CHAPTER XXIII.

INVERSION OF THE UTERUS; DEFINITION: ACUTE AND CHRONIC; CAUSES, IN THE PARTURIENT AND NON-PREGNANT UTERUS; SYMPTOMS, COURSE, AND TERMINATIONS; PROGNOSIS; DIAGNOSIS; TREATMENT.

THE history of recent inversion of the uterus belongs especially to obstetrics. In my work on *Obstetric Operations*, I have traced this history with some care. This of course includes the study of the causes which lead to the greater number of inversions. A very large majority of cases follow immediately upon labor. But it is important to remember that inversion has occurred quite independently of labor, although it seems necessary that conditions in some important respects analogous to pregnancy and labor should exist. Such, for example, is the case when a polypus attached to the fundus uteri induces development of the muscular wall, an expulsive action being excited, the fundus uteri follows the tumor, producing inversion.

Inversion of the uterus may be defined as a dislocation by which the inner wall of the uterus is turned outwards; its cavity disappearing, and another cavity forming above, the inner surface of which is the proper external covering of the uterus. This cavity contains a portion of the Fallopian tubes and of the round ligaments, which are dragged in by the fundus uteri. Even convolutions of intestine may fall in. And in the recent state after labor, the ovaries also may be drawn in. But in the chronic state, when the uterus is much reduced in size, the ovaries are found outside the artificial cavity.

There are *degrees of inversion*. The most simple division is that proposed by Crosse (see Fig. 144). 1st. *Depression;* the fundus or placental site falls inwards, projecting in the cavity of the uterus. 2d. *Introversion*, or intussusception. So great a part of the fundus falls in that it comes within the grasp of the portion of the uterus into which it is received. In the extreme form of this degree the fundus reaches to the os uteri, through which it may be felt like an intra-uterine polypus. 3d. *Perversion;* the fundus passes through the os uteri. There are degrees of this. In the extreme form the inversion is so complete that even the cervix and os are inverted.

Inversion is *acute* or *chronic*. In my article on this accident in Samuel Lane's edition of Samuel Cooper's *Surgical Dictionary*, I defined *acute inversion* as ending with the completion of the involution of the uterus. When this process is complete, the case is chronic. The distinction is based upon the important facts that whilst involution is going on, the muscular fibres are still possessed of some active property, the organ is larger, and the cervix less rigid. During this stage the parts are more yielding, and reduction is comparatively easy. It is the chronic form including cases which occur independently of labor with which we are

now principally concerned. But some reference to the conditions under which inversion is produced will not be out of place.

FIG. 144.

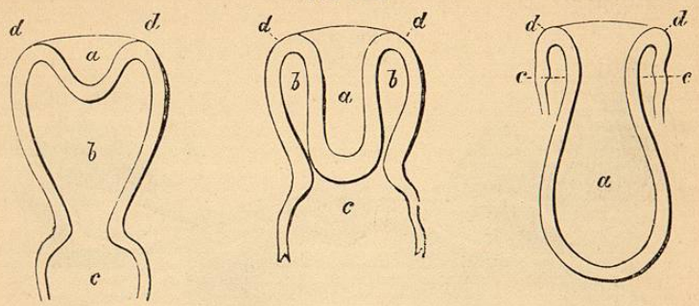


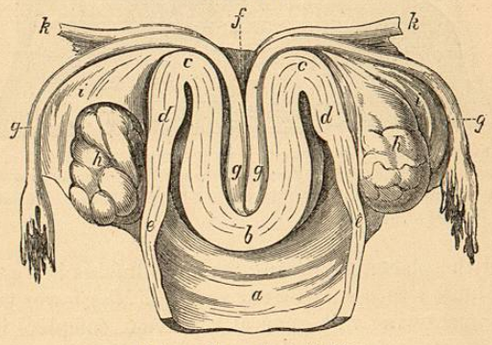
Fig. 1.—*Depression.* Fig. 2.—*Introversion.* Fig. 3.—*Perversion.*

Illustrating the Three Degrees of Inversion of the Uterus (from Crosse).

a. The inverted fundus. *b*. The natural cavity. *c*. The vagina. *d d*. The upper margin of the cup formed by the inverted fundus uteri.

The two following drawings (Figs. 145, 146) represent the conditions of chronic inversion and the relations of the several parts.

