

of setting up peritonitis, and blood by its decomposition is particularly apt to give rise to septic poisoning; then why let it remain in the abdominal cavity in cases of ruptured uterus? If it is important to cleanse this cavity from blood and ovarian fluid in ovariectomy, and from blood and amniotic fluid after the Caesarean section, then why should we be content with delivering the foetus in cases of rupture of the uterus, when we know that the peritoneal cavity still contains a compound fluid which may destroy the woman if not removed and the parts cleansed? We have also an additional risk in the fact that the uterine rupture may gape and allow the lochia to escape into the peritoneal cavity, thus providing another element for septic poisoning. I am, then, fully persuaded that in all cases of rupture, where it is evident that blood and liquor amnii have escaped into the abdominal cavity, we ought to open the abdomen, cleanse out the cavity, and close up the rent by deep-seated and superficial sutures of carbolized pure silk. In cervico-vaginal rupture the closure of the rent may not be so important in the sense of safety to the woman, as there is generally a natural drainage into the vagina; neither is coeliotomy itself so imperatively demanded as in cases where the fundus or body of the uterus is rent. But it becomes important to close the torn cervix in view of future trouble from ectropium and erosion. As in the Caesarean operation, promptness of action is all-important if we hope to save the patient. I know that these views upon the treatment of ruptured uterus are in advance of those held by British obstetrical writers, but they are certainly logical deductions from the experience of such operators as Dr. Keith, Mr. Lawson Tait, and others, and from the well-known results of promptly performed coeliotomies in rupture accidents in the United States. The removal of the uterus after rupture has as yet only added to the risk, and I do not believe we are justified in resorting to it where there is no pelvic obstruction.—ED.]

## CHAPTER XVII

### INVERSION OF THE UTERUS.

Inversion of the uterus shortly after the birth of the child is one of the most formidable accidents of parturition, leading to symptoms of the greatest urgency, not rarely proving fatal, and requiring prompt and skilful treatment. Hence it has obtained an unusual amount of attention, and there are few obstetric subjects which have been more carefully studied.

Fortunately, the accident is of great rarity. It was only observed once in upward of 190,800 deliveries at the Rotunda Hospital since its foundation in 1745; and many practitioners have conducted large

midwifery practices for a lifetime without ever having witnessed a case. It is none the less needful, however, that we should be thoroughly acquainted with its natural history, and with the best means of dealing with the emergency when it arises.

**Acute and Chronic Forms.**—Inversion of the uterus may be met with in the acute or chronic form; that is to say, it may come under observation either immediately or shortly after its occurrence, or not until after a considerable lapse of time, when the involution following pregnancy has been completed. The latter falls more properly under the province of the gynecologist, and involves the consideration of many points that would be out of place in a work on obstetrics. Here, therefore, the acute form alone is considered.

**Description.**—Inversion consists essentially in the enlarged and empty uterus being turned inside out, either partially or entirely; and this may occur in various degrees, three of which are usually described, and are practically useful to bear in mind. In the first and slightest degree there is merely a cup-shaped depression of the fundus (Fig. 155); in the second the depression is greater, so that the inverted portion forms an intromission, as it were, and projects downward through the os in the form of a round ball, not unlike the body of a polypus, for which, indeed, a careless observer might mistake it; and, thirdly, there is the complete variety, in which the whole organ is turned inside out and may even project beyond the vulva.

The symptoms are generally very characteristic, although, when the amount of inversion is small, they may entirely escape observation. They are chiefly those of profound nervous shock, viz., fainting, small, rapid, and feeble pulse, possibly convulsions and vomiting, and a cold, clammy skin. Occasionally severe abdominal pain and bearing down are felt. Hemorrhage is a frequent accompaniment, sometimes to a very alarming extent, especially if the placenta be partially or entirely detached. The loss of blood depends to a great extent on the condition of the uterine parietes. If there be much contraction on the part that is not inverted, the intromitted part may be sufficiently compressed to prevent any great loss. If the entire organ be in a state of relaxation the loss may be excessive.

The occurrence of such symptoms shortly after delivery would of necessity lead to an accurate examination, when the nature of the case may be at once ascertained. On passing the finger into the vagina we either find the entire uterus forming a globular mass—to which the placenta is often attached—or, if the inversion be incomplete, the

FIG. 155.



Partial inversion of the fundus.  
(From a preparation in the Museum  
of Guy's Hospital.)

vagina is occupied by a firm, round, and tender swelling, which can be traced upward through the os uteri. The hand placed on the abdomen will detect the absence of the round ball of the contracted uterus; the bimanual examination may even enable us to feel the cup-shaped depression at the site of inversion.

