

history-of-obgyn.com

PREGNANCY FOLLOWING INVERSION OF THE UTERUS*

BY NORMAN F. MILLER, B.S., M.D., IOWA CITY, IOWA

(Assistant Professor in Obstetrics and Gynecology)

A NUMBER of observers have been interested in inversion of the uterus in recent years. This is evidenced by the amount of literature appearing on the subject from time to time. To my knowledge, however, none has taken up the subject from the subsequent pregnancy point of view. A recent case of this nature in the Obstetrical and Gynecological Clinic at the University of Michigan stimulated the writer to make an investigation of this subject, particularly from the standpoint of subsequent pregnancies.

In all, fifty-six cases were studied. This number includes the author's and fifty-five cases collected from available literature, and it would seem to be a fairly complete tabulation, since all possible leads or clues were followed in the search of records mentioning subsequent pregnancies. Fifty-five cases from such an enormous literature on inversion as the world presents today seem hardly correct. Certainly thousands of inversions have occurred and many of these women must have conceived later. Undoubtedly, they have gone unrecorded in the literature as is the way with many other interesting conditions.

*From the Department of Obstetrics and Gynecology, University of Michigan, Ann Arbor, Michigan.

The case reported here is that of a young woman, aged twenty-three. She was admitted to the Department of Obstetrics and Gynecology, University Hospital, on October 11, 1924. Her first baby was born in March, 1924. The confinement was entirely normal except for the third stage. Some difficulty was encountered in delivering the placenta, following which a complete inversion of the uterus occurred. The patient stated that she bled very profusely and that her condition was considered extremely serious for several days. As she gradually improved she noticed there was a continuous bloody discharge, generally slight in amount, but occasionally quite profuse. This, with persistent dragging sensation in the pelvis associated with frequent headaches, was her only complaint on admission.

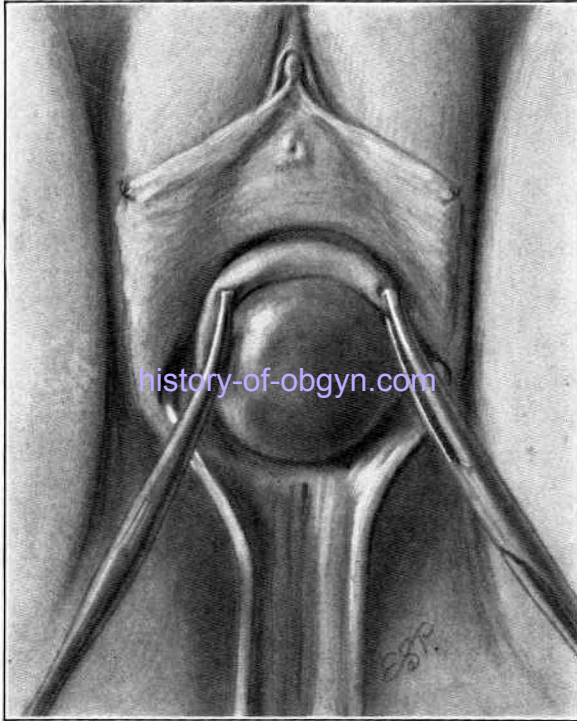


Fig. 1.

Examination showed a distinct round mass about the size of a duck's egg protruding through the cervical rim. The fundus could not be felt in the normal location. History and examination made the diagnosis obvious.

On October 17, 1924, the lesion was corrected by a slightly modified Spinelli operation, the steps of which are here briefly outlined. The upper cervical lip was grasped about one-half inch on either side of the midline with a volsellum forceps (Fig. 1), and a transverse incision about one inch in length made through the vaginal mucosa and fascia just below the bladder reflection. A sound in the bladder helped considerably in locating the desired point (Fig. 2). The bladder was then separated from the uterus by blunt dissection (Fig. 3), and the peritoneal cavity opened (Fig. 4). The appendages and the entire anterior wall of the uterus were then palpated by the examining finger (Fig. 5). An incision was next made

through the entire anterior cervical and uterine walls down to the top of the fundus (Fig. 6) and the uterus inverted by using the thumb and index finger of each hand (Fig. 7). The next step, an important one, was to remove a wedge or slice of uterine wall from each side of the incision. The inner or endometrial surface of the removed slice was fairly thick. This was done to permit better approximation of the uterine wound (Fig. 8). The uterine incision was closed by using interrupted chromic No. 1 catgut sutures, each suture going down to, but not through the endometrium (Fig. 9). The serous edges were then approximated with interrupted mattress sutures of the same material (Fig. 10). In order to take up some of the slack in the round ligaments, these structures were pleated upon the anterior surface of the uterus (Fig. 11). The repaired uterus was then pushed