FIG. 145.



Extreme Inversion in Section.

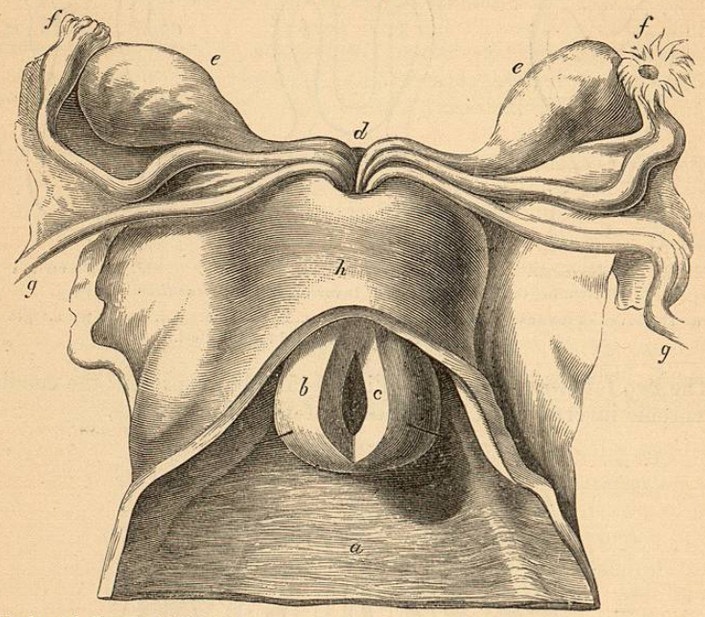
a. Vagina. *b*. Fundus uteri. *c c*. Angles of inflexion. *c c, d d*. Mark the extent of the uninverted *cervix*. *f*. The peritoneal *cul-d-sac* of inverted uterus. *g g*. Fallopian tubes passing down to the inverted fundus. *k k*. Round ligaments. *h h*. Ovaries. *i i*. Broad ligaments. (Half-size. From Crosse's Essay, taken from a specimen of Dr. Mackenzie, of Glasgow.)

Fig. 146 is reduced from an original drawing by M. Biot for Mr. Crosse (see his Essay). It represents a preparation in the Musée Dupuytren at Paris. The subject died of exhaustion twenty-two months after labor.

Causes.—The essential conditions for the production of inversion are: on the one hand, relaxation of some part or the whole of the walls of the uterus, and, on the other, considerable enlargement of its cavity. When the uterus has contracted, its walls are so thick, and the cavity is so reduced, the anterior wall being flattened close in contact with the posterior

wall, that inversion cannot take place. Of this any one may convince himself by passing his fingers into the living uterus during active contraction, or by trying to invert a uterus out of the body which has been well contracted.

Fig. 146.



a Vagina. *b*. Inverted fundus incised at *c* to show its cavity. *d*. Point of inversion with round ligaments, Fallopian tubes, and ovarian ligaments drawn in. *g g*. Round ligaments. *e e*. Ovaries. *f f*. Fimbriated extremities of tubes. *h*. Cervix covered by peritoneum. (Two-thirds size.) (After Crosse. Specimen in Musée Dupuytren.)

Adhesion of the placenta growing from the fundus is a frequent cause. This is often united with spastic narrowing of the lower segment of the uterus. This narrowing will generally prevent complete inversion. In this case the os uteri may not relax until partial inversion has lasted some time. The mechanism by which inversion is produced, as illustrated by the writings of Smellie, Lucas, John Hunter, Crosse, and others, is explained in sufficient detail in the *Obstetric Operations*. Here we are more especially concerned with inversion in the chronic stage.

John Hunter describing a specimen in the College of Surgeons, in which inversion was caused by the attempt to expel a tumor from the uterine cavity, likens the process to intussusception of the intestine.

Professor E. Martin relates a case of complete inversion of the uterus in a multipara caused by a fibrous growth in the fundus. A woman, aged forty-six, was seized with profuse uterine hemorrhage, which often returned. Two years later a tumor was observed protruding through the vulva, and causing retention of urine. The tumor was so little sensitive that the patient cut off a piece with scissors. It was as large as a fist.

It was found united by a pedicle to the fundus of the inverted uterus, no trace of the os uteri being left. The tumor was cut off by an écraseur. Attempt to reduce the inverted uterus was postponed. A few days afterwards it was found that the spontaneous re-inversion had taken place. The patient recovered (*Monatsschr. f. Geburtsk.*, 1869).

