

INCARCERATION OF THE PREGNANT UTERUS.*

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By incarceration of the pregnant uterus, we understand a condition in which, for one reason or another, the gravid retroverted or retroflexed uterus, as it enlarges, fails to rise out of the pelvis and above the promontory.

The incarceration may involve (and usually does involve) the entire body of the organ, or it may involve only *one portion* of the posterior wall. Technically the latter, we do not believe, should be regarded as a true incarceration, although even such a condition may give prominent symptoms, and may be difficult or impossible entirely to overcome.

Frequency.—Chrobak(1) found in 26,391 cases in the gynecological clinic of the Allgem. Krankenhaus in Vienna, from 1896 to 1900, seventy-two cases of displacement of the pregnant uterus; fifty-six of these were discovered by chance, *i.e.*, gave no symptoms, while sixteen cases presented more or less symptoms. In the 28,000 cases in the *obstetrical clinic* of this same hospital from 1894 to 1900, twenty-one cases of displacement were found; thirteen of these were also in the gynecological list, leaving eight actual cases with five which gave important symptoms of incarceration. This list then includes 54,391 cases with eighty cases of faulty position of the pregnant uterus, and twenty-one of these with signs of *incarceration*.

Chrobak has pointed out that retroflexions of the uterus are much more common than retroversions. In his list of twenty-one cases of incarceration, there are eighteen cases of retroflexions and three cases of retroversion.

Paul v. Kubinyi, (2) found in twenty-six years' experience, on the second Universität's Frauenclinic in Budapest, five cases of incarceration with marked symptoms. In three of these cases, reposition was found to be possible under anesthesia; in one case, abortion occurred after slight manipulation and in one case *gangrene of the bladder* occurred as the result of the incarceration.

The writer's personal experience based upon his material on the first gynecological clinic of the Bellevue Hospital

* Read at the meeting of the Society of the Alumni of the Sloane Maternity Hospital, October 22, 1909.

Dispensary, the third division of the New York Lying-In Hospital, and his private practice, comprises a series of twenty-three cases of posterior displacement of the pregnant uterus.

In nine of these, there were marked symptoms of incarceration. Of these nine cases with symptoms, five cases aborted after ineffectual gentle efforts at reposition; three of these were found, later on, to have been held tightly in the posterior position by firm adhesions; in two cases the reposition was accomplished, but with unusual difficulty under anesthesia. In one case, (*q. v.* below) there was *great retention of urine with marked hemorrhage from the bladder*. In this group of twenty-three cases, retroflexion was much more commonly found than retroversion.

Etiology.—Pregnancy may start in a retrodisplaced uterus, or the latter may become so at any time during the first three to three and one-half months (rarely later) after conception has taken place.

A uterus which becomes retroverted or retroflexed *after* the onset of pregnancy becomes so from several causes: a fall; hard work; heavy lifting; coitus; implantation of the ovum upon the posterior wall of the fundus; carelessness in allowing the bladder to become repeatedly overfilled, where a slight displacement already exists; an acute salpingitis or salpingo-oophoritis occurring after conception; fibromyomata; a relaxed pelvic floor, etc.

Should the uterus then, from any one of the above causes, become retroverted or retroflexed, it will fail to rise properly above the promontory, as it enlarges, if it is held down by any sort of inflammatory condition, old or new; if it is held down from below or weighed down from above, by any newgrowth of the uterus or the ovary; if the promontory is abnormally conspicuous; if the cervix with the uterus retroverted becomes caught above the symphysis; if there is an abnormal hypertrophy of the bladder with gradual accumulation of residual urine (as in our own case); if for one reason or another the normal muscular tone, of the uterus and ligaments thereof, is lacking—as from under development, low general tone of the individual, etc.

MECHANISM OF SPONTANEOUS REPOSITION.

