IS CESAREAN SECTION JUSTIFIABLE IN ABLATIO PLACENTAE?

By John Osborn Polak, M.D., F.A.C.S., Brooklyn, New York.
(From the Clinic of the Long Island College Hospital, Department of Obstetrics and Gynecology)

PREMATURE separation or ablatio placentae (Holmes) is the partial or complete separation of the placenta from the upper segment of the uterus during pregnancy or during labor, before completion of the second stage, due to some pathologic state of the uteroplacental union, or to violence done to the organ.

In my experience, premature separation of the normally implanted placenta is perhaps the most frequent cause of antepartum bleeding at or near term; and it is an accident which all of us should be prepared to recognize and treat along rational lines; for but few cases require radical interference, but all need intelligent supervision.

The frequency of ablatio has been estimated as about 1 in 200 labors; however, I am under the impression that many cases of partial separation with concealed hemorrhage are missed, owing to careless observation, and that many of the cases that are diagnosed as partial placenta previa, because of the occurrence of bleeding, near term or during labor, are really premature separation.

In our clinic where every placenta is carefully examined, we have been surprised to find how many placentae have old blood clots on the maternal surface; hence we have come to feel that ablatio is seen more frequently than placenta previa. The factors which seem to predispose to this accident are age, multiparity, advanced period of pregnancy, and the unstable attachment of the placenta due to the physiologic structure of the serotina at, or near term.

Upon reviewing my cases I found that the majority of these accidents have occurred in women between 25 and 35 years of age, who have had an *antepartum history of toxemia;* while the minority have shown evidences of deciduitis or placentitis with hemorrhages in the serotina, and but a few could be attributed to direct violence, as blows, kicks or sudden muscular exertion.

The point and degree of separation have considerable bearing on the amount of blood which the patient loses and the severity of her symptoms; consequently they must also have some bearing on the prognosis and form of treatment which should be instituted.

As I have already stated, the normally situated placenta may become (1) partially or (2) completely separated from its placental site. If the former, the separation may be central (Fig. 1), the placenta remaining

attached at its circumference, which allows the formations of a retroplacental blood accumulation. This stimulates contractions which in turn compress the clot and further separate the placenta from its attachment, so that one edge may separate and the escaping blood strip the membranes from their uterine adhesion.

It may be stated that *all cases begin with absolute concealment of the hemorrhage* and later, may develop an apparent hemorrhage; for

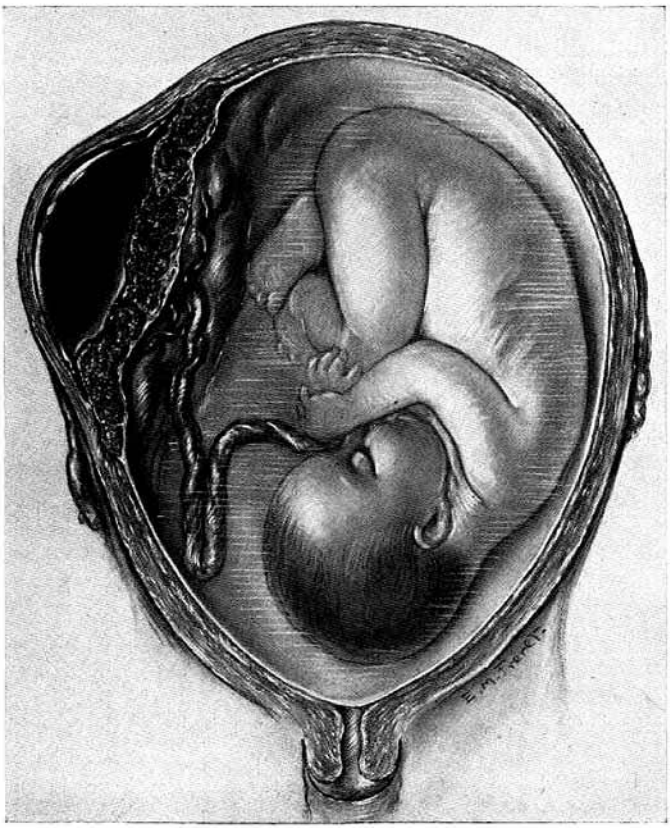

Fig. 1.—Central separation. Concealed hemorrhage.