B. Langenbeck (*Med. Centr. Zeitung*, 1860) exhibited the inverted uterus of a woman who had never been pregnant. On the inverted fundus was seated a fragile, sarcomatous heterologous growth of broad basis, the size of a walnut. Abarbanell (*Monatsschr. für Geburtskunde*, 1861) relates the following: A woman had become very anæmic from frequent hemorrhages. A smooth tumor, the size of the fist, was first felt protruding from the uterus; fourteen days later, under violent expulsive pains, with profuse hemorrhage, the tumor was driven through the external genitals, and the uterus was completely inverted. The tumor was amputated, whereupon the uterus quickly replaced itself. McClintock gives a case (*Diseases of Women, Dublin*, 1863.) Dr. Emmet (*Amer. Journ. of Obstetrics*, 1869) relates a case. He first amputated the tumor by the wire écraseur, and subsequently reduced the inversion by the manœuvre described further on.

In University College Museum is a remarkable specimen, No. 871. A large mushroom-shaped tumor is attached to the fundus uteri by a base so broad that it quite caps it. The uterus is laid open, showing the round ligaments and tubes drawn into it. This specimen is thus referred to by Crosse (part i. p. 45); the case is published by D. D. Davis, *Principles of Obstetrics* (i. 618, pl. 21): "The patient was brought to the Middlesex Hospital in a dying condition; the polypus tumor prolapsed beyond the external labia. The preparation is unfavorably displayed. Calculating from the *ostium urethræ*, about one inch of the vagina remains uninverted, so that the angle of its reflection, where the circular *cul-de-sac* terminates, is situated at the depth of an inch, from which the inverted vagina extends downwards two inches, forming a tube, which terminates in the uterus, at which termination there is a distinct thickening or circular prominence, answering to the cervix uteri, completely inverted. The cut surface of the inverted uterus is nearly an inch in thickness, and the peritoneal pouch formed by it is very small, and its whole extent is laid open. There is no observable alteration in the bladder from its normal position, the superior fundus rising prominently towards the abdomen; and in the posterior view the ovaria are of large size, and lie close to each other at the margin of the peritoneal pouch, tucked in behind the bladder. The peritoneal pouch, though narrow, must be about four inches in length, two answering to the inverted vagina, and the rest to the uterus totally inverted. The left corpus fimbriatum is adherent, the right loose and floating."

In St. Bartholomew's Museum is a specimen (No. 32.12) illustrating this point. "The uterus contains a large fibrous tumor which has grown from its fundus, and projects into the vagina. The fundus of the uterus is *partially inverted*, being drawn down by the weight of the tumor. Its inner layers also, enveloping the tumor, are elongated, so as to form a pedicle or neck by which the tumor is attached like a polypus. Similar tumors of smaller size have formed." In St. Bartholomew's Reports,

1872, another history is related of inversion caused by a polypus. The uterus was restored to its position.

The *symptoms of recent inversion* are chiefly those of shock, indicating sudden severe injury. They vary with the degree and progress of the inversion. Thus, the first degree, or simple *depression*, may be unattended by pain, and indicated solely by hemorrhage and a corresponding depression of the vital powers. The hemorrhage comes from the relaxed introcedent part. The depression at the fundus may be felt through the abdominal walls as a cup-like hollow. As the descent proceeds, and becomes *introversion*, urgent symptoms arise, according to the degree of compression exercised by the uninverted portion upon the inverted portion. A sense of fulness, weight, as of something to be expelled, is felt. Expulsive efforts, both uterine and abdominal, sometimes very violent, follow. Hemorrhage is not constant. It seems that when the inverted portion is firmly compressed, the hemorrhage is arrested, and that bleeding is a mark of inertia. When the inversion is complete, the uterus is felt in the vagina, or may even be seen outside the vulva. Then pain and collapse are aggravated. Clammy sweats, cold extremities, vomiting, alarming distress, restlessness, extinction of the pulse occur. During the expulsion the woman has often exclaimed that her intestines were passing from her. A tumor appears in the vagina, or externally, generally covered by the placenta. The cord is traced up to the insertion, and the placenta, of convex form, is spread over the tumor.