In the absence of any severe complications, the uterus will rise spontaneously in a large percentage of cases. Just what this percentage is, cannot be ascertained, as probably the majority of women are not universally examined during the early months

of pregnancy. Replacement depends upon several factors, all of which doubtless play some part. In the first place, we would mention the "*intermittent contracting power*" of the uterine musculature. By this power of contraction the greatly overstretched anterior uterine wall, after a certain length of time, draws itself together—so to speak—and thus brings the fundus upward and forward. Under such circumstances this action may be furthered by the cervix pressing against the symphysis, as a fixed point. In the second place, we would mention the "power of sacculation" possessed by the growing uterus. This is seen most frequently in those cases in which the ovum is imbedded on the *anterior uterine wall*. The latter tends to bulge upward and forward more and more, so that in time the whole uterus—in the absence of other pelvic complication—will rise. This sacculation is repeatedly seen, in the presence of adhesions, which keep the fundus in the backward position. Even with existing adhesions, through this process, the whole uterus may gradually be drawn up out of the pelvis. Should the adhesions not yield, the patient will either abort or there will result the so-called *partial or incomplete incarceration*. Again, we must believe that the round ligaments play some part—in certain cases at least—in this process of spontaneous reposition. Developing, as they do, along with the uterine growth, there comes a time when they must exert some influence upon the uterus. This action, however, is bound absolutely to fail in those cases in which the uterus is badly retroverted with the cervix riding high above the symphysis. Finally, it is not unlikely that the utero-sacral ligaments aid somewhat in the process of replacement after the latter has once started.

We repeat, then, that given a *retroverted or retroflexed uterus free from adhesions, tumors, etc., reposition will take place before incarceration has occurred in the great percentage of cases, providing the obstacles to be overcome are not too great.*

Reposition is less apt to occur in those cases of bad posterior displacement associated with *prolapse of the uterus*. In these instances the general muscular and fascial tone of the pelvis is largely absent.

SYMPTOMS OF INCARCERATION.

These are, first, the usual symptoms of retrodisplacement, exaggerated by the pregnancy, viz.: Headache; pain in the back of the neck; backache; feeling of weight and dragging pains

in the pelvis; irritability of the uterus; dragging sensation in the groins; pain along the sciatic nerves; increasing constipation; some irritability of the bladder (usually no pain at this stage); nausea and vomiting may or may not be present. With the increasing growth of the ovum and with it an ever increasing size of the uterus, there comes a time when, if the uterus fails properly to rise out of the pelvis, or is not replaced sufficiently early, more *pronounced symptoms supervene*. The entire picture is aggravated and we have before us the picture of incarceration, a picture alike dangerous to both mother and offspring. The time has come *when* the growing uterus, through its faulty position, and its incapacity to rise out of the pelvis, is going to produce severe—even deadly symptoms—from pressure upon certain important viscera, as bladder, urethra, ureters, certain ganglia of the pelvis, rectum, blood-vessels, etc.

The growing uterus has the power of exerting great pressure against the posterior vaginal fornix, as seen in the case of v. Haselberg where the posterior fornix was actually ruptured, allowing the uterine fundus to appear in the wound. Major and Grenser have reported similar cases (Samml Klinische Vortrage, Gyn., No. 192).

Unless the incarceration is relieved by a spontaneous abortion, or by artificial interference, the pain in the back and along the sciatic nerves becomes intense; the constipation may be accompanied by rectal bleeding; there is an ever-increasing difficulty in urination, and this is accompanied with ischuria, with finally, in certain cases, complete retention of urine. The ischuria is due to one or more of several causes, viz.: direct pressure on the urethra or the neck of the bladder;(3) disturbed circulation due to the pressure of the retrodisplaced fundus upon the sacral nerve-ganglia which supply the motor and sensory filaments to the base of the bladder.(4) According to Reed, second and third degree retroversions press earlier on the ganglia than retroflexions. The urine becomes first ammoniacal, then contains more or less pus and blood. The lower abdomen is either slightly painful and tender, or else becomes exquisitely so. There may be severe spontaneous bleeding from the bladder—sufficient to call for active treatment; there may be a sudden rupture, giving rise to collapse and peritonitis; there may be an actual gangrene of the bladder. To repeat, we note that *the essential symptoms of a true incarceration are referable to the bladder and not primarily to the uterus*.

The symptoms differ somewhat in the two varieties of posterior displacement.

Retroflexion of the Gravid Uterus.

