MISSED ABORTION*

AN EVALUATION OF CONSERVATIVE MANAGEMENT

SAMUEL LUBIN, M.D. AND RICHARD WALTMAN, M.D.
Brooklyn, New York

IN 1943 the authors[1] reported a series of eighteen cases of "missed abortion," the patients being treated by non-surgical measures, with a successful outcome. To date we have observed a total of thirty-nine patients with missed abortion without a maternal death and are presenting our findings and mode of management.

When a fetus dies *in utero*, it is commonly observed that uterine contractions begin within a comparatively short period of time and the uterine contents are expelled. However, there exists a group of cases in which for some as yet questionable reason this process fails to set in and the uterine contents are retained for varying lengths of time, sometimes weeks or months.

Our definition of missed abortion applies when the non-viable fetus succumbs and is retained for a minimum of four weeks. This is differentiated from the term "missed labor" which indicates fetal death at term with retention for at least twenty-eight days and "missed premature labor" indicating fetal death between the twenty-eighth and fortieth week, with a minimum period of retention *in utero*.

The exact incidence of missed abortion, which was first described by Duncan in 1878,[2] is not known. In addition the mode of treatment is by no means universally agreed upon. Many textbooks advocate immediate surgical evacuation of the uterus as soon as the diagnosis is made. The reasons given for the immediate emptying of the uterus which contains a dead fetus are toxemia, infection and hemorrhage. More recently, however, the employment of hormones to favor emptying of the uterus has been advocated.[3]

The signs, symptoms, diagnosis and pathology of missed abortion can be found in standard textbooks. We believe the mode of treatment, once the diagnosis is established, is worthy of presentation.

CLINICAL DATA

The ages of the patients varied between seventeen and forty-six years.

Age	No. of Patients
Under 20	1
21–30	17
31–40	15
41–46	6

The gravidity varied between one and thirteen. The total included eight primigravida and thirty-one multigravida, the latter divided as follows: two pregnancies, six; three pregnancies, seven; four pregnancies, four and from five to thirteen pregnancies, fourteen. One patient had one previous missed abortion and one had two previous missed abortions. One patient had a previous erythroblastotic baby. Thirteen patients had previous abortions, an incidence of 33.28 per cent. Seven patients had previous stillbirths, or an incidence of 17.9 per cent. (Fig. 1.)

Retention varied from four to twenty-eight weeks. Twenty-five, or 64 per cent, were retained from four to twelve weeks; two were retained from twelve to fourteen weeks; two for fourteen weeks; six were retained for seventeen to twenty weeks and six were retained for twenty-three to twenty-eight weeks.

It is to be noted that in keeping with our previous findings the period of retention

* From the Department of Obstetrics and Gynecology, Cumberland Hospital, Brooklyn, N. Y.

generally varied inversely with the age at which death of the fetus occurred. When fetal death took place early in pregnancy, the period of retention was longer than when it occurred later in pregnancy.

The signs and symptoms encountered were brownish vaginal discharge, cessation of fetal movements or failure to experience fetal activity and slight vaginal bleeding. Chilliness and anorexia were encountered in one case. Three cases were associated with syphilis and three with chronic nephritis. An elevated blood pressure, 140/90 or over, was found in eleven cases, or 28 per cent. Foul taste, mental symptoms and vomiting were not observed.

The commonest clinical findings were a smaller sized uterus than the chronologic period of amenorrhea would indicate, absent fetal heart sounds, cessation of fetal movements or failure to experience fetal movements as well as failure to gain weight with apparently advancing pregnancy. The cervix was found to be firm and closed in numerous instances and the uterus seemed to have a doughy sensation with absence of normal tonus.

The laboratory data indicated that anemia was a rather infrequent finding. The RH factor was recorded in ten instances, being positive in nine and negative in one. This one negative Rh resulted in an erythroblastotic infant.

Roentgenologic examination was employed in eighteen cases; eight indicated fetal death, one was questionable and the remainder were negative. The diagnostic criteria were, for the most part, relaxation of the fetal skeleton, collapse of the skull bones or over-riding of the bones. In the majority of cases the findings were not conclusive.