The shock, either with or without hemorrhage, is sometimes so great as to quickly extinguish life. Cases are known where the shock attending simple depression has been fatal. Where the case is not fatal, and the uterus is not reduced, the symptoms of chronic inversion succeed. First, the tumor by its bulk, causes distress of the bladder and rectum. Then it is probably forced externally. Chronic inflammation, thickening and induration of the parts ensue; the surface may become dry from exposure, or ulcerated and bleeding from chafing. It may be difficult or impossible to reduce it within the vagina. If the tumor remain within the vagina, it may still be a source of chronic irritation to the vagina, and may itself be the seat of chronic inflammation. Congestion, abrasion of surface, ulcerations, give rise to profuse muco-purulent leucorrhœa, frequently to hemorrhage. Irritative fever, emaciation, pain, discharges, break down the constitution, and after some months, or even years, the patient may sink from exhaustion. As Windsor remarked, an epoch of especial danger is that of weaning and the resumption of menstruation. The discharges of blood then become more frequent and profuse. When the climacteric age has been reached, the uterus undergoing natural atrophy, severe symptoms may subside, toleration ensuing.

In the recent state retention of urine is not uncommon, owing to the distortion and compression of the neck of the bladder and urethra. The retention has been relieved when the uterus was restored.

Cases have been known of the *inverted uterus sloughing off*, Saxtorph (in *Actis Soc. Med. Hav.*); Deborieir (*Richter's Chir. Bibl.*); Radford (*Dublin Journ. of Med.*, 1835). In other cases the strangulation caused by the cervix has ended fatally before there was time for sloughing (Velpeau). More marvellous still, cases have occurred in which the

recently inverted uterus has been torn away by the attendant, the patient recovering (Dr. J. C. Cooke). J. L. Casper says (*Handbook of Forensic Medicine*, New Sydenham Soc. Translation, vol. iii.) laceration of the pelvic ligaments may attend spontaneous inversion of the uterus.

E. Clemensen relates[1] a case of complete inversion, in which *the uterus separated by gangrene*. A woman of fifty had borne two children, the last thirteen years ago. Some eight years ago she observed that the uterus prolapsed (it was probably inverted). A profuse hemorrhage took place. The uterus was then found completely inverted between the thighs, the size of two fists. In several spots lacerations were observed extending into the muscular tissue. Some days later the uterus seemed diminished in size; irritative fever set in; gangrene showed itself in the left side of the uterus. The uterus contracted more and more. At last only the orifice remained as a scar. The woman recovered. Clemensen attributes the origin of the inversion to the altered texture of the organ, resulting from fatty regression after labor.

In recent inversion death has ensued from *strangulation of intestine in the uterus*. Gérard de Beauvais relates a case (*Acad. de Médecine*, 1843). But such a termination can hardly occur when the inversion has become chronic. It is a remarkable circumstance that notwithstanding the extreme difficulty experienced in reducing an inverted uterus, it very rarely happens that the constriction of the os is sufficient to close the inverted cavity, or that adhesion exists. Commonly the finger is readily admitted, and even through the abdominal wall a passage into the cavity may be felt.

Sometimes, the uterus being irreducible, death ensues from hemorrhage, as in a case described in St. Bartholomew's Catalogue (specimen No. 32.56), and reported by Dr. West (*Pathological Proceedings*, vol. iii.). "Uterus entirely inverted, with the exception of the os, which, however, does not cause any constriction, the finger passing easily between it and the uterine wall. The openings of Fallopian tubes not discovered. The peritoneum at the point of inversion is thickened and uneven, the insertions of the uterine appendages are drawn into the *cul-de-sac* of inverted uterus. This inversion was irreducible, and the displacement of the uterus caused death in consequence of frequently recurring hemorrhage twenty-nine months after its occurrence."

A remarkable termination is illustrated in the following case, of which the specimen is preserved in the London Hospital (No. Ea 57). "Uterus perforated at its fundus by disease. Its mucous membrane appears to have been everywhere destroyed and at its fundus is an aperture the size of a shilling." Dr. Ramsbotham thus refers to it: "Ulceration having commenced in the whole lining membrane of the uterus has almost destroyed the uterine texture, and has formed an opening into the peritoneal cavity. The uterus is turned inside out. Epithelial carcinoma of the internal uterine membrane. I have seen only one other such case."