as the membranes are detached from the lower uterine segment, there may be an apparent hemorrhage when the presenting part does not completely block the lower segment (Fig. 2), blood and clots escaping at the time of contractions, or the blood may remain concealed if the presenting-part is engaged, and completely blocks the cervix. In this case blood can be demonstrated by the escape of serum, blood, or clots, when the presenting-part is displaced upward on vaginal ex-

amination (Fig. 3). When the separation is complete, the accumulation may rapidly distend the uterus; for the placental site in an overdistended spastic uterus cannot retract unless the membranes are ruptured soon after the separation takes place, for the increased intra-

Fig. 2.—Apparent hemorrhage, partial separation. Head unengaged.

uterine bulk prevents thickening of the uterine walls by normal retraction.

While pathologically there seem to be two types—the one (Fig. 4) with concealed, and the other with apparent bleeding—this difference is only relative, or one of degree.

The diagnosis should be readily made upon the symptom complex, which is almost always present. The patient, an old primipara, or a

multipara, usually at, or near term, who may have shown some of the prodromal signs of toxemia (such as a trace of albumin in the urine, or a rise in the systolic blood pressure, or these signs may have been absent) is suddenly seized with cramp-like uterine pain, which may be localized and referred to the placental site, faintness, or nausea, which is always attended with some degree of shock, blanching, and pulse rise. Pal-

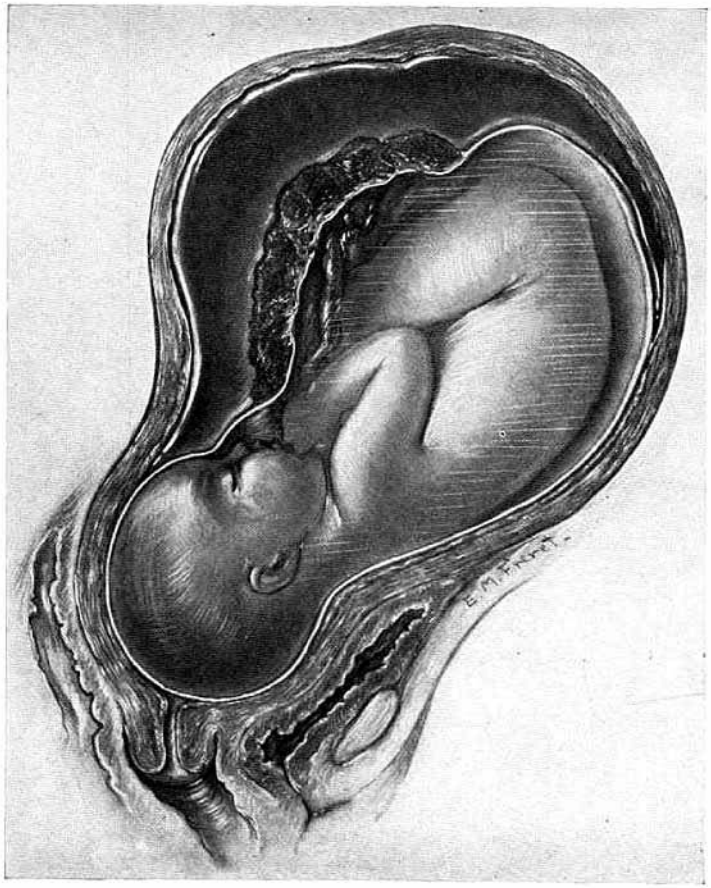

Fig. 3.—Head filling lower uterine segment, preventing escape of blood.

pation shows a uterus that is extremely sensitive, spastic, tense and firm, or flaccidly filled with retained blood which does not intermittently contract and relax, as in normal labor. The fetal movements may be tumultuous and then cease, depending on the degree of separation. Owing to the spasticity of the uterus, detection of the fetal parts is difficult. Auscultation will show the fetal heart to be absent if the

ablatio is complete, or if the separation is incomplete there will be progressive signs of impairment in the fetoplacental circulation—of course both the fetal movements and the changes in the heart sounds are dependent on the amount of separation.