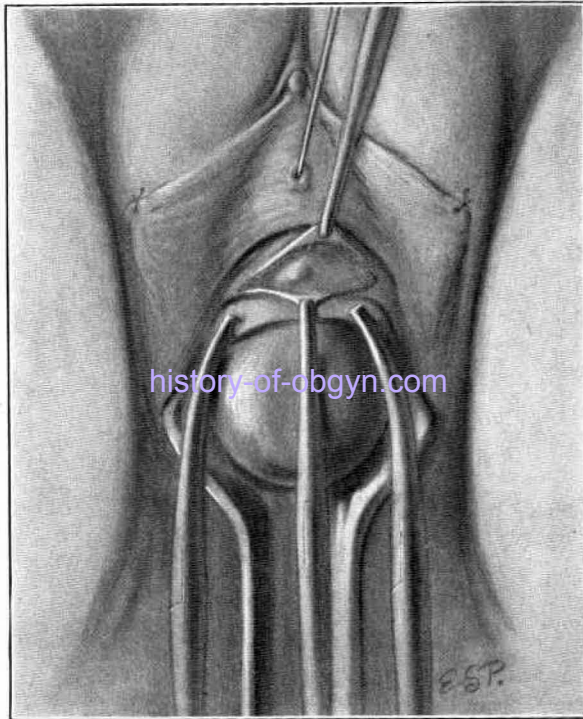


Fig. 2.

back into the pelvis and the peritoneal edges approximated (Fig. 12). The edges of the vaginal mucosa were then united from side to side (Fig. 13) in order to prevent foreshortening of the anterior vaginal wall.

The patient's convalescence was uneventful and she was discharged from the hospital two weeks later.

On several occasions during the next year the patient was re-examined and on September 28, 1925 she was readmitted to the clinic for confinement. On October 8, 1925 a normal male child weighing a little over six pounds was born. The labor was carefully watched and was perfectly normal in every respect, lasting only five and one-half hours. Examination of the cervix and uterus immediately following confinement revealed no evidence of the former operation. There was no abnormal condition of the anterior uterine wall noted; no cicatrix or abnormally thin

area could be found. Reexamination two weeks later revealed nothing abnormal or unusual. The puerperium was uneventful in every respect and the patient was discharged at the end of two weeks.

A study of the data obtained from this and reported cases revealed sufficient evidence to warrant several important deductions.

Etiology of Inversions.—I was particularly interested in noting whether any operative delivery or procedure preceded the inversion. Unfortunately, very meager information was available on this subject. In one instance a coil of cord around the baby's neck was reported,

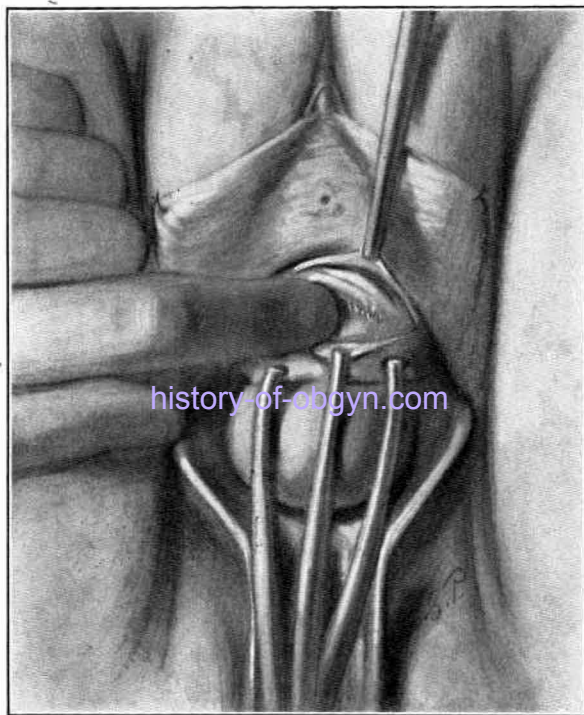


Fig. 3.