Crosse says "there is not a shadow of evidence of *total inversion* in the strict sense replacing itself spontaneously." A few cases, as those

[1] Hospital Tidende, 1865.

related by Boyer (*Maladies Chirurgicales*) and Baudelocque (*Daillez, Thèse*) are examples of reduction following external force in the form of a blow or succussion. Dr. Meigs, nevertheless, relates several cases. Of such cases Dr. West remarks that "it is easier to conceive that an experienced man should commit an error of diagnosis, than to understand how any efforts of Nature could cure a chronic inversion of the womb." The error may be one of the two following—either the tumor was a polypus, which has disappeared by being spontaneously cast off, or it was a true inverted uterus, which has been separated by sloughing, and cast off in like manner.

In some instances the subject of inversion has evinced more or less perfect *toleration* of her infirmity. This was the result in a case reported by Guyon (*Journ. de Chir. et de Méd. prat.* 1861), in which inversion had existed twenty years without alteration of health; in one by Dr. Comstock (*Boston Med. and Surg. Journ.*, vol. viii.): the patient followed her occupation as a dairy-maid; in one by Dewees (*Midwifery*): she was enjoying good health ten years after the accident; in one by Ramsbotham: the patient regained flesh, her health became good; in one by Lisfranc (*Clin. Chir.*, 1843): in the body of an old woman examined at the Salpêtrière, the uterus was completely inverted, this had not been suspected during life; in one by Dr. C. H. Lee (*American Journ. of Med. Sc.*, 1860): inversion remained undetected for twenty-five years, ablation was given up, the patient was so well; in other cases referred to by Gregory Forbes,[1] in one reported by Dr. Woodman (*Obstet. Trans.*, vol. ix.) brought to the London Hospital, whilst I was obstetric physician there, and in Dr. Mackenzie's case (see Fig. 146) toleration was established.

When reduction has been effected, the uterus may recover its function, and pregnancy ensue. There is also a probability, not indeed high, but suggesting caution, that inversion will again take place during labor. For a long time after replacement the cavity of the uterus probably remains shorter than normal. The thickened walls take time to resume their natural condition. I state this from the observation of a case reduced by myself. This depends no doubt in some instances upon the reduction being imperfect, the fundus remaining in the state of depression, or squatting.

The *prognosis* must always be serious. Weber truly calls inversion "*malum ingens periculique plenum.*" Crosse, who has shown the greatest industry in the collection of cases, says that above one-third of all the cases, under whatever circumstances, or in whatever degree they occur, prove fatal either very soon, or within one month. He analyzed 109 fatal cases. Seventy-two proved fatal within a few hours, most of them within half an hour; eight cases proved fatal in from one to seven days; and six in from one to four weeks. If the patient survive a month the case is chronic, and the immediate danger is small. But the danger recommences at eight or nine months, when the menstrual function is resumed. Many of these will die within two years. If the inversion take place suddenly and completely, the uterus remaining flaccid, the

[1] Medico-Chirurgical Transactions, vol. xxxv.

danger is extreme; if it take place slowly, that is, under spontaneous uterine action, the danger is less.

As to the prospect of reduction, a much more favorable expectation than was lately held is justified by the improved methods of treatment; and reduction will diminish the mortality. Denman thought that if two hours had elapsed reduction could not be effected. But more recent experience has abundantly proved that both in the recent and chronic cases reduction can in the great majority of instances be accomplished. If the patient survive the first dangers of shock and hemorrhage the prospect of recovery under surgical treatment is good.

The *diagnosis* is especially important; it is not always easy; and the most deplorable consequences have followed from error. M. A. Petit had a patient in the hospital at Lyons. Six surgeons decided that it was polypus, and a ligature was applied. A shriek caused suspicion of inversion; the ligature was removed; but the woman died at the end of five days. On examination inversion was found. Dr. Wm. Hunter tied what he thought was a polypus in a young woman who said she had never been pregnant. She died; the uterus was found inverted.

Dubois (*Dictionnaire de Méd.*, 1846) says he knew of two cases of inversion mistaken for polypus by two of the most skilful surgeons in Paris. In one case a ligature was put on; the patient died in thirty-six hours.

In the presence of the recent accident the most frequent mistakes have been to suppose the mass is a second placenta, or the head of a second fœtus. The forceps has been applied to the inverted uterus to drag it away.