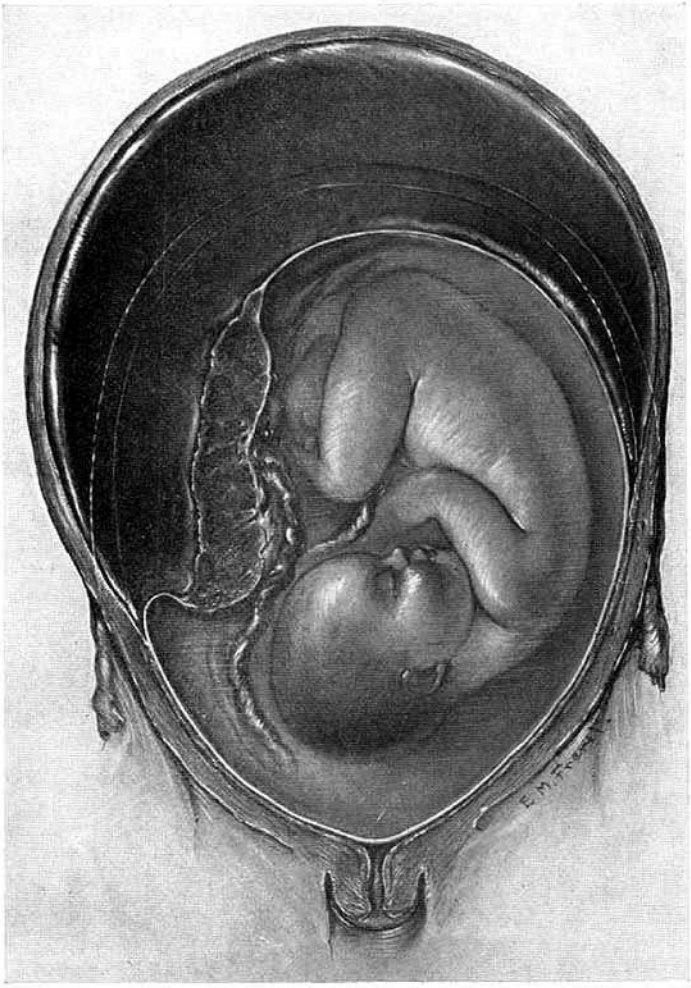

Fig. 4.—Complete separation—distended, atonic uterine wall becoming thinner.

The diagnosis is confirmed in both the relatively concealed, and in the apparent cases by the escape of bloody serum, or by actual vaginal hemorrhage. In the relatively concealed cases, on raising the presenting-part out of the pelvis, it is usual for some of the accumulated blood

and clots to escape into the vagina, while palpation and mensuration will demonstrate the asymmetry, or the rapid enlargement of the uterus (Fig. 5).

It is my purpose, in this short communication to outline the obstetric procedures indicated in the management of this accident, for like ectopic, the cases may be divided into those in the nontragic, and those in the tragic stages.

Clinical study of a large number of these cases has shown that it is possible to differentiate between those that can be safely treated on the

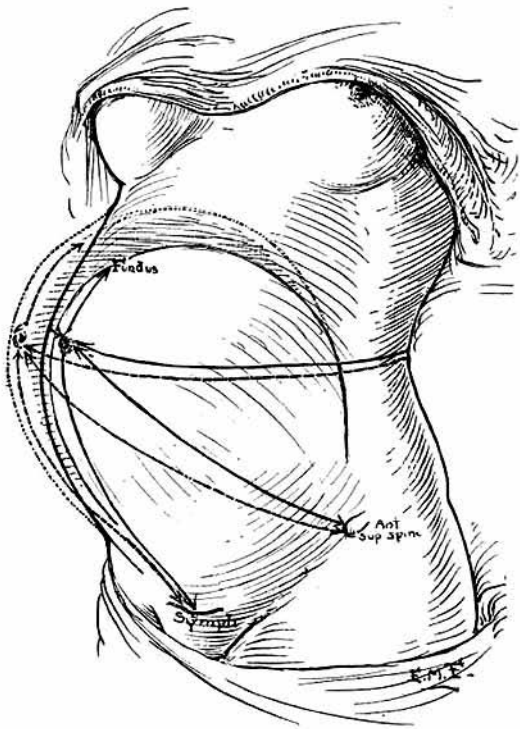

Fig. 5.—Mensuration showing the rapid increase in size of uterus with retained blood.