Sweeney.⁴⁵ In two cases, Valdez⁵⁰ and Corruthers,⁶ the inversion followed forceps delivery. Were the data available, it would be interesting to note the rôle played by the various methods of operative delivery, and more particularly by manipulations in the third stage of labor. Such procedures as traction on the cord, Credé expression of the placenta undoubtedly played an important part in the etiology, but probably the factor most responsible was the congenital weakness of the uterus, stressed by many writers on the subject.

All of the fifty-six cases reported became pregnant once or oftener after the original inversion. Exact information as to the number of pregnancies following inversion will, obviously, never be available.

It is doubtful whether the small number of reported cases is a fair indication as to the actual frequency of subsequent pregnancies following inversion. If correct, however, it may be explained partly by the advice given by the attending physician regarding dangers of future pregnancies. It is conceivable that these dangers may have been very greatly stressed in those cases where the correction was by operative means. Just how prominent cesarean section has been in the treatment of these cases during subsequent pregnancies is un-

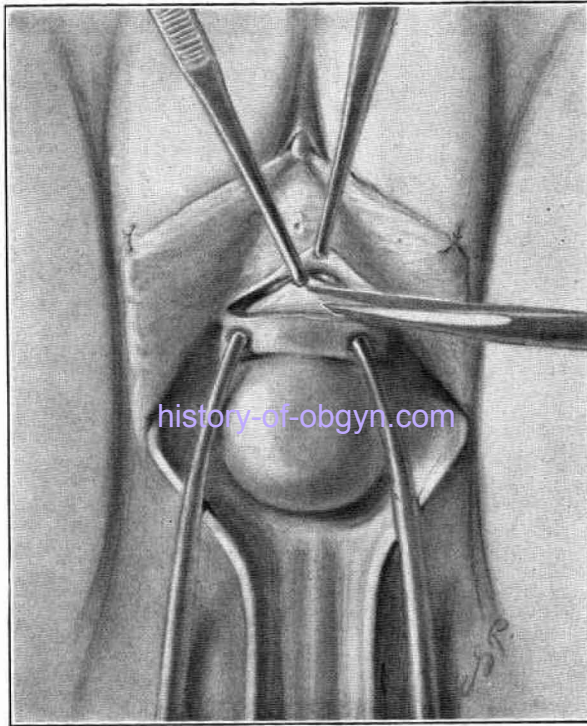


Fig. 4.

known. Possibly cases delivered by this method have been considered unimportant and therefore unrecorded.

Age.—Of the fifty-six cases studied, the youngest recorded was a patient eighteen years of age. This case was reported by Dahlgren.⁸ The original inversion existed six weeks before it was repaired by Piccoli's incision. Two subsequent pregnancies occurred. Both terminated normally. The oldest case in this group, reported by Heinrich,¹⁶ was a woman aged thirty-seven. The inversion was of eleven months standing. It was also repaired by Piccoli's incision. One child was born nine years and nine months later. The confinement was normal.

Parity.—In this group there were sixteen recorded as primiparae; twenty-one multiparae and in nineteen the parity was not stated. In the group of multiparae there were eleven para-ii, three para-iii, four para-iv, one para-vi, one para-xi, and one simply recorded as a multipara. The slight preponderance of the multiparae over primiparae would tend to bear out many of the existing opinions on the greater incidence of inversion among multiparae. The difference is not sufficient, however, to warrant any conclusion other than that already mentioned.