**Differential Diagnosis.**—When such signs are observed immediately after delivery mistake is hardly possible. Numerous instances, however, are recorded in which the existence of inversion was not immediately detected, and the tumor formed by it only observed after the lapse of several days, or even longer, when the general symptoms led to vaginal examination. It is probable that, in such cases, a partial inversion had taken place shortly after delivery, which, as time elapsed, became gradually converted into the more complete variety. In a case of this kind, as in a chronic inversion, some care is necessary to distinguish the inversion from a uterine polypus, which it closely resembles. The cautious insertion of the sound will render the diagnosis certain, since its passage is soon arrested in inversion; while, if the tumor be polypoid, it readily passes in as far as the fundus.

The mechanism by which inversion is produced is well worthy of study, and has given rise to much difference of opinion.

A very general theory is that it is caused, in many cases, by mismanagement of the third stage of labor, either by traction on the cord, the placenta being still adherent, or by improperly applied pressure on the fundus; the result of both these errors being a cup-shaped depression of the fundus, which is subsequently converted into a more complete variety of inversion. That such causes may suffice to start the inversion cannot be doubted, but it is probable that their frequency has been much exaggerated. Still, there are numerous recorded cases in which the commencement of the inversion can be traced to them. Improperly applied pressure (as when the whole body of the uterus is not grasped in the hollow of the hand, but when a monthly nurse, or other uninstructed person, presses on the lower part of the abdomen, so as simply to push down the uterus *en masse*) is often mentioned in histories of the accident. Thus, in the *Edinburgh Medical Journal* for June, 1848, a case is related in which the patient would not have a medical man, but was attended by a midwife, who, after the birth of the child, pulled on the cord, while the patient herself clasped her hands and pushed down her abdomen, at the same time straining forcibly, when the uterus became inverted and the patient died of hemorrhage before assistance could be procured. Here both of the mechanical causes alluded to were in operation. In several cases it is mentioned that the accident occurred while the nurse was compressing the abdomen. That the accident is practically impossible when firm and equable contraction has taken place cannot be questioned. Hence it is of paramount importance that the practitioner should himself carefully attend to the conduct of the third stage of labor.

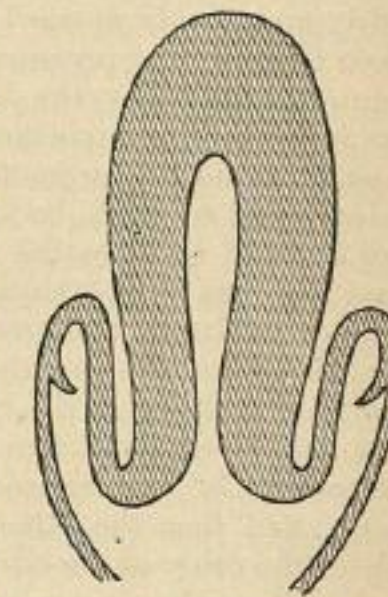
In a large proportion of cases no mechanical causes can be traced, and the occurrence of spontaneous inversion must be admitted. There are various theories held as to how this occurs. Partial and irregular contraction of the uterus is generally admitted to be an important

factor in its production; but it is still a matter of dispute whether the inversion is produced mainly by an active contraction of the fundus and body of the uterus, the lower portion and cervix being in a state of relaxation; or whether the precise reverse of this exists, the fundus being relaxed and in a state of quasi-paralysis, while the cervix and lower portion of the uterus are irregularly contracted. The former is the view maintained by Radford and Tyler Smith, while the latter is upheld by Matthews Duncan.

There are good clinical reasons for believing that Duncan's view more nearly corresponds with the true facts of the case; for, if the fundus and body of the uterus be really in a state of active contraction, while the cervix is relaxed, we have, as Duncan points out, the very condition which is normal and desirable after delivery, and that which we do our best to produce. If, however, the opposite condition exists, and the fundus be relaxed, while the lower portion is spasmodically contracted, a state exists closely allied to the so-called hour-glass contraction. Supposing now any cause produces a partial depression of the fundus, it is easy to understand how it may be grasped by the contracted portion, and carried more and more down, in the manner of an intromission, until complete inversion results. That such partial paralysis of the uterine walls often exists, especially about the placental site, was long ago pointed out by Rokitansky and other pathologists. This theory supposes the original partial depression and relaxation of the fundus. How this is often produced by mismanagement of the third stage has already been pointed out; but even in the absence of such causes, it may result from strong bearing-down efforts on the part of the patient; or, as Duncan holds, from the absence of the retentive power of the abdomen. Indeed, the incompatibility of an actively contracted state of the fundus with the partial depression which is essential, according to both views, for the production of inversion, is the strongest argument in favor of Duncan's theory.