expectant plan, and those that require rapid infrapelvic delivery, or section and hysterectomy. The treatment depends largely on the extent of the pathology, and while today, in many instances of separation, there seems to be irrefutable evidence of an associated toxemia, there are others which cannot be attributed to this cause.

Morse's observations confirmed by his experimental work on rabbits, in which he tied all three groups of the efferent veins of the uterus on one side, seem to prove that the exciting cause of many of these separations may be attributed to placental apoplexy produced by sudden

uterine torsion which interferes with the out-going blood. One has but to remember the picture of the uterine veins of the pregnant uterus when the abdomen is opened at section, to realize how increased torsion of the uterus, near term, may block the venous return on one side (Fig. 6), and engorge the mesometric veins, the intervillus spaces and the decidual

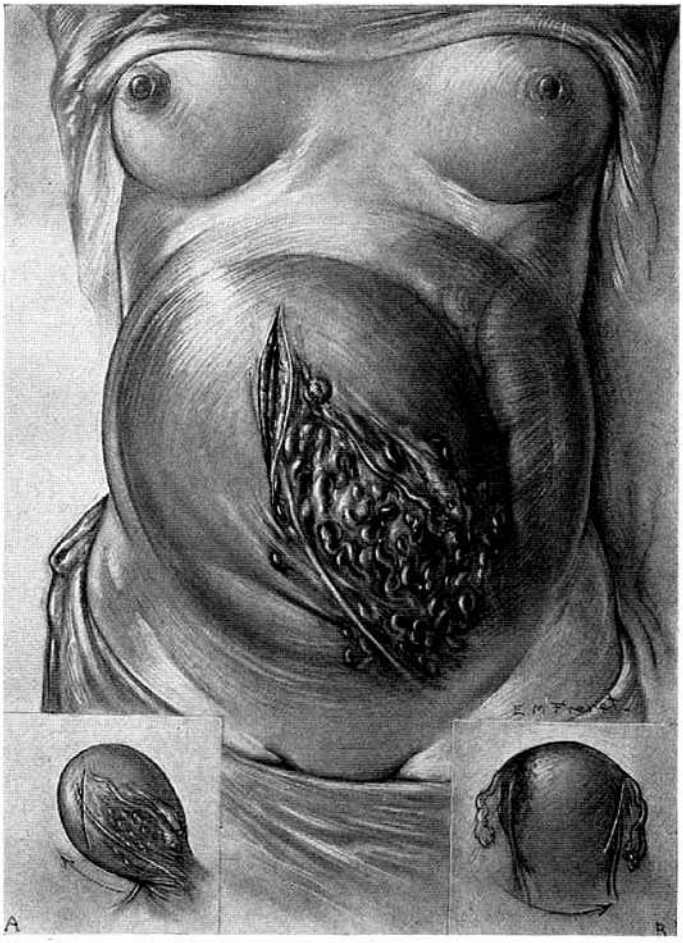

Fig. 6.—Extreme torsion of uterus.