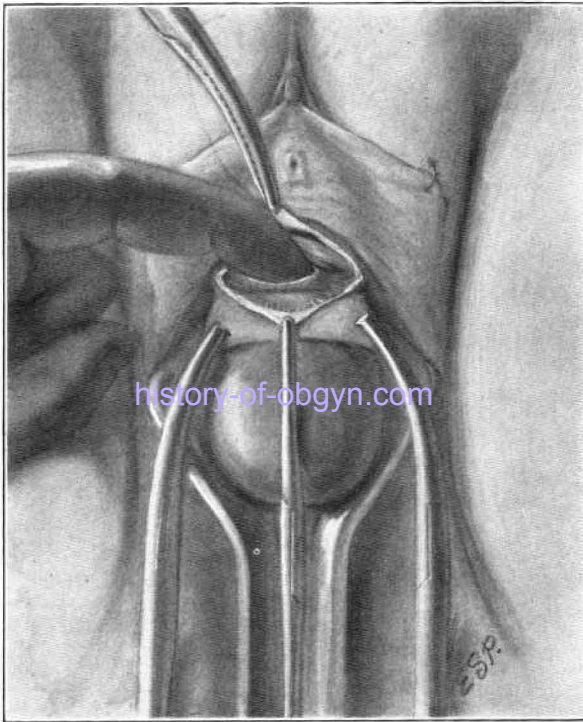


Fig. 5.

Duration of Inversion before Correction.—In the group of cases corrected manually, the average duration of the inversion was approximately thirty-three days. It must be stated, however, that fifteen of this group were corrected immediately. The longest interval in this group was twelve months. This case reported by Sims had a spontaneous inversion of the uterus some time after confinement. It existed about twelve months before it was corrected manually. In not all instances where manual correction was employed was the duration of the lesion mentioned. Were it not for two cases, the one of the twelve months' duration, Sims,⁴² and one of seven months' duration, Emmet,¹⁰ the average length of time in this group would be ten days,

which is a much more reasonable figure. It might well be assumed that the actual number of manual replacements is considerably less as the duration of the lesion lengthens. Manual reduction becomes proportionately more difficult as the lesion continues and involution with contraction of the cervix may render manual reduction entirely impossible.

In the group undergoing spontaneous correction we found the average duration was, curiously enough, nine hundred and sixty-nine days or thirty-two months. A further interesting fact in this group was

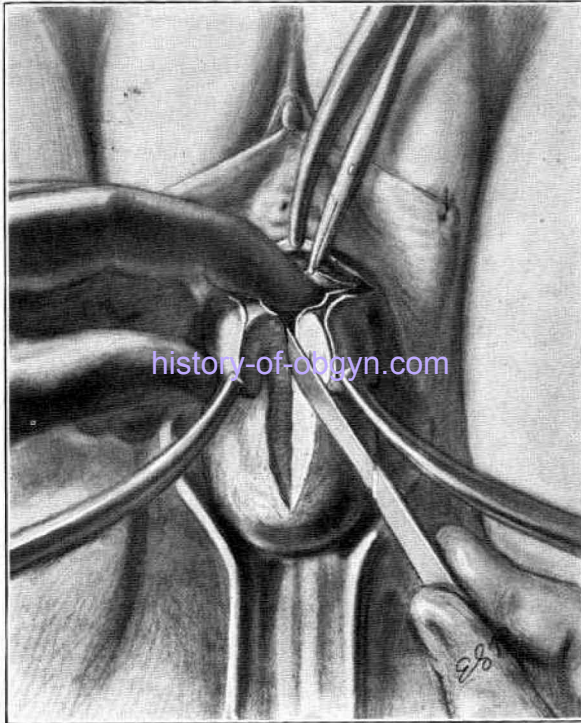


Fig. 6.

that several of these spontaneous replacements occurred after other methods had been tried. Thus, four occurred after numerous unsuccessful attempts at manual reduction had been made, McCullagh,²⁶ Meigs,³⁴ Stevens,⁴⁴ Tyler-Smith.⁴⁹ One case underwent spontaneous reduction after Aveling's reposer had been used in vain, McCullagh.²⁶ The explanation of this rather unexpected finding is not entirely clear. Possibly attempts at reinversion were made while the uterus was still markedly congested and edematous, and later as involution slowly occurred and the edema disappeared, nature was able to repair the lesion without assistance. Certainly, it reveals the ever-

present tendency on the part of nature to maintain constantly or bring about the normal.