The diagnosis is especially difficult when inversion is complicated with polypus. The polypus may be detected, but not the inversion, and a ligature applied to the polypus may include a portion of the uterus. Gooch relates (*Diseases of Women*) the following case: Dr. Denman passed a ligature round a polypus of the fundus; as soon as he tightened it, he produced pain and vomiting. As soon as the ligature was slackened these symptoms ceased; but whenever he attempted to tighten it the pain and vomiting returned; the liagature was left on, but loose; the patient died about six weeks afterwards, and on opening the body it was discovered that the uterus was inverted, and that the ligature had included the inverted portion.

The following case occurred to Dr. Gooch at St. Bartholomew's, in 1828: The patient had been delivered by forceps six months before. When standing, a large tumor protruded externally, but could easily be replaced. The os uteri could not be felt. The ligature was applied round what was supposed to be the stalk of the tumor: it occasioned little pain when first applied, but towards evening pain became so severe as to resemble labor. She died on the fifteenth day after the operation. The uterus was of natural size and structure. The tumor grew from the orifice of the uterus all round, so as to be continuous with the cervix, and to make it impossible to say where the neck of the uterus ended or the stalk of the tumor began. The ligature had included the projecting neck of the uterus. The posterior part had occasioned ulceration into the cavity of the peritoneum. There was no inflammation of the peritoneum.

The diagnosis has to be made under the two different circumstances of recent occurrence and chronicity. In the *recent* case the history furnishes useful indications. The sudden sense of injury and shock, following labor, suggests immediate exploration. Negative and positive signs concur in pointing to a conclusion. In the first place the uterus is not felt, as it ought to be, a firm, round ball behind the pubes. On pressing the hand firmly into the pelvic cavity from above downwards, behind the symphysis, a vacuum is felt. Keeping the hand in this situation, the fingers of the other hand are passed into the vagina, and there a mass rounded, soft, or firm is felt. The relations and position of this mass are clearly defined between the two hands. If the placenta is attached, the uterus is obscured by it. But bared, the diagnosis will be cleared up, if the finger is carried all round the mass up to its insertion. On pressing the mass upwards as in attempt to replace it, the fingers exploring through the abdominal wall will sink into a pit formed by the disappearance of the uterus through its os. Then the finger in the vagina exploring the root or insertion of the tumor comes to a circular furrow at the fundus of the vagina, and a prominent ring, which is the os uteri. If the inversion be not complete, the finger, or more easily the uterine sound, will pass a little way between the ring formed by the os and the pedicle of the tumor. If the inversion is complete, only the furrow will be felt. If the inversion has been followed by prolapse of the mass beyond the vulva the exploration is easier, as the tumor may then be felt continuous by its origin with the inverted vagina. It may also be seen. Its aspect is that of a florid tumor with a very vascular velvety surface, easily bleeding on the slightest touch, or if the presenting part be that to which the placenta had grown, it is uneven, of a dark hue, with placental shreds or coagula attached to it. The tumor is painful to the touch. Any attempt to drag upon it causes a sensation described by the patient as if her inside were being pulled out. Pain is also felt down the legs. Vomiting is likely to occur. In size the tumor may equal a child's head, or it may be no larger than a fist. A crucial test is the alternation of the mass from contraction to dilatation. This vital act inducing characteristic changes of size and consistence pertains to the uterus alone.

The diagnosis from polypus is not always easy. A polypus may complicate pregnancy. Pregnancy usually causes an intra-uterine polypus to grow at an accelerated ratio. After the birth of the child, the polypus will be extruded, perhaps dragging the fundus uteri a little with it, thus simulating, if not producing, a minor degree of inversion. To distinguish this from inversion it must be remembered that polypus thus appearing after labor is actually even more rare than inversion. The probability, therefore, of inversion ought to operate with at least equal force upon the mind of the surgeon. The chief points of distinction are: that a polypus is not sensitive; it does not change its form, size, or consistency; it does not contract or relax. Its expulsion rarely produces severe shock. In form and size polypus may resemble inversion, but it differs in relation to other parts. It is quite possible that the placenta may have been partially attached to the surface of the polypus; it will then exhibit placental shreds and clots like the uterus. The finger and sound must be relied upon to make the case manifest. The hand outside

will discover the uterus *in sitû* behind the pubes. The finger in the vagina will travel round the polypus, between it and the ring of the os uteri which embraces it. If the attachment of the tumor is to the cervix, the pedicle will be felt on one side of the circumference, whilst in the other parts the finger or sound will pass several inches beyond into the cavity of the uterus. If the attachment is at the fundus, then the sound will pass all round.