- (1) More frequent.
- (2) Urinary difficulties appear early—by the twelfth week; Bad symptoms appear from the twelfth to the sixteenth week.
- (3) Sacculation of the uterus not infrequent.
- (4) In the absence of firm adhesions the uterus may right itself.

Retroversion of the Gravid Uterus.

- (1) Infrequent.
- (2) Urinary symptoms appear late—from the twelfth to the sixteenth week. Severe symptoms of incarceration appear from the sixteenth to the twentieth week. The first symptoms are due to pressure on the rectum.
- (3) Sacculation rare.
- (4) In first and second degree retroversion spontaneous reposition can take place; manual reposition possible. In third degree retroversion spontaneous reposition never occurs; manual reposition most difficult. (Chrobak)

Inasmuch, then, as the chief severe symptoms are referable to the bladder, I desire now to call your attention briefly to the four fundamental conditions that can arise, namely: (A) Retention of urine with severe idiopathic hemorrhage from the bladder. (B) Retention of urine with bloody urine, first appearing after catheterization. (C) Rupture of the bladder. (D) Gangrene of the bladder.

(A) *Severe Hemorrhage from the Bladder, with Accompanying Retention of Urine.*—Vesical hemorrhages are rarely profuse in the case of incarceration of the pregnant uterus. The small hemorrhages are usually to be found in ammoniacal urine, with more or less admixture of pus, and are, in these cases, rightly to be considered a symptom of approaching gangrene of the vesical mucosa. The etiology, however, of the cases with severe hemorrhage, is quite different. But few such cases have so far been reported.

The last true instances of this type are those of K. Baisch(5) and Ralph W. Lobenstine.

1. *Baisch's Case.*—About the fourth month the patient, a V-para, began to have some difficulty and some pain on urination. When voiding, she would help herself by pressure with the hands across the symphysis. There was an incarceration of the preg-

nant uterus. The urine, at the beginning of the difficulty, was clear; it, however, soon became bloody, and finally almost pure blood was passed. When the patient was seen at the clinic, the bladder was catheterized and a large amount of bloody urine removed. Under narcosis, the uterus was replaced. Convalescence was rapid. The urine rapidly lost its bloody character and became again clear. On the third day after reposition, the urine was clear enough to permit a thorough cystoscopic examination. There was no cystitis and no ulceration, but *the vessels, especially the veins, were everywhere markedly dilated. There was also considerable edema at the base of the bladder.*

2. *The Writer's Case.*—Mrs. A. M., age thirty, I-para, was admitted to my service at the New York Lying-In Hospital, November 8, 1908. The patient was about four and a half months pregnant. For two months she had been troubled with frequent urination; for two weeks the condition had become greatly aggravated. There was increasing difficulty in urination; there was pain over the bladder, and for one week the urine had been dribbling away, more or less constantly. During this time, the urine had been markedly bloody in character. There was enough blood lost in this way to make the patient anemic and weak; the hemoglobin was 65 per cent. the pulse was 120.

On admission, the examination disclosed an enormously dilated bladder, with a large fluctuating tumor posterior to it. By catheter 47 ounces of foul smelling, turbid urine were removed. The latter part of the specimen was mixed with blood. The patient went into a moderate state of shock—evidently due to her weakened condition, as well as the removal of such a quantity of urine at one time. Examination, under narcosis, about three hours later disclosed a badly incarcerated pregnant uterus of about four and a half months.

The whole uterus seemed unduly cystic; the cervix was drawn up high above the symphysis. A thick, ill-defined mass, extending nearly to the navel, could be felt in front of the incarcerated uterus. The latter caused a very marked bulging and prolapse of the posterior vaginal fornix; this condition was so pronounced that, by widely separating the vaginal introitus, the tumefaction could be seen plainly. Reposition was absolutely impossible, even after a second catheterization. With the latter nothing but pure blood was obtained. A small abdominal incision was now made in the median line, above the pubis. The ill-defined mass we had felt above the pubis was an abnormally enlarged empty bladder whose walls were greatly thickened and traversed everywhere by large distended veins—some of which were varicose. The bladder, as it lay empty, was about 4 1/2 inches wide and extended almost to the umbilicus. The omentum was partially adherent to it. With some difficulty the bladder was displaced, so as to allow the hand to be passed into the pelvis. The uterus was found to be tightly wedged in the pelvis, below a rather sharp promontory. After considerable

effort—because of its unusual cystic character—it was replaced and held in place by vaginal tamponage.