In the group corrected by operation, numbering twenty-two, the average time or duration of the lesion previous to correction was two hundred and seventy days or nine months. The longest duration in any one case in this group was five years (Born²) and the shortest, four days (Walponer⁵¹). Quite a wide variety of operative methods were recorded—some more simple than others,—and it seems that the choice of operative procedure must depend on the indi-

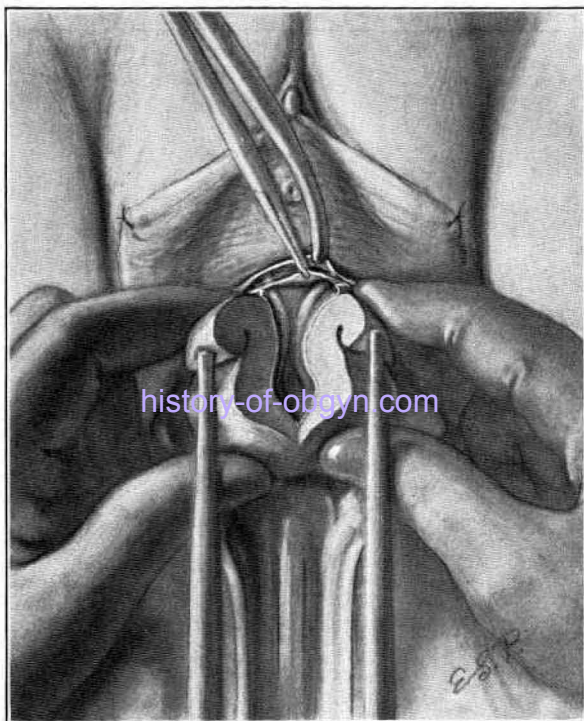


Fig. 7.

vidual case and on the operator's idiosyncrasies. It is apparent that some inversions are easily corrected and require little in the way of operative work, while others are more difficult and naturally will require considerably more in the way of surgical procedure. It would appear desirable, however, that more effort be made to standardize the operative treatment, for it is only by so doing that best results can be obtained.

Methods of Correction.—Of the fifty-six cases studied, in only fifty-five was the method used in correcting the inversion recorded. In these fifty-five, twenty-five were replaced manually. One of these, however, had the help of an air pessary, Tyler-Smith,⁴⁰ and another

the aid offered by astringent douches, Sweeney.⁴⁵ Eight cases were spontaneous in their replacement. One of these followed an attempt at replacement by means of Aveling's repositor, McCullagh.²⁷ There were twenty-two operative corrections. Of this number eight were corrected by Piccoli's incision; two by the combined Piccoli-Borelius-Westermann method; five by the Spinelli operation; three by the Küstner operation; one by the Küstner-Borelius-Westermann operation; one each by the Kehrer's and Duret's method and one by the Aveling repositor.

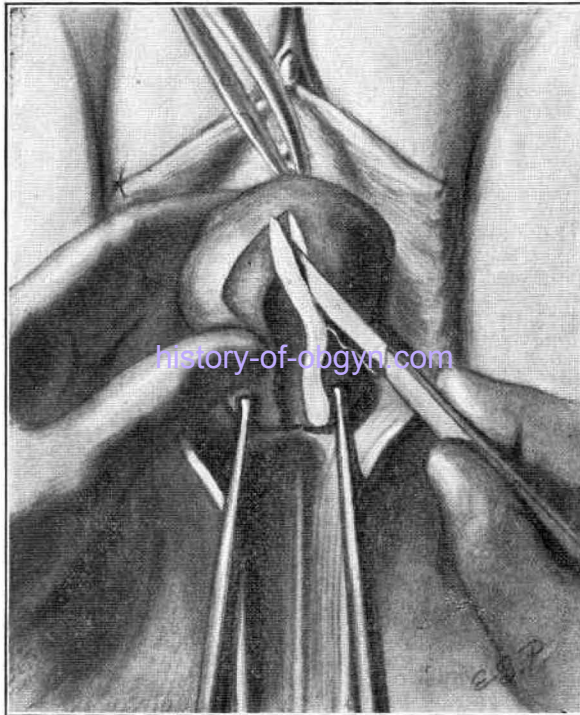


Fig. 8.

Those interested in the technic of these various operative procedures are referred to the very excellent articles on the subject by Dr. Reuben Peterson.⁵⁶

Subsequent Pregnancies.—The greatest number of reported subsequent pregnancies following the original inversion in any one case was five. The patient, a woman of twenty-four, reported by Emmet,¹⁰ had five normal pregnancies following the original inversion, without recurrence of the lesion. Very likely more than five pregnancies have occurred in women who have had an inversion, but none are recorded in the literature.