radicals. This torsion when it is greater than normal may be further increased by muscular effort or by uterine contractions of the torsioned uterus. This naturally further engorges the large veins on one side, and engorges the vessels in the serotina which act exactly as does retraction of the uterus during the third stage of labor, namely, allows

hemorrhagic extravasations to take place at many points in the spongy layer of the decidua which during contraction further separate placental attachment in the so-called concealed type. Owing to the fact that the placental site cannot retract because of the bulk of the uterine content, the area behind the placenta becomes distended with blood, fluctuant then spastic and very tender. If the placenta completely separates, retraction of the site may not take place as long as the uterine content prevents diminution in the size of the uterus. Consequently, instead of the uterine wall thickening, the walls become thinner and more atonic as the bleeding from the placental site continues and the blood accumulates in the space between the membranes and the uterine walls, always increasing the size of the uterus; hence, continued intrauterine bleeding may be demonstrated clinically by repeated mensuration of the uterus, record of the rising pulse rate, persistent fall in the systolic blood pressure, and progressive drop in the hemoglobin percentage. While objectively the patient continues to show more pallor and other external evidences of internal hemorrhage, such a picture does not brook expectancy, but needs prompt surgical intervention with coincident blood transfusion.

On the other hand, the nontragic cases likewise present a typical syndrome which may be readily recognized i. e., a pregnant woman at, or near term, who after exertion, or without appreciable muscular effort, except perhaps a few uterine contractions, is seized with cramp-like uterine pain, slight collapse evidenced by nausea, pallor with perspiration about the lips, nose and forehead, lowering of the blood pressure, and increased pulse rate. On physical examination the uterus will be found to be tense and tender, and may be asymmetrical if the blood has accumulated behind the placenta (accessory tumor) or with the occurrence of pain, vaginal bleeding may be apparent, or only be demonstrated on making a vaginal examination and raising the presenting-part which liberates some accumulated blood clots.

Given a patient presenting the foregoing picture, and excluding placenta previa by the absence of its physical signs, a diagnosis of ablatio placentae may be readily made. Such a patient should be immediately transferred to the hospital and allowed a short period of intelligent observation. If the cervix is effaced, or the patient is a multipara, the membranes may be ruptured and the bulk of the uterine contents diminished. This theoretically allows the fetus to act as an intrauterine tampon which stimulates muscular contraction. A quarter to a half a grain of morphine is administered to relieve the shock and aid in the dilatation, while a tight many tailed abdominal binder is applied from above downward in order to firmly compress the uterine wall against the fetal tampon. In addition to this, the vagina may be firmly plugged with sterile gauze or cotton moistened with boroglycerid which further stimulates uterine contractions and favors dilatation.

If it is certain that the pelvic measurements at the outlet are ample, the presenting-part is engaged, and there is already evident dilatation of the cervix, the suggestion of Tweedy, of giving small repeated doses of pituitary extract every 20 minutes, will further aid the control of bleeding.

During this watching period intelligent observation is imperative. The pulse should be taken and recorded every fifteen minutes, the systolic pressure every half hour, and the hemoglobin and red cell count every hour, while the height and size of the uterus which has been carefully marked out upon the abdomen, should be noted and any increase in uterine distension recorded. If these measures check the hemorrhage, as they usually do in the majority of cases, the pulse will gradually improve in quality and become slower, the systolic pressure will rise or remain stationary, and there will be no further fall in the hemoglobin percentage until delivery occurs and the placenta is expelled. If, however, the pulse rate is high, I have found it wise to firmly pack the interior of the uterus with washed iodoform gauze and thus control further oozing.

On the other hand, if the intrauterine bleeding is continuing, the uterus will further enlarge, or the outward flow of blood will not be checked. It must be remembered however, that the amount of vaginal bleeding is no index of the amount of blood lost; for more or less blood is always retained within the uterus. The pulse increases in rapidity and diminishes in quality, while the systolic pressure will slowly fall as will also the percentage of hemoglobin.

In those patients, in whom the clinical picture above described, show the signs of progressive intrauterine bleeding, no infravaginal method of delivery is justifiable unless the cervix is already dilated. For one is dealing not only with the atonic uterus, but with an organ whose musculature presents definite pathology, namely, an apoplectic uterus with blood extravasations into the myometrium causing disassociation of the muscle fibers making it impossible to secure retraction, and hence postpartum hemorrhage is the sequel (Fig. 8). Furthermore, the release of the large quantity of retained blood which immediately follows delivery of the fetus, is always attended with severe shock, for the rapid emptying of the overdistended atonic uterine cavity does not permit of retraction, hence, the frequency of fatal collapse. I formerly delivered these patients by manual cervical dilatation, forceps and version, and saw them collapse after the fetus was expelled, with a postpartum gush so torrential as to be uncontrollable.