The abdominal wound was closed, the bladder instilled with adrenalin solution and the patient put back to bed. She aborted on the third day after operation. Convalescence was troublesome because of a cystitis and pyelitis.

The urine under active treatment after reposition quickly lost all traces of blood, but continued to contain considerable pus for some time. Aside from the reposition, the patient was given large doses of urotropin and the bladder daily irrigated with hot boric acid solution.

These two cases present a rare condition—a condition in which the bleeding occurs, irrespective of catheterization and without gangrene of the bladder, and where the amount of blood lost is really considerable.

(B) *Severe Hemorrhage from the Bladder, first Appearing after Catheterization for Retention of Urine, due to an Incarcerated Uterus.*—Examples of this class are to be found in the cases of Ernst Holzbach,(6) Kroner, Reeb, Rasch, and Chambers.

CASE I.—Holzbach reports a case from the University-Frauenklinik in Tübingen.

The patient, a X-para, was forty-one years of age. She skipped her period at the end of February, 1908. At the beginning of June, she began to have trouble with micturition and defecation, which gradually became worse, so that she applied at the clinic for assistance the last of July. The bladder was enormously distended, and extended up to near the navel. The urine had been dribbling away—almost constantly—for eight days. The uterus was pregnant about five and a half months, with a considerable portion of the body of the uterus retroverted and held firmly below the promontory of the sacrum. The cervix was held far forward, pressing strongly against the neck of the bladder. A catheter withdrew about two liters of fairly clear urine, which was free from albumin and sugar. The same day 1,200 c.c. were again drawn off.

The case was diagnosed as one of "partially incarcerated pregnant uterus" with almost complete urinary obstruction. The patient was to be demonstrated at the clinic the following day, but early the next morning Holzbach was called to the patient who had just passed considerable *bloody urine*; with the catheter about one-half liter more urine with much admixture of blood was drawn.

After this there were two more slight hemorrhages from the bladder and then the urine became clear. Examination now showed that the partial incarceration had reduced itself spontaneously. The bladder could be felt much thickened, above the symphysis.

Twenty-four hours later, a cystoscopic examination was made.

There was no inflammation of the mucosa excepting slight catarrh of the trigone; there was considerable edema around the neck of the bladder wall; the veins stood out, greatly enlarged. At the top of the bladder there was evidence of a recent hemorrhage with several ecchymotic spots scattered here and there. Convalescence proceeded satisfactorily.

V. Fritsch states that in his forty years' experience, he has seen but one such case, despite the many cases he has catheterized with removal of all the urine. In the clinic in Tübingen, the present case is the only one of its kind, and it is noteworthy that the bleeding did not begin until several hours after the catheterization (twelve hours).

CASE II.—Kroner(7) describes a case of incarceration in which, after removing five liters of clear urine, owing to complete retention, such a severe hemorrhage ensued from the bladder that the patient collapsed. The patient died ten days later of pyemia. The bladder extended up to 10 cm. above the symphysis, and was adherent to the omentum. There was a small new-growth in the bladder. The uterus was replaced.

CASE III.—V. Reeb (8) presents a case which, after the withdrawal of 600 cc. of urine for retention, had such a severe hemorrhage into the bladder that the latter had to be tamponed from above. The uterus was not replaced.

The Cases IV and V, of Rasch and Chambers, (9) resembled closely the others of this series.

ETIOLOGY OF THESE SEVERE HEMORRHAGES.

This question has never been positively settled, so that it is but fair to present the chief theories advanced.

1. The hemorrhages that occur after catheterization are the result of a vacuum produced in the bladder by the removal of such large quantities of urine.

Dührsen believes that if the uterus can be replaced directly after catheterization, it will by its *normal position force the bladder's walls together*, and prevent the bleeding.