Number of Recurrences with Subsequent Pregnancies.—In eight cases where spontaneous cure occurred, two had a recurrence of the inversion with a subsequent pregnancy, Mayer,³² and Stephens.⁴³ The first was corrected manually and the other underwent spontaneous reduction two months later after manual reduction had been attempted. Of those manually corrected, twenty-five in all, eleven, or 44 per cent, had a recurrence of the inversion with subsequent pregnancies, Corruthers,⁶ Crosse,⁷ Fritsch¹¹ (two cases), Furst,¹² Gilbert,¹³ Huber,¹⁸ Kuhlbrand,²⁵ Nijhoff,³⁷ Philips,³⁸ and Schönbeek.⁴⁰ In the twenty-two cases cured by operation, not one recurrence was noted, a very note-

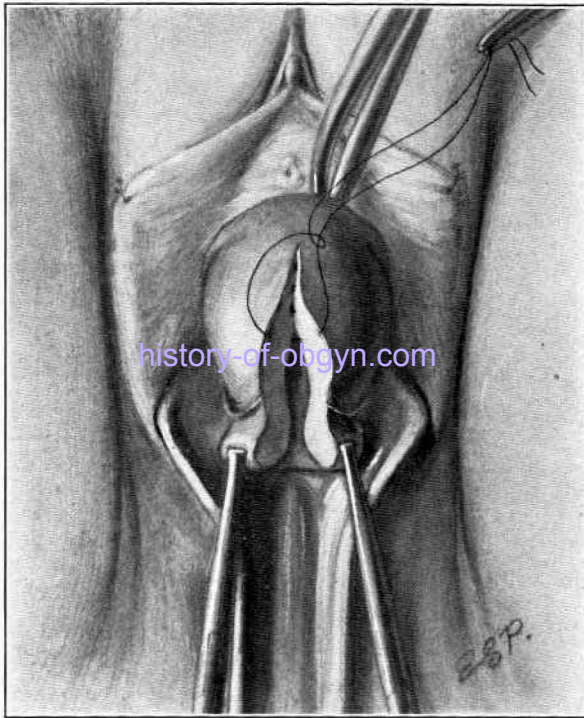


Fig. 9.

worthy fact when compared with the eleven recurrences in the group of twenty-five manually corrected cases. One other case of recurrence was reported, but the original method of correction was not mentioned. Valdez.⁵⁰ In all, there were fourteen recurrences, or approximately 33 per cent of all inversion cases recurred with subsequent pregnancies. In this study not one of the recurrences followed operative repair. Unless this is clearly understood, the frequency of recurrences (33 per cent) is apt to be very misleading.

Abortions.—Only three abortions were reported in the entire group of fifty-six cases. One occurred in an operative case corrected by

Duret's method, Beloustegui,³ one in a spontaneously cured case, Meigs,³⁴ and the third in a case corrected by manual manipulation, Nijhoff.³⁹

Adherent Placenta in Subsequent Pregnancies.—Sixteen of the forty-two cases, or 38 per cent, where puerperal complications were recorded, had an adherent placenta with the next confinement. Ten of this number occurred in the twenty-five manually corrected cases, Meigs³³ (two cases), Manton,³⁰ Philips,³⁸ Schönbeek,⁴⁰ Kain,²⁰ Fürst,¹² Fritsch,¹¹ Corruthers,⁶ Stephens,⁴³ Wilson.⁵⁴ Also once after each of