The Friedman modification of the Aschheim-Zondek test was not conclusive either, except when it was negative; of twenty tests performed, thirteen were negative and seven positive. Pathologic examination of the products of gestation was recorded in eleven instances and in only two was inflammation of the decidua noted.

MANAGEMENT

In thirty-two patients, or 82 per cent, the fetus and placenta were expelled completely and no interference was necessary. In the remaining seven or 17.9 per cent, although the onset of the expulsive process

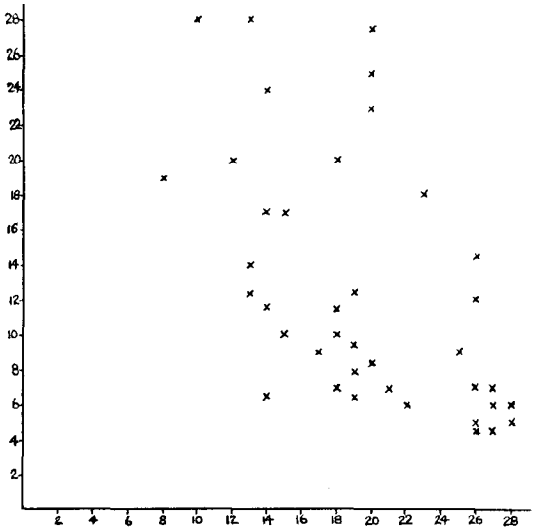

FIG. 1. The figures on the ordinate represent retention in weeks; those on the abscissa represent time of death in weeks.

was spontaneous in all, some assistance was necessary for the completion of the abortion. Five patients required manual removal of the retained placenta; of these one had a previous cesarean section for cephalopelvic disproportion. One patient required a sponge stick removal of retained secundines after rupture of the membranes and passage of some of the gestational contents. Another patient had spontaneous pain and vaginal bleeding with an undilated cervix. A firm vaginal pack was inserted for two hours. Upon removal of the packing in the operating room the fetus and placenta followed directly.

In all, six patients were given stilbestrol or estrogenic hormone therapy to stimulate the spontaneous expulsion of the retained ovum.

CASE REPORTS

CASE 1. A patient with a fourteen weeks gestation which had been retained for seventeen weeks, after episodes of vaginal bleeding

associated with abdominal cramps, was given stilbestrol, 1 mg., daily for four days. The cramps increased and the patient ruptured her membranes while attending the prenatal clinic. Because of vaginal bleeding, immediate removal of the placenta was necessary.

Case II. A patient with a thirteen weeks' gestation retained twenty-eight weeks complained of a brownish vaginal discharge. One mg. of stilbestrol was given orally for five days. Seventy-two hours after the last dose of medication the fetus and placenta were spontaneously expelled intact. It is difficult to understand such a remarkable effect from small doses of stilbestrol and coincidence must, therefore, be regarded as the element involved in the expulsion of these feti.

Case III. A thirty-eight year old gravida 10, para 6, with a twenty weeks' gestation retained for twenty-one weeks, was admitted from the clinic, asymptomatic, for attempted trial of hormonal stimulation for completing the missed abortion. Roentgenologic examination confirmed the evidence of fetal death. Prior to admission the patient was given a trial of stilbestrol, 5 mg. orally three times a day for one week, without any results. After admission stilbestrol was administered orally, 3 mg. every three hours during the day for five days, followed by pituitrin, minims 5, every thirty minutes for a total of 4 cc. No uterine contractions or bleeding resulted. Stilbestrol in the same dosage was continued for the next five days, after which the patient signed a release. About two weeks later at home she spontaneously delivered a macerated fetus and placenta before her physician arrived.

Case IV. A thirty year old para 0, with a twenty-six weeks' gestation retained for ten weeks and hypertensive cardiovascular disease, was given 5 mg. of stilbestrol three times a day for eight days in an attempt to empty the uterus. Neither uterine contractions nor bleeding ensued and the patient signed a release. Two weeks later she returned in the process of actively aborting and passed a macerated fetus and placenta.

Case V. A twenty-five year old para 0, with a nineteen weeks' gestation retained for nine weeks, was seen in consultation for painless bleeding in the last trimester of pregnancy. Examination revealed a missed abortion with the uterus enlarged to ten weeks size and the cervix firm and closed. The Aschheim-Zondek test was negative. After three days without pain but with slight vaginal bleeding 45 mg. of stilbestrol were given orally in divided doses over a two-day period and the following day the fetus and placenta were extruded spontaneously.