2. The view advanced by Baisch, v. Holzbach, and v. Fritsch is that owing to the displacement of the bladder by the retroverted uterus, as well as from the pressure of the cervix against the blood-vessels at the base of the bladder, an extreme congestion of the venous blood soon ensues. Now, if the bladder be emptied without the disturbance in the circulation being remedied at the same time by the correction of the uterine displacement, when the internal pressure afforded by the urine in the bladder is removed, hemorrhage and edema must result. That the venous engorgement exists has been shown by the cystoscope; our case,

moreover, demonstrated the existence of an actual varicosed condition.

We note then that severe hemorrhages from the bladder may occur in the course of an incarceration of the pregnant uterus. Such hemorrhages may be sufficiently severe to cause marked constitutional symptoms. They depend chiefly upon a high degree of circulatory disturbances and may first occur, either before or after catheterization, for urinary retention.

(C) *Spontaneous Rupture of the Bladder—the Result of Incarceration of the Pregnant Uterus.*—Rupture of the bladder, as an accompaniment of incarceration of the pregnant uterus, was first described by Doeveren, in 1765. A few others have described the condition and reported cases thereof. Chief among these are John Lynn, Naumberg, E. Martin, Ahlfeld, and more recently A. Martin, of Rouen, whose case we cite in full as typifying this class. These ruptures occur usually on the posterior wall of the bladder and may or may not be the result of gangrene of the bladder wall. In the patient of A. Martin, there was no evidence of the latter. When not due to gangrene of the bladder wall, they are dependent upon localized degenerations in the musculature, or upon very great overdistention.

Dr. A. Martin's Case.(10)—On the fourteenth of January, 1909, Dr. Martin was called hurriedly by his associate Dr. Vallée to see a patient of the latter who was three months pregnant, and in a state of collapse.

The uterus was retroflexed and tightly wedged in the pelvis. The lower abdomen was somewhat distended and extremely tender. The pulse was rapid and feeble; her general appearance was very bad. The patient had been well up to within a few days, when she began to have some trouble with urination. Both Dr. Martin and Dr. Vallée decided that the patient probably had a ruptured bladder, the result of an incarcerated uterus. She was taken at once to the hospital, and a laparotomy performed after first catheterizing the patient. A large glassful of urine—blood-stained—was withdrawn. On opening the peritoneal cavity there escaped some two liters or more of urine. A tear 4–5 cm. was found in the upper portion of the posterior wall of the bladder. This was closed in two layers with catgut. The uterus was then with difficulty replaced by bimanual efforts. The vagina had to be thoroughly tamponed to hold the uterus in place. The abdominal incision was closed, excepting for a small drain at the lower angle.

A permanent catheter was introduced. The patient convalesced rapidly. The drain was removed on the fourth day, and the wound healed "*per primam*." There was a mild pyelitis, but

the patient was able to leave the hospital at the end of six weeks. Since then she has done well and at the time of writing (Dr. Martin, May, 1909) is about eight months pregnant.

(D) *Gangrene of the Bladder*.—Here again there has been much discussion concerning the etiology of this condition. The general theories are:

1. The *gangrene is due to a simple pressure necrosis*. This seems most unlikely, for in the severe cases there is gangrene of the entire mucosa with extensive exfoliation.

2. The theory of v. Schatz, Spencer Wells, Frankenhausen, Kinkenberg et cet., is that the *mucosa first separates at the summit of the bladder* and this is due to the fact that it cannot expand as rapidly as do the other layers of the bladder wall. Gangrene occurs, then, from loss of nutrition.

3. Pinard and Varnier maintain that the condition is the result of a gradual compression of the arteries at the base of the bladder.

4. The view that seems most plausible to me is the one advanced by v. Kubinyi and Wertheim. According to their belief, the gangrene is the result of *circulatory disturbances*, gradually brought about by the *ever-increasing pressure on the blood-vessels at the base of the bladder*, especially the *veins*. If this interference in circulation is maintained for some time, the resulting congestion causes edema and extensive submucous hemorrhages. Bacteria then gain ready access into the submucous spaces and gangrene sets in. The bacteria will usually gain access to the bladder without the intervention of catheterization.

The compression of the two main venous plexuses—the plexus venosus pudendalis and the plexus venosus vesico-vaginalis—is largely responsible for the stagnation in the blood stream. This stagnation is increased by the congestion in the uterine venous plexus due to the abnormal position of this organ.