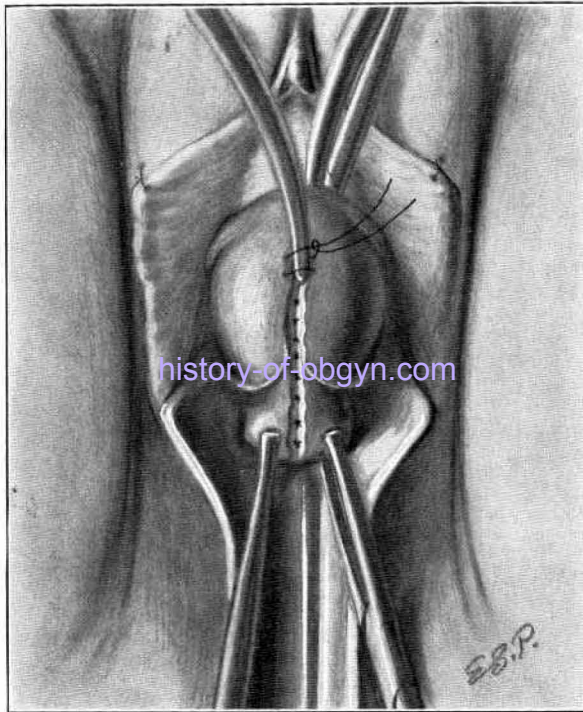


Fig. 10.

the following operations: Piccoli, Duret, Küstner and Piccoli-Borelius-Westermann. One adherent placenta occurred in the group of eight spontaneous corrections, Stephens,⁴³ and in one case the method of correction was not given, Valdez.⁵⁰ Again an interesting condition is revealed in that 40 per cent of all manually corrected cases are associated with an adherent placenta, while only 18 per cent of cases corrected by operation had a similar complication. The explanation is not easy, since one would expect at least as many predisposing factors present in operative cases as in those manually corrected. Low grade infection of the uterus probably accounts for many, and we might well expect even a greater frequency in the operative group

for that very reason. In the operative group there is the additional factor of the scar to be considered.

Hemorrhage.—Serious postpartum bleeding occurred in six out of forty-two cases, or 14 per cent; three times in manually corrected cases, Gilbert,¹³ Nijhoff,³⁷ Schönbeek;⁴⁰ twice in the operative group, Duret,⁹ and Born;² and once in a spontaneously corrected case, Tyler-Smith.⁴⁹ With a percentage of 26 for recurrence, this would seem unusually low. Serious hemorrhage probably occurred in most cases of recurrence as well as in some of the sixteen with adherent placenta.

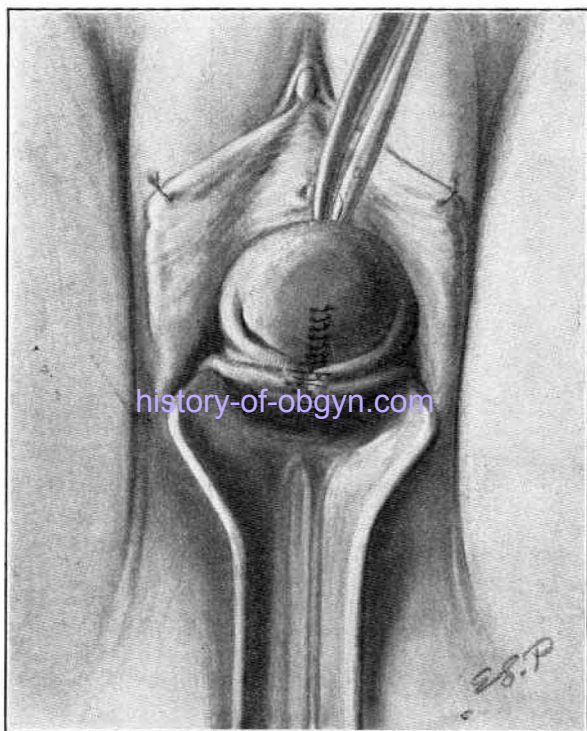


Fig. 11.

Probably the above mentioned figure does not correctly represent the frequency of this complication.

Morbidity and Mortality.—The end-results were strikingly good. Of the forty-two reports recording end-results only two cases of sepsis were noted, or 4.6 per cent. One of these died, Küstner,²⁴ the only death in the entire group (2.4 per cent). This death occurred four days after confinement. The patient had been cured of her original inversion by Küstner's incision three years previously. The other had a total inversion following labor three years after the original inversion, Huber.¹⁸ Peritonitis and metritis followed but subsided eventually.

From the standpoint of morbidity and mortality, probably the most important and striking feature, outside of the low sepsis and mortality rate, is that not a single instance of ruptured uterus was recorded. In the entire group of twenty-three cases corrected by operative means (in one case the exact method was not given) at least twenty-nine confinements occurred and in not one did rupture occur. This is quite contrary to the present feeling regarding incision in the uterus and the subsequent dangers of rupture.