The difficulty of distinguishing inversion in the *chronic* state from polypus is greater. Velpeau having in error tied an inverted uterus, said, "I know too well that there are cases in which doubt is the only rational opinion." Soon after the accident the uterus diminishes greatly in bulk, becomes harder, perhaps less sensitive, and, in these features, more nearly resembles polypus. But setting the history—always a fallacious diagnostic element—apart, the means of discrimination are satisfactory. The speculum may reveal the oozing of the menstrual fluid. In other respects its use is doubtful.

The sound is of more value. "If," says Simpson, "it passes two inches and a half or more beyond the edge of the cervix, the disease is not inversion of the fundus; if it cannot pass at any point around the stem of the tumor to a greater extent than about one inch, the uterine cavity may be considered as shortened by inversion." The inverted uterus is flattened anteriorly and posteriorly; its largest point is lowest; it diminishes very gradually, presenting a comparatively large neck at its highest part, where it is encircled by the inverted cervix, if the inversion is not complete, and by a thickened ring or ridge if complete. The size of the inverted uterus is scarcely larger, and is often smaller, than in the natural state. Herbiniaux placed so much stress upon this as to affirm "that if the tumor be so large as to distend the vagina and prevent your getting at the os uteri, it may be boldly pronounced polypus, and not a partial inversion, which is always of small size, and fills the vagina."

The form of the tumor has been taught to offer distinctive characters. S. Cooper described the inverted uterus as forming a mass wider or as wide above at its origin as at its most dependent part, whereas in polypus the neck is narrower. This is often true, but not constantly so; and it would not be safe to rely upon a variable sign. J. G. Forbes describes a case of complete inversion of eighteen months' standing, in which the tumor close to the os was four inches and a quarter in circumference; this was the widest part. This seems to be more especially the character of incomplete inversion. In many cases of complete inversion the upper part is narrowed so as not to be distinguished in this respect from many polypi. This was the condition in two cases observed by myself.

A sign insisted upon by Crosse is the feeling the stretched round ligaments within the tumor (inverted uterus), and pain being produced in the groins on lowering the tumor a little so as to render the tension greater. To this I would add that by drawing the tumor well down by a vulsellum or a noose (see Fig. 147), the insertion of the root in the vaginal roof being put on the stretch, the continuity of the two parts is made manifest.

Malgaigne advises the following method: Introduce a male catheter into the bladder, direct its end downwards and backwards, so that, carry-

ing the coats of the bladder before it, it may enter the peritoneal *cul-de-sac* formed by the inversion, and be felt by the finger in the vagina through the coats of the inverted organ. Another method is this: The catheter in the bladder, direct the end backwards so as to bring it to project in the rectum where a finger will feel it with only the coats of the rectum and bladder intervening; but if the firm resisting uterus be there, the end of the catheter will not be felt. Digital examination by the rectum will also enable the surgeon to explore the tumor in the vagina more fully. Often the end of the finger will get above the tumor, thus completely exploring it. If the uterus be in its place, it may thus be felt between the finger in the rectum and the finger of the other hand pressed down behind the pubes. If the uterus be inverted, then the vacuity above the tumor felt in the vagina will indicate that this tumor is the uterus. This mode of exploration should never be omitted. Dubois takes occasion to say that the mistakes he refers to, in which death occurred from ligaturing an inverted uterus, would not have been made if exploration by catheter in bladder and finger in rectum had been resorted to. Where doubt exists there is still another mode of exploration which gives absolute evidence. Under anæsthesia the hand may be passed into the rectum, so that the fingers may feel *above* the tumor and completely command its whole contour. To get well at the root of the tumor the hand may be passed into the vagina. The operation is not very difficult, and if carefully performed no injury will result.