A totally different view has more recently been sustained by Dr. Taylor, of New York, who maintains that "spontaneous active inversion of the uterus rests upon prolonged natural and energetic action of the body and fundus; the cervix, the lower part, yielding first, is thus rolled out, or everted or doubled up, as there is no obstruction from the contractility of the cervix, which is at rest or functionally paralyzed; the body is gradually, sometimes instantaneously, forced lower and lower, or inverted." That partial inversion may commence at the cervix was pointed out

FIG. 156.



Illustrating the commencement of inversion at the cervix. (After DUNCAN.)

by Duncan in his paper, who depicts it in the accompanying diagram (Fig. 156), and states it to be of not unfrequent occurrence. It is not impossible that occasionally such a state of things should be carried on to complete inversion. But there are serious objections to the acceptance of Dr. Taylor's view that such is the principal cause of inversion, since the process above described would be of necessity a slow and long-continued one, whereas nothing is more certain than that inversion is generally sudden and accompanied by acute symptoms of shock, and is often attended by severe hemorrhage, which could not occur when such excessive contraction was taking place.

The treatment of inversion consists in restoring the organ to its natural condition as soon as possible. Every moment's delay only serves to render restoration more difficult, as the inverted portion becomes swollen and strangulated; whereas if the attempt at reposition be made immediately, there is generally comparatively little difficulty in effecting it. Therefore, it is of the utmost importance that no time should be lost, and that we should not overlook a partial or incomplete inversion. Hence the occurrence of any unusual shock, pain, or hemorrhage after delivery, without any readily ascertained cause, should always lead to a careful vaginal examination. A want of attention to this rule has too often resulted in the existence of partial inversion being overlooked until its reduction was found to be difficult or impossible.

In attempting to reduce a recent inversion, the inverted portion of the uterus should be grasped in the hollow of the hand and pushed gently and firmly upward into its natural position, great care being taken to apply the pressure in the proper axis of the pelvis, and to use counter-pressure, by the left hand, on the abdominal walls. Barnes lays stress on the importance of directing the pressure toward one side so as to avoid the promontory of the sacrum. The common plan of endeavoring to push back the fundus first has been well shown by McClintock<sup>1</sup> to have the disadvantage of increasing the bulk of the mass that has to be reduced, and he advises that, while the fundus is lessened in size by compression, we should, at the same time, endeavor to push up first the part that was less inverted—that is to say, the portion nearest the os uteri. Should this be found impossible, some assistance may be derived from the manœuvre, recommended by Merriman and others, of first endeavoring to push up one side or wall of the uterus, and then the other, alternating the upward pressure from one side to the other as we advance. It often happens, as the hand is thus applied, that the uterus somewhat suddenly replaces itself, sometimes with an audible noise, much as an India-rubber bottle would do under similar circumstances. When reposition has taken place, the hand should be kept for some time in the uterine cavity to excite tonic contraction; or a stream of hot water at 110° F. may be injected, and if that fails, a weak solution of perchloride of iron, so as to cause tonic contraction of the uterus and thus prevent a recurrence of the accident.

It is hardly necessary to point out how much these manœuvres will

<sup>1</sup> Diseases of Women, p. 79.

be facilitated by placing the patient fully under the influence of an anæsthetic.

There has been much difference of opinion as to the management of the placenta in cases in which it is still attached when inversion occurs. Should we remove it before attempting reposition, or should we first endeavor to reinvert the organ and subsequently remove the placenta? The removal of the placenta certainly much diminishes the bulk of the inverted portion, and, therefore, renders reposition easier. On the other hand, if there be much hemorrhage, as is so frequently the case, the removal of the placenta may materially increase the loss of blood. For this reason most authorities recommend that an endeavor should be made at a reduction before peeling off the after-birth. But if any delay or difficulty be experienced from the increased bulk, no time should be lost, and it is in every way better to remove the placenta and endeavor to reinvert the organ as soon as possible.

Supposing we met with a case in which the existence of inversion has been overlooked for days, or even for a week or two, the same procedure must be adopted; but the difficulties are much greater, and the longer the delay the greater they are likely to be. Even now, however, a well-conducted attempt at taxis is likely to succeed. Should it fail, we must endeavor to overcome the difficulty by continuous pressure applied by means of caoutchouc bags distended with water and left in the vagina. It is rarely that this will fail in a comparatively recent case, and such only are now under consideration. It is likely that by pressure applied in this way for twenty-four or forty-eight hours, and then followed by taxis, any case detected before the involution of the uterus is completed may be successfully treated.