The obstetric literature contains but comparatively few examples of extensive gangrene of the bladder due to incarceration of the pregnant uterus.

The case recently reported by Paul Kubinyi illustrates the severity of the condition.

The patient, Mrs. A. F., age twenty-two, primigravida, was brought to the clinic October 5, 1907. Four weeks before admission she had lifted several heavy bags of potatoes; two weeks later felt severe pains in lower abdomen and one week later had *dysuria*. This gradually grew worse so that finally she could

only pass her urine while standing, and then only in small quantities. The urine during the last week contained some admixture of blood. Patient had several chills and fainting spells.

On admission she appeared very sick and in extreme pain. There was almost constant desire to empty the bladder. The lower abdomen was exceedingly tender and was dome-shaped, due to a greatly distended bladder. The external genitals were edematous. There was constant dribbling of a dark, foul-smelling urine. The posterior culdesac was pressed downward from above by a sharply retroflexed incarcerated uterus. The cervix pointed upward toward the upper border of the symphysis. The patient was given at once an anesthetic, and a catheter introduced. About five liters of dark, bloody, foul urine were withdrawn, containing some clots of blood.

After the emptying of the bladder the uterus was replaced, but only after much effort. To keep the uterus in place, a colpeurynter was introduced in the greatly dilated posterior fornix.

For the next two days the patient suffered intensely; the pulse was 120-130; the temperature around 37.6. The bladder was gently irrigated daily with a weak potassium permanganate solution.

Cystoscopic examinations were made after the third day. Diagnosis was made of gangrene of the mucosa of the bladder. Patient was now able to urinate, but there remained residual urine up to 60-70 cm. The temperature was subnormal.

Two days later, patient aborted of a four months fetus. Her condition was grave. On the thirteenth day after admission, the patient suddenly discharged from the bladder, under severe tenesmus, *the entire necrotic mucosa*. This was followed by moderate bleeding and a ten minute duration chill. She, however, soon began to improve rapidly, so that she was able to leave her bed five days later. She was able within three weeks to retain her urine during the day, but not during the night. Daily irrigations were used. By November 24, patient seemed almost well. The uterus, which was again retroflexed, was replaced and a pessary introduced. There were no adhesions.

From the examination of the ejected mucosa, it was decided that the superficial layer of the muscularis was also involved with it.

Treatment before Active Symptoms of Incarceration.—Considering the large number of abortions directly due to a retrodisplacement or more correctly to the accompanying endometritis, it behooves us to examine every case of pregnancy as soon as possible, and to ascertain the position and mobility of the uterus as well as the condition of the other pelvic viscera. A simple uncomplicated retrodisplacement will usually rectify

itself if an abortion does not occur. However, as abortions more often take place in a faulty position of the uterus, and as many neurotic women suffer as a result of even a noncomplicated retrodisplacement, the writer now believes that the early use of a pessary is the safest course to pursue. Cases with adhesions or other pelvic complications demand their appropriate treatment by means of tampons carefully employed; by colpeurynter; by posterior vaginal section, or by laparotomy.

Treatment after the Development of Symptoms of Incarceration.—The patient should be catheterized. If there is a large accumulation of urine, the complete emptying of the bladder should be carried out in two sittings. Suprapubic puncture is rarely necessary. An attempt should then be made to replace the uterus. The writer believes, as a rule, excepting perhaps in a very thin subject or in the presence of any real objection, anesthesia should be employed. This makes the success of the reposition far more likely, and makes the patient much less liable to abort, as the manipulations for replacement can be the more readily carried out.

If reposition can be accomplished, a large ring should be introduced and the patient kept in bed, on one side, for at least one week. The knee-chest position should be employed and the pessary worn until all danger of a return of the condition is passed.

If, however, reposition fails, two courses are open to us. We may make a posterior vaginal section and replace, after breaking up any adhesions if these exist; or we may perform a laparotomy. By the latter method, the uterus is the more readily brought up out of the pelvis and any existing complications can be thoroughly dealt with. A properly fitting pessary should be introduced at once or tampons temporarily employed and full doses of opiates administered for the first few days thereafter.