An intra-uterine polypus sessile on a broad basis may simulate partial inversion. The diagnosis will be established by the hand outside feeling the unimpaired rotundity of the uterine fundus in the first case; and the cup-shaped depression on its sphere in the second case. The sensitiveness of the inverted uterus furnishes indications. Thus Guéniot (*Arch. Gén. de Médecine*, 1868) recommends acupuncture of the tumor to test this property. But it must be confessed—at least, I make this admission on my own behalf—that the sensitiveness of the inverted uterus has been more distinctly revealed by applying a ligature or wire around its neck with a view to removal for a polypus. Regarding this fact, and the associated fact, that a polypus is not sensitive, I have insisted upon the rule that patients should never be submitted to anæsthesia for the removal of a polypus. Pain may give the last warning, and save the patient at the last moment.

The diagnosis from prolapse of the uterus and vagina ought not to be doubtful. The presence of the os uteri at the lowest point of the tumor, admitting the sound for a distance of two and a half inches or more, at once decides the existence of prolapsus.

The difficulty of diagnosis has been felt even in the presence of the parts put up in spirit. Thus Crosse, by further dissection, proved that a specimen, which for years had passed for one of inversion in the Glasgow museum, was in reality one of polypus growing from and perfectly occluding the os uteri. He pleads with pardonable urgency that the mode of putting up these specimens is bad; and that the tumor ought to be slit open by a longitudinal cut so as to expose the cavity and its contents.

I possess a wax-model taken from a patient who came under my care in the London Hospital. There was a procident mass outside the vulva

which was for some time taken to be a fibroid tumor attached to the fundus of the inverted uterus. It was only after prolonged examination that a small opening, seated in the angle of junction of the tumor, was discovered by means of the sound to be the os uteri. The tumor had grown by a broad basis to the cervix, and had caused not inversion but prolapsus. The model is figured in the *Obstetrical Trans.*, vol. iii.

What has been said will indicate some of the principles of *treatment*. The treatment of *recent* inversion will be found fully discussed in the *Obstetric Operations*. In this place we are chiefly concerned with *chronic* inversion.

If the opportunity of reducing within a few hours or days be lost, the difficulty increases through advancing involution of the uterus and contraction of the os. Still the same manipulation may be attempted. We must act steadfastly in the faith that pressure sufficiently long kept up upon the os uteri will cause it to yield. It is really a question of time—too long a time indeed for the hand of the surgeon to work—but not for other mechanical appliances. Dr. Tyler Smith is entitled to the credit of proving this point by success (*Med.-Chir. Trans.*, 1858). In a case of inversion of twelve years' standing he effected reduction by maintaining pressure upon the tumor and thus upon the os by an air-pessary during several days. Pridgin Teale (*Medical Times and Gaz.*, 1859) reduced an inversion of six months by the air-pessary in three days. Dr. C. West (*Medical Times and Gaz.*, 1859) by similar means reduced an inversion of a year's standing. Dr. Bockenthal (*Monatsschr. f. Geburskt.*, 1860) succeeded in six days in reducing an inversion which had lasted six years. Mr. James Hakes (*Liverpool Med. and Surg. Reports*, 1868) by same means reduced a chronic inversion in fourteen days. Schrœder (*Berlin Klin. Wochenschr.*, 1868) thus reduced an inversion of two years. And latterly (1869), Mr. Lawson Tait, on my suggestion, effected reduction in the same manner. The last woman died; but her case was already desperate. Borggreve, indeed, had applied the same principle. He used a stem eight inches long with an egg-shaped knob which he fitted to the inverted fundus, and held it in gentle pressure by a T-bandage. In three days the uterus was returned. Dr. Marion Sims relates an interesting instance of the influence of constant pressure. A stem-pessary with an external support, after pressing for some days upon the inverted fundus, was found to be taken up into the inside of the re-inverted uterus, the os having yielded and allowed both to pass in together.

James P. White succeeded in reducing in the following manner: "Having succeeded in *dimpling* the fundus, pressure was maintained with the thumb at that point until the hand had become nearly powerless. To preserve this depression whilst the muscles of the hand were permitted to rest, a rectal bougie was carried along in its place, fixed in the dimple, and pressure unintermittingly continued through it, by the left hand outside the vulva. Gradually the concavity of the fundus was found to be deeper, until it finally became completely restored." In more obstinate cases he keeps up elastic pressure by means of a "Repositor" constructed as follows: it has a uterine extremity expanded and hollowed to receive the fundus of the uterus. The edge of this part is tipped with soft rub-