Case VI. A thirty-two year old para 8, with a thirteen weeks' gestation retained for twelve weeks, was admitted for vaginal bleeding. After four days of observation with slight vaginal bleeding ethinyl estradiol, .3 mg., was given three times a day for five days, followed by pituitrin in 3 to 5 minim doses for a total of 3 cc. Following the last injection, the patient developed uterine contractions and abdominal cramps with slight vaginal spotting. The next day ethinyl estradiol, .3 mg., was given again three times a day for three doses, followed by 3 cc. of pituitrin in divided doses of 5 minims every twenty minutes. Four hours after the last injection the patient experienced uterine cramps and passed a large blood clot, but examination revealed the cervix to be closed with the uterus sensitive to palpation and undergoing intermittent contractions. Two days later the patient spontaneously expelled a stillborn fetus and manual removal of the placenta was necessary because of excessive bleeding. This patient required a blood transfusion.

Of the thirty-nine reported cases, twenty-seven patients were observed at the Cumberland Hospital and the abortions occurred between November, 1934 and November, 1946. The remaining twelve patients were seen at other hospitals and the authors participated in the management, consultation or observation of these cases.

The length of the active aborting process was recorded in twenty-one cases and ranged from three hours and fifteen minutes to forty-eight hours, the average being about eleven hours. In only six patients, did the abortive period last longer than eleven hours. The blood loss was not excessive except in one instance in which following spontaneous expulsion of the fetus, manual removal of the placenta was necessary.

Using the American College of Surgeons,

standard, only one patient in the thirty-nine, or 2.56 per cent, showed any morbidity. This patient required manual removal of the placenta following expulsion of a dead fetus which had been retained for thirty-four days. There were no maternal deaths in this series of thirty-nine cases. The average hospital stay postabortal, or postoperative, was 8.2 days, the shortest being five days and the longest thirteen days.

COMMENT

Many authors advocate surgical procedures in evacuation of the uterus in cases of missed abortion as soon as the diagnosis is made. They recommend this to combat the dangers of toxemia, infection and hemorrhage.

Surgery involves the dangers of hemorrhage, perforation and infection. Yet this method of treating missed abortion is relatively popular and was recently advocated in the Journal of the American Medical Association.[4]

Theoretically, surgical evacuation of the uterus in cases of missed abortion appears to be physiologically unsound. The hard, closed cervix encountered in many of these patients does not lend itself readily to dilatation as does the normal pregnant cervix. In addition the uterine wall is usually thin and readily perforated, and the musculature is not responsive to the oxytocic drugs, such as quinine, ergot or pituitrin. Therefore, the physiologic requirements which are necessary to expel the products of conception in missed abortion are evidently lacking. In view of this it would seem unjustifiable to attempt interference by a method which is incompatible with the existing altered physiology.

Through the courtesy of Dr. Charles A. Gordon, Chairman of the Committee on Maternal Welfare of the Kings County Medical Society, we are presenting abstracts of all the case histories of those with missed abortion (three in number) who have died in Brooklyn during the past ten years:

CASE I. A thirty-nine year old white female, para 4, was admitted to the hospital with a history of five months' amenorrhea and a uterus which was three months' size. The Aschheim-Zondek test was negative. A soft rubber catheter was inserted into the uterus and a pack into the vagina. Both catheter and pack were removed after twenty-four hours and the vagina was repacked. Chills and fever followed and persisted for three weeks. Penicillin and sulfanilamide therapy were employed. The diagnosis was pelvic peritonitis and parametritis. Three weeks after the initial packing the products of conception were spontaneously expelled. Four days after leaving the hospital the patient noticed rectal bleeding which continued on and off. She was re-admitted to the hospital and given a transfusion. A laparotomy was performed and at operation a loop of small intestine and the rectosigmoid were found densely adherent to the fundus and posterior surface of the uterus. Many adhesions were freed and an ulcer of the rectosigmoid, 1 inch in diameter, was found at the adherent surface. Profuse bleeding from the edges of the ulcer followed. The proximal loop was pulled out and a Mikulicz spur was made. The patient expired from shock and further uncontrollable hemorrhage three hours postoperatively.