A third method, but one that should be relegated to the background, excepting in cases of "active abortion" or "incomplete abortion," is the "*emptying of the uterus*" when active symptoms supervene in the course of an incarcerated pregnant uterus.

Even this procedure may at times be most difficult to accomplish. It has then been advised to empty the uterine cavity by direct puncture of the retroplaced fundus through Douglas' culdesac. Such an operation is extremely hazardous and *should, we believe, be condemned*. In case one should meet with such a condition, *i.e.*, a condition in which the uterus must be

emptied, but cannot be in the ordinary way, *a far better plan* than the hazardous opening through the culdesac would be to *enter* the uterine cavity through a posterior vaginal hysterotomy wound.

The extreme degrees of complications require, in addition to the general treatment outlined above, individual attention, according to their several needs. A rupture of the bladder calls for an *immediate* laparotomy. The cases with severe hemorrhage from the bladder require, in addition to the reposition, hot irrigations with or without adrenalin. Gangrene—either localized or general—of the bladder demands urinary antiseptics, bladder irrigations, and possibly vesical drainage through a temporary vesico-vaginal fistula. All septic manifestations must be intelligently and actively dealt with.

Mortality.—Exact statistics are lacking. We may, however, form some judgment of the possible serious consequences of incarceration of the pregnant uterus by studying the mortality statistics collected by I. ten Berge.⁽¹¹⁾ This list comprises seventy-three deaths, directly dependent upon the bladder conditions. The causes of death were:

Uremia,	16 cases
Septicemia through bladder gangrene,	14 cases
Peritonitis,	40 cases
Pyemia,	3 cases

While the deaths *not* primarily due to the bladder gangrene were:

Peritonitis from intestines,	4 cases
Laceration of peritoneum and vagina,	2 cases
Operative failures,	3 cases
Unknown causes,	5 cases
	Chrobak.

Only three deaths directly due to *primary uterine infection* have been reported, viz., by Traub, Gottschalk, and Heymanns.

In closing I would accentuate the fact that, while retro-displacements of the pregnant uterus will, as a rule, correct themselves, when no other pelvic complication exists, still reposition *may not* occur spontaneously; severe symptoms may set in, and the life of both mother and off-spring be endangered. The condition therefore should not be considered too lightly, nor should it be treated with too great conservatism.

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DISCUSSION.

DR. BRODHEAD, who opened the discussion, stated that one point which was brought out was a very good one, namely that a patient should come early in pregnancy and be examined in order that we may ascertain the position of the uterus, as there are a number of women who never suffer from symptoms of displacement. Tampons or a suitable pessary will usually give excellent results. No case of true incarceration had come to Dr. Brodhead's notice thus far.

DR. BRICKNER desired to congratulate Dr. Lobenstine on his conservatism. He had had three or four cases of incarceration of the pregnant uterus which were reported about six years ago. He endorsed Dr. Lobenstine's advice in relation to anesthesia. As it is sometimes a difficult matter to replace the uterus, a suggestion advocated by Schultze is of value. This consists of the use of a tenaculum or bullet forceps fastened to the anterior lip of the cervix, by means of which the uterus is pulled downward while the other hand pushes the fundus upward. This was successful in one case, where even under anes-

* For original article, see page 1003.

thesia reduction was not possible by the other methods. There were one or two points he desired to touch upon. Dr. Lobenstine did not mention the kind of pessary useful in these cases. The one he himself employed was the Hodge-Smith, which stretches the posterior fornix to such an extent that it makes the return of the organ to its former malposition practically impossible. Now with regard to the use of pessaries after the incarceration is corrected, he took issue with the reader of the paper for this reason, that the incarceration does take place until after the period had elapsed when the uterus would no longer come forward, that is, after three and a half to four months. If the uterus is subsequently brought forward, it would not fall back into the scaral cavity, even though no pessaries were used. The semi-prone or the knee-chest position is sufficient to keep it in position then. But the most important part is the prophylaxis, which consists of the early examination of the patients who are going, contrary to their former practice, to engage a physician at a much earlier date than used to be the case. The second point is in the after-care of parturient women. For many years he had not permitted his patients to lie on their backs exclusively, particularly after the seventh or eighth day, for if the patient does this there is a tendency for the uterus to fall backward. This must be regarded as of the greatest importance. One point which the reader did not bring out he desired to mention, namely that these conditions are more frequently met with in multiparæ than in primiparæ.