[Spontaneous Reposition of the Inverted Uterus.—After all attempts have failed to replace an inverted uterus already too much contracted to yield to the pressure employed, Nature sometimes accomplishes the work herself, as proved beyond question from quite a number of well-established cases, several of which belong to our own country. A few years ago I saw one of the most remarkable on record: A woman of twenty-nine, mother of three children, miscarried at six and a half months from lifting. From the time of her delivery she was subject to weepings of blood, and at times to more or less severe hemorrhages, one of the last of which nearly proved fatal. This condition of disease had lasted three years, when Dr. Walter F. Atlee was called in to relieve her in her worst hemorrhagic attack, and found her uterus inverted, and a nodular growth upon the fundus which gave out an offensive odor. Thinking the disease possibly malignant, and believing, in any event, that to save the woman he would be obliged to remove the uterus, he called a consultation and prepared for the operation; but when the patient was etherized, placed in the knee-elbow position, and Sims' speculum introduced, behold! there was nothing to be seen in the vagina but a soft dilated cervix, the uterus having been replaced by atmospheric pressure, aided perhaps by traction on the uterine attachments within. When explored, the uterus was found to be very soft and thin, and to contain some hard nodular masses, which on removal proved to be portions of an adherent

placenta. The hemorrhage ceased upon the reposition and cleaning out of the uterus, and the patient made a good recovery. She has been again pregnant.

This woman was anæmic to a marked degree, and her abdominal walls so thin that a finger in the uterus could readily be felt above the pubes. There is not the slightest doubt about the inversion, which was proved to exist a short time before the change of posture by Prof. Agnew, who made a finger in the rectum meet another above the pubes, and there was no fundus between them.

Two<sup>1</sup> cases are upon record where reposition was the result of falls, one at eight months and the other after as many years. Drs. Mœhring, C. D. Meigs, H. L. Hodge, and Warrington, of this city, failed to replace a uterus, and the woman again became pregnant in about six years, aborting with a three months' fetus under the care of Dr. Warrington. Dr. Meigs saw a second case with Dr. Levis, in which there was violent flooding followed by hemorrhages, which gradually declined. After her return from a journey West she became pregnant and bore a child. Dr. John L. Atlee, of Lancaster, failed to replace the uterus of a woman, but she recovered spontaneously and bore a child a year afterward.<sup>2</sup> Dr. Johnson F. Hatch, of Kent, Connecticut, reported a case in a letter to Dr. C. D. Meigs in which inversion occurred spontaneously fourteen or fifteen hours after labor. After being under the care of several physicians, she had, at the end of eighteen months, two severe hemorrhagic attacks, after which she improved, and finally, at the end of two years and nine months, bore a child of nine pounds and six ounces.

In all cases spontaneous reposition appears to result from a softening and thinning of the uterine walls as the result of anæmia brought on by hemorrhages. This was particularly noticed by Boivin and Dugés in autopsies of women dying of repeated hemorrhages.—ED.]

[<sup>1</sup> See Daillez, *Essai sur le Renversément de la Matrice*, Paris, 1805, pp. 105-107.]

[<sup>2</sup> Meigs' *Obstetrics*, Philadelphia, 1832, p. 608.]

## PART IV.

### OBSTETRIC OPERATIONS.

#### CHAPTER I.

##### INDUCTION OF PREMATURE LABOR.

**History of the Operation.**—The first of the obstetric operations we have to consider is the *induction of premature labor*, an operation which, like the use of forceps, was first suggested and practised in England, and the recognition of which, as a legitimate procedure, we also chiefly owe to the labor of English obstetricians, in spite of much opposition both at home and abroad. It is not known with certainty to whom we owe the original suggestion, but we are told by Denman that in the year 1756 there was a consultation of the most eminent physicians at that time in London, to consider the advantages which might be expected from the operation. The proposal met with formal approval, and was shortly after carried into practice by Dr. Macaulay, the patient being the wife of a linendraper in the Strand. From that time it has flourished in Great Britain, the sphere of its application has been largely increased, and it has been the means of saving many mothers and children who would otherwise, in all probability, have perished. On the Continent it was long before the operation was sanctioned or practised. Although recommended by some of the most eminent German practitioners, it was not actually performed until the year 1804. In France the opposition was long-continued and bitter. Many of the leading teachers strongly denounced it, and the Academy of Medicine formally discountenanced it so late as the year 1827. The objections were chiefly based on religious grounds, but partly, no doubt, on mistaken notions as to the object proposed to be gained. Although frequently discussed, the operation was never actually carried into practice until the year 1831, when Stoltz performed it with success. Since that time opposition has greatly ceased, and it is now employed and highly recommended by the most distinguished obstetricians of the French schools.

**Objects of the Operation.**—In inducing premature labor, we propose to avoid or lessen the risk to which, in certain cases, the mother is exposed by delivery at term, or to save the life of the child which might otherwise be endangered. Hence the operation may be indicated either on account of the mother alone, or of the child alone, or, as not unfrequently happens, of both together.