As in ectopic, the woman may sensitize herself to a certain amount of blood loss, and if further bleeding is permanently controlled, even if she is pulseless, she will show signs of reaction. But, if in addition to this great blood loss, any further bleeding continues, she will fail to react, for shock and hemorrhage are interdependent, and these

patients are already severely shocked. Hence, I feel that surgical trauma which is attended by any further blood loss must result fatally.

What then should be the attitude in the management of these tragic cases, what will determine the plan of procedure? This will depend largely on the condition of the patient, and the condition of the cervix, for the child is a negligible factor. One is not justified in doing a cesarean section which will entail further shock and oozing to deliver a stillborn child, unless one is prepared first to transfuse the patient, and then prevent further blood loss by hysterectomy. Section upon this

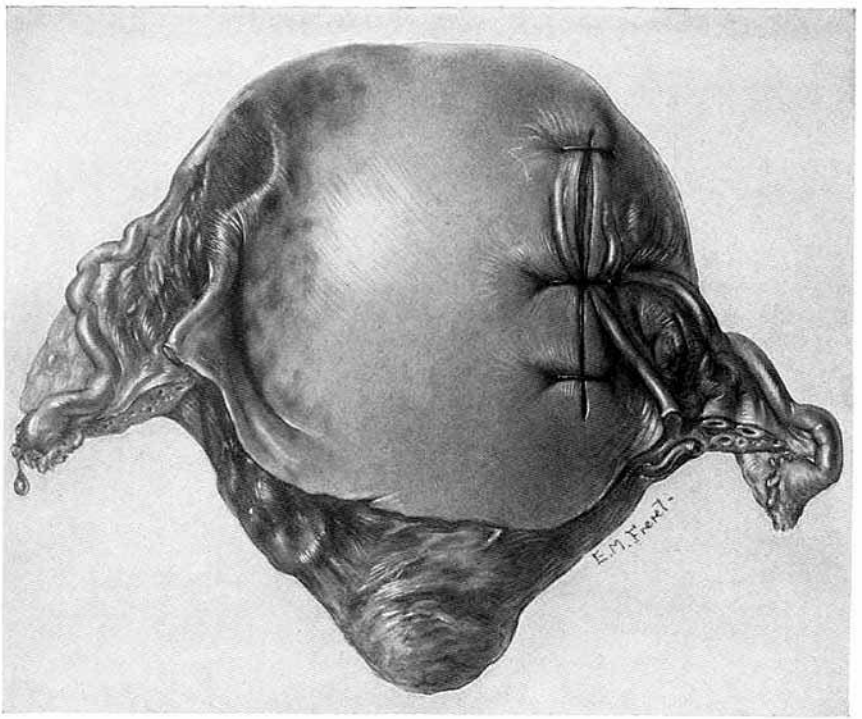

Fig. 7.—Torsion shown by position of uterine incision. Ecchymotic areas in wall.

type of case has always revealed a constant pathologic picture—large areas of the uterine wall are ecchymotic (Fig. 7) and when cut through do not bleed, but ooze serum and microscopically show multiple thrombosis of the vessels of the myometrium, distorting and disintegrating the muscle fibers. (Figs. 8, 9.)

There is extreme flaccidity with little or no tendency to uterine contraction and retraction; hence, retention of the uterus necessarily means continuation of the oozing and frequently infection, for it is

exceptional that these patients have not been repeatedly examined through the vagina before admission to the hospital.