DR. F. A. OASTLER stated that during an experience of twelve years at the Vanderbilt Clinic, he had seen many of these cases of retro-displacement in pregnancy and tried all manner of means to correct them. He had come to the conclusion that, unless a uterus can be readily replaced, the patient should have an anesthetic. He had seen trouble produced in cases where the replacement was attempted without an anesthetic, and none whatever where this was used. In all cases where moderate traction on the uterus has been used without result, an anesthetic is recommended. As far as the ring is concerned, he did not think it would make any difference whether it is the Hodge-Smith, or the Smith or the Hodge instrument, the uterus would remain in place with any ring if it were properly adjusted. Dr. Oastler had but one case which might be called an incarceration of the uterus. The woman was three and a half months along when he saw her. It was her first child, and she had not seen a physician previously. She complained of two sets of symptoms, abdominal pain referable to the pelvis, and inability to pass urine. He examined her after drawing off twenty-four ounces of urine by catheter. The uterus was retroverted, fixed, and no effort was made to replace it. The woman was told she would require an anesthetic, and when this was given the uterus was replaced but with some difficulty. It remained in place and no pessary seemed to be necessary under such conditions. There

was one question which he desired to ask. Would it be possible to go in between the bladder and uterus through the anterior fornix, and after introducing the fingers pull the uterus forward aided by pushing with the other hand, and in this way avoid a laparotomy? Would this not be feasible if the vagina were sufficiently large as in so many of these women?

DR. DORMAN stated that there was another reason for introducing a pessary in this class of cases, and that is that the retroverted uterus is directly in the line of trauma from coitus; and many of the women therefore miscarry as a result. While many of these deformities will correct themselves, it is our place to watch them and see that the uterus is in position so that the danger of miscarriage may be avoided. He thought that there was a distinct type of incarceration of the uterus where a pessary is indicated following replacement, namely where the incarceration is suddenly produced. Here, where recurrence is likely to occur, the pessary may be safely introduced for a short time. He had in mind a case in Bellevue where a woman came in with the diagnosis made. She was about three months pregnant, and stated that the day before she felt her uterus tip over. She called in a doctor and he catheterized her. She had temporary relief, but the next day she was suffering acutely. The bladder was much enlarged, and after catheterization the uterus was replaced. That was a case in which it would have been safer to use a temporary support. In a second case, where three months had passed, the patient was having considerable pain and bleeding. It was necessary to give her an anesthetic, and then the direct traction method referred to by Dr. Brickner was employed. He did not feel safe to leave this woman without a pessary, as by straining she was likely to get the uterus back again. In the case reported by the reader of the paper, a diagnosis of ectopic was suggested. The first case seen by Dr. Dorman which was thought to be an incarceration proved to be an ectopic. It was one in which a mass was found projecting into the posterior vaginal wall. This was the fetal head. Dr. Cragin proceeded to a laparotomy, and the first thing discovered was the child's foot free in the abdominal cavity. It was a true ectopic with a living child, which survived. The uterus with the sack, was removed. In that case, except for the previous history, incarceration of the uterus was suggested.

DR. LOBENSTINE, in closing the discussion, said he was pleased to hear what had been said in favor of anesthesia in these cases, which seemed to him a distinct advantage where no result is obtained with the ordinary manipulations. In regard to Dr. Brickner's remarks about the use of a pessary after the correction of an incarcerated uterus, he desired to say that such a uterus will not always remain in place after reduction and that either a pessary or tamponade may be required temporarily. The chief reason for this lay in the fact that in the severe cases the uterus is unusually cystic and will therefore easily slip back

to its previous posterior position. In reply to Dr. Oastler's question about making an incision anterior to the cervix in order to facilitate replacement, he desired to say that he believed such a procedure would be impossible in the severer cases of retroversion with incarceration, while with the retroflexed incarcerated gravid uterus this method would, he thought, be very likely to produce abortions.