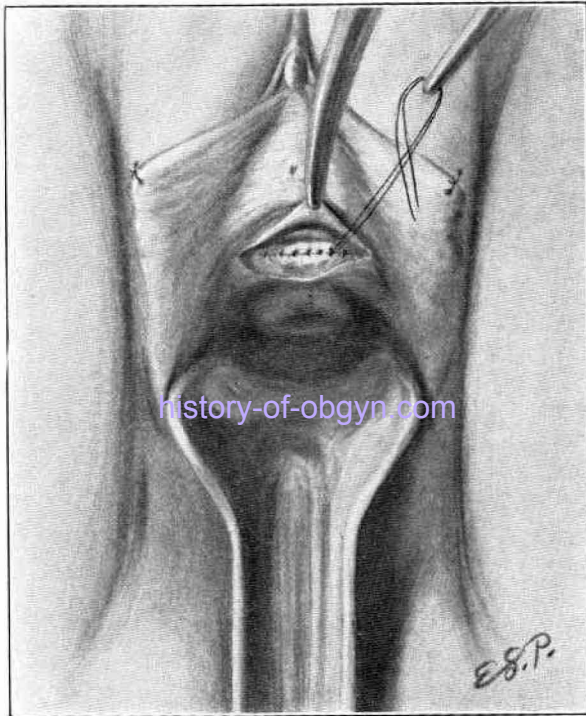


Fig. 12.

Management of Pregnancies Following Inversion of the Uterus.—It would appear from the information presented that conservative treatment with the hope of a normal confinement is the treatment of choice. Cases with a history of manual reduction of the inversion should be particularly watched for complications such as recurrence, adherent placenta and hemorrhage. Proper precautions by preparing for any of these emergencies should be taken. Curiously enough, where a history of operative correction is given, an uncomplicated confinement may, as a rule, be anticipated. While the possibility of rupture of the uterus must be considered, the chances of its occurring are probably slight. The dangers from this source in cases with a history of operative repair are probably greatly exaggerated. The necessity of advis-

ing cesarean section for subsequent pregnancies in this type of case would appear slight. In fact, the evidence is entirely in favor of a normal confinement in the operative group. In either instance, the facilities of a well established maternity should be available. To confine such a patient in the home when the best facilities are now within the reach of people in all walks of life, would, indeed, be seeking trouble.

It would seem desirable to discuss here the methods of correcting the original inversion. It is only by study of these methods and the

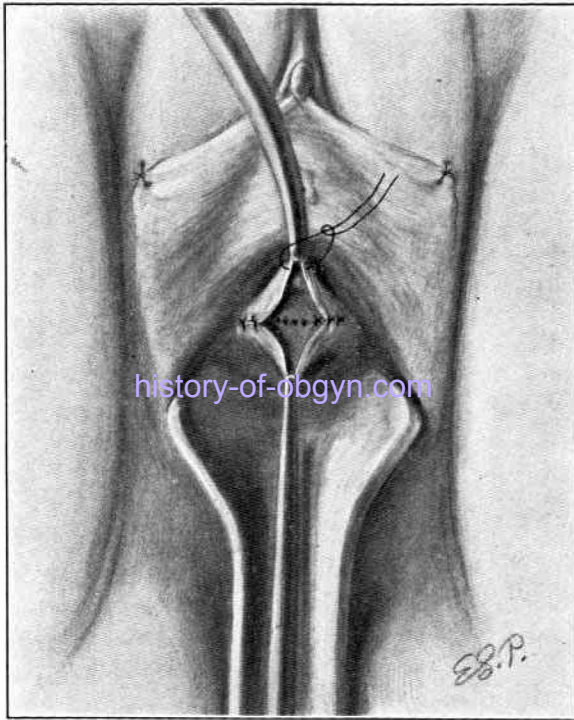


Fig. 13.

results obtained that the best method of correcting the lesion can be determined.

The methods of treatment in the past have been quite numerous and include all types of operative repair as well as manual reduction. In spite of the many types of operative correction, the end-results in this group are far better than those of the manually reduced group. This is particularly surprising when we consider the variety of operations used and that many of these must have been the first performed by the operator. It is conceivable that many minor defects could have been avoided had the operator had more experience in this type of case and were the operative methods standardized. In spite of the