examination nor examination of the placenta after delivery will disclose the cause for the bleeding. Actually placenta previa is the cause in about one-third of the cases.

This patient was unnecessarily infected prior to cesarean section. Of greater importance than the use of drugs to combat infection or large

April, 1951

amounts of blood to replace blood loss is good judgment in selection of the time and method of treatment. All our modern therapy may fail to save the mismanaged patient. Patients rarely die of the previa alone, but rather from the added effects of inadequate or faulty treatment.

The continued vaginal bleeding may have been due to retained placental tissue which incidentally may have aided in continuing and spreading the infection. It is just as important to examine the placenta to see if it is complete after abdominal as after vaginal delivery.

We do not know how this placenta was removed or what made its removal difficult. The uterine incision may have been too small; the placenta may have been fragmented by an incision carried through it; or it may have been large, thin, spread out and partially in the upper segment. Or, less likely, the operator may have tried to express it by what is called the Credé maneuver.

Good management of the placental stage is vital. If the placenta is found on the anterior uterine wall, the incision must be carried through it *expeditiously and with good judgment*. No form of expression, whether carried on through the abdominal wall or upon the uterine fundus itself, should be practiced. The placenta should be removed manually and carefully with due regard to the possibility of wide coverage.

\* \* \* \*

CASE VI. A twenty-nine year old white primipara suddenly experienced profuse vaginal hemorrhage when about thirty-eight weeks pregnant. Two hours later with the onset of labor the patient noted a gush of bright red blood and clots with each pain. Dilatation of the cervix progressed to 4 cm. after four hours of labor. The fetal heart could no longer be heard, the pains lessened and the bleeding slowed. The estimated blood lost at this time was about 2,000 cc.

On admission to the hospital the patient was in shock. She was pale, apathetic and clammy. The pulse was 150 and the blood pressure 70/50. The red blood count was 3,270,000. Plasma and whole blood were given; and when the general condition of the patient improved, vaginal examination was performed. A total placenta previa was found. The cervix was manually dilated from 4 to 7 cm. and a No. 4 Voorhees bag inserted. The patient went into shock again and complained of severe abdom-

inal pain. Her abdomen became board-like and the fundus rose higher. She was unconscious and her blood pressure could not be obtained. The bag was removed and more blood and plasma were given by transfusion.

The patient was now prepared for delivery. The cervix was manually dilated further. A hole was made through the placenta and by podalic version and extraction a thirty-eight week old stillborn fetus weighing 6 pounds, 1 ounce was delivered.

The general condition of the patient improved slowly after repeated transfusions were given. Her postpartum course during the first four days was septic but after this period the temperature fell to normal and remained so until the ninth day when the patient suddenly died.

At autopsy the right pulmonary artery was found to be occluded by a large antemortem thrombus. The veins in both broad ligaments showed antemortem thrombi and there was pathologic evidence of acute septic endometritis.

*Questions.* (1) Is manual dilation of the cervix ever indicated in the treatment of placenta previa? (2) What would have been proper treatment for this patient? (3) Is it ever advisable to make a hole in the placenta? (4) Is massive hemorrhage evidence of total coverage?

*Answers.* This patient illustrates massive hemorrhage that can occur in patients with placenta previa, especially when the type is total. However, massive hemorrhage does not necessarily indicate total coverage. The type of placenta cannot be foretold either by the amount or suddenness of the blood loss or by the time it occurs. Manual dilation of the cervix, better termed "manual laceration," if ever indicated is condemned in patients with placenta previa because of the increased friability of the cervix and lower uterine segment. It is never advisable to make a hole in the placenta.

The treatment of this patient is open to great criticism. She apparently tolerated procedures well calculated to cause rupture of the uterus, namely, manual dilation of the cervix, podalic version and extraction, only to succumb to infection and embolism later. The use of the bag was likewise ill advised. When vaginal examination disclosed total previa, a cesarean section should have been performed.



## SUMMARY

1. Although the history is often significant, the diagnosis of placenta previa can be made only by vaginal examination. X-ray technics are helpful but not absolute. Rectal examination is contraindicated. The digital vaginal examination should be made only in the operating room after preparations have been taken for immediate treatment should placenta previa be found.

2. Expectant management in the hospital is advised in patients before the thirty-seventh week of gestation if the bleeding is not excessive. All patients with bleeding who are being

treated expectantly should have a speculum examination shortly after admission. The possible occurrence of carcinoma must always be considered.

3. For practical purposes treatment consists of rupture of the membranes or cesarean section. Vaginal packing, Braxton Hicks' version and the dilating bag are, in our opinion, obsolete.

4. The need for blood is great. Blood lost during antepartum, intrapartum and postpartum periods must be replaced. Transfusion given after irreversible shock has occurred is without value.



BURNETT et al. have had very favorable results in the treatment of empyema by delaying surgery a few days while they first aspirated the empyema cavity and reinstalled adequate amounts of penicillin (occasionally other antibiotics may also be needed). Only about 20 per cent of their patients failed to respond to such measures and had to be operated upon. (*Richard A. Leonardo, M.D.*)