CASE II. A thirty-two year old white female, gravida 2, para 1, was admitted to the hospital with a missed abortion and a uterus the size of a four months' gestation. Because of vaginal staining, medical induction was attempted but without success. Following this, a vaginal hysterotomy was done under spinal anesthesia. The postoperative bleeding was excessive and the vagina and cervix were packed. Supportive therapy and attempted transfusion were not effective and the patient expired.

CASE III. A twenty-five year old white, gravida 3, para 2, was admitted to the hospital with a four months' missed abortion. The fetus was dead about three months. Cervical dilatation and rupture of the membranes was performed to evacuate the uterine contents. Hemorrhage followed and the uterus and vagina were packed. A vaginal hysterotomy was done under intravenous evipal anesthesia. Transfusion and supportive therapy were employed, but the patient succumbed. Death was

thought to be due to hemorrhage, toxic hepatitis and secondary anemia.

It is interesting to note that the only deaths from missed abortion in Brooklyn during the past ten years resulted when surgical interference was instituted.

In a series of 200 patients, in which death of the fetus was produced by x-ray as a means of interrupting pregnancy for various indications, experimentally-produced missed abortions resulted.[5] In this series the toxic symptoms and indications for surgery were not prominent.

Several years ago Frank et al.[6] observed that when a fetus succumbed *in utero* the blood estrin titer fell to low levels and that this test was more sensitive as an indicator of fetal death than the Aschheim-Zondek test. That the functioning placenta rather than the fetus is the determining factor in both of these tests has been shown by Polonsky[7] and Jeffcoate.

With the low estrin findings in many cases of missed abortion, an attempt was made[3] to duplicate nature's supposed method of inducing labor by administering estrogens, either natural or synthetic, or stilbestrol followed by pituitrin. Yet even in the largest series reported, about one-third of the patients failed to respond to hormonal induction of uterine evacuation. This hormonal method of induction of labor is not harmful and we believe it may be attempted without fear. We have in several instances admitted patients to the hospital for study and possible hormonal attempts at induction and much to our astonishment have found that they aborted spontaneously while waiting for laboratory studies to be completed. That this may occur was also noted by Jeffcoate who advocates hormonal induction of expulsion. In addition some patients abort so soon after the first few doses of hormone are administered that the factor of chance and coincidence must be seriously taken into consideration.

Many patients with missed abortion are admitted with premonitory signs of expulsion of the products of gestation, i.e., either bleeding, or uterine pain or both. Therefore, successful results obtained in these patients with estrogenic hormone and pituitrin may be more apparent than real. One should, therefore, be extremely cautious in evaluating the efficacy of this form of therapy, especially when used in the type of patient just cited.

SUMMARY

1. A series of thirty-nine cases of missed abortion is presented in which a non-viable dead fetus was retained for at least twenty-eight days.

2. Surgical evacuation of the retained ovum was not attempted in any patient in this series.

3. Only seven patients required any assistance toward completion of the active aborting process.

4. There was no maternal mortality and in only one case was there any morbidity.

5. The only deaths from missed abortion in Brooklyn during the past ten years resulted when surgical interference was instituted.

6. Laboratory data indicative of fetal death are not entirely reliable except when the Aschheim-Zondek test is negative and roentgenologic study indicates positive evidence of death of the fetus.

7. Surgical and hormonal induction of labor are discussed, together with the pertinent pathologic conditions.

CONCLUSIONS

The difficulties which are encountered in surgical evacuation of the uterus containing a dead ovum, namely, hemorrhage, infection, perforation and forcible tearing of an undilated, rigid cervix, can be averted by not resorting to untimely interference from below. We have not encountered any of these conditions except mild bleeding at the onset or during the process of expulsion.

Awaiting the spontaneous expulsion of the dead ovum appears to be indicated since at that time the normal uterine tonus is restored and normal uterine contractions,

either alone or with the aid of oxytocic drugs, prevent excessive bleeding.

Hormonal stimulation to evacuate the retained ovum may be attempted without danger.

From this study of missed abortion the authors believe that a waiting policy is not only justified, but can be considered clearly indicated.

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