It has been my practice to prepare the patient during the observation period for possible immediate operation, and secure a donor for blood transfusion by one of the direct methods, such as suggested

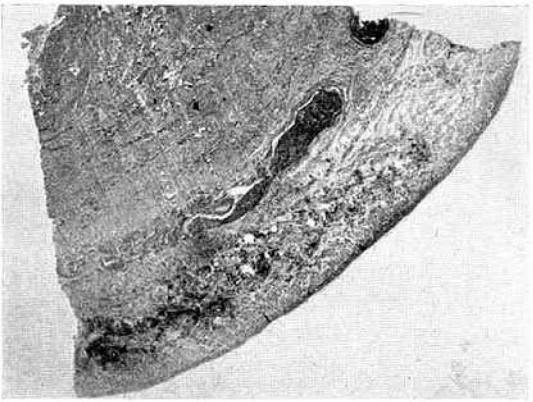

Fig. 8.—Section showing hemorrhage into muscle wall and thrombosis.

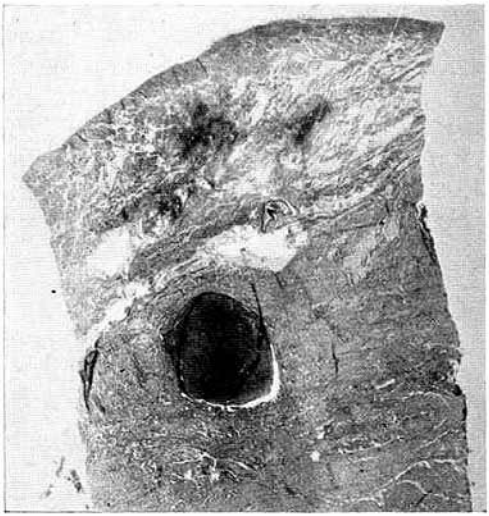

Fig. 9.—Showing large thrombus in a torsioned uterus.

by Unger or Miller. Experience has taught us that it is good surgical judgment to transfuse these patients before active surgery is done upon them, or to have the transfusion coincident with such surgery. Of course, if the cervix is well dilated, the presenting-part engaged

and the woman is actually in labor, a few minims of pituitary extract with a tight abdominal binder will expedite the labor; but this is not the class of case under consideration.

In the majority of these tragic cases, the unprepared cervix offers an obstacle to infrapelvic delivery; hence, it has been my plan after first transfusing the patient, to open the abdomen with a long median incision and eventrate the uterus. Inspection will immediately show whether it requires removal or can be safely left *in situ;* for the apoplectic uterus shows numerous ecchymotic areas and fails to contract. In the presence of such a condition, the child is invariably dead, therefore, it has been my practice to clamp both broad ligaments in order to control the uterine and ovarian blood supply before incising the uterus; this permits the performance of a bloodless supracervical hysterectomy. On the other hand, if there are fetal heartsounds, and inspection of the uterus shows no intermuscular hemorrhages which are evidenced by ecchymotic areas under the perimetrium, and the uterus intermittently contracts, hysterotomy, leaving an intrauterine pack within the cavity, is a justifiable procedure.

From this study it is fair to assume:

First, that ablatio is a relatively common accident.

Second, that previous toxemia is a predisposing factor.

Third, that many of the cases have an apoplectic origin from torsion of the uterus, while very few can be attributed to trauma.

Fourth, that the symptom complex is constantly present and makes the diagnosis, which may be confirmed on vaginal examination by the escape of serum, blood or clots.

Fifth, that clinically this accident presents two general classes, the nontragic and the tragic cases.

Sixth, that in the former, intelligent expectancy in conjunction with rupture of the membranes, a tight abdominal binder, and pituitary extract will effect spontaneous delivery.

Seventh, that in the tragic cases which show progressive hemorrhage, fall in blood pressure and hemoglobin percentage, section after transfusion is the procedure of choice.

Finally, the decision between hysterotomy or hysterectomy depends on the condition of the uterine muscle.

20 Livingston Street.

DISCUSSION

DR. ABRAHAM J. RONGY, New York City.—I have not had as much experience as Dr. Polak in dealing with cases of ablatio placentae, but I have had some rather tragic experiences. There is no question that these tragic cases require the immediate opening of the abdomen, for the reason that very many of them are mistaken for spontaneous rupture of the uterus.

I have had two cases in the last two years. One was a woman in labor forty-