A LECTURE ON INVERSION OF THE UTERUS.

WITH TEN CASES SUCCESSFULLY TREATED BY THE SIGMOID
REPOSITOR.

Delivered at the Chelsea Hospital for Women.

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GENTLEMEN,—In the names of my colleagues and self, I have much pleasure in welcoming you once more within these walls. The course of lectures to be delivered this year embraces subjects of the greatest practical interest. Those selected by my colleagues are most important, for they relate to the diagnosis and treatment of diseases which are met with every day. I feel some apology is due to you for choosing as my subject a displacement of the uterus which is so seldom met with, that many medical men, in the whole course of their practice, never see a single case. As I stated, however, last session, that our object in delivering these lectures was to give others the advantage of the experience gained at this hospital; and as it has fallen to my lot to have exceptional opportunities of treating this rare condition of the uterus, I have ventured to occupy your time with some remarks, which must necessarily be synoptical, on inversion of the uterus.

I shall not detain you with the history of this interesting subject, for to give even a brief sketch of it would require more time than we have now at our disposal. Those who may wish for full historical details will find them in that most admirable *Essay, Literary and Practical, on Inversio Uteri*, by our learned countryman, Dr. Crosse. Inversion of the uterus may be puerperal or non-puerperal, recent or chronic.

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Puerperal inversion is when the displacement is found in connection with abortion or parturition.

Non-puerperal inversion is when the displacement occurs in an unimpregnated uterus.

Recent inversion includes the period between the occurrence of the displacement and involution of the uterus.

Chronic inversion is so called during the existence of the displacement after involution has been completed.

Frequency of Inversion.—Puerperal inversion is far more common than non-puerperal. Of 400 cases noted by Crosse, he found that in 350 it occurred as a sequel to parturition, in 40 from polypus, and in 10 from other causes. Dr. Atthill doubts the correctness of the view commonly held, that inversion occurs in the very large majority of cases immediately after delivery. He was led to adopt this view in consequence of the fact that, of the five cases he had seen, two were puerperal, and three non-puerperal. This exceptional experience must, I think, be due to the superior obstetric skill of the Irish practitioners and midwives. Dr. M'Clintock does not, however, endorse Dr. Atthill's opinion. He says that, out of twenty-one cases occurring in the practice of obstetricians in Dublin, there were only four in which the inversion was the result of a tumour. In confirmation of the view held by Crosse, M'Clintock, and every other writer on the subject, as far as my reading goes, it will be noticed that, of the eleven cases related further on, only one was non-puerperal. It may be concluded, therefore, for every non-puerperal case, seven of puerperal origin will be noted. The frequency with which inversion occurs in connection with labour has been variously estimated. If we deduct those cases which escape observation, and those which are purposely withheld from publication, it would not probably be far from the truth if the proportion were taken as 1 in 100,000 labours.

Grades of Inversion.—Inversion of the uterus has been divided into

incomplete and complete. Incomplete inversion has many grades; from the first, which is represented by a mere indentation of the fundus or cervix, to the last act of introcession which ends in complete inversion. When the vagina also becomes inverted, the displaced uterus descends, and protrudes beyond the vulva, forming what has been called prolapsed inverted uterus, or utero-vaginal inversion. Some authors describe inversion as complete only when the uterus

has escaped from the vulva, but the situation of the inverted uterus has nothing to do with condition of inversion.

Modes of Inversion.—There are three ways in which the walls of the uterus may pass down through its os during the process of inversion—fundal, lateral, and cervical.

Fundal inversion is when the top of the uterus is carried down, and passes through the os.

Lateral inversion is when the side of the uterus slides down, and first passes through the os.

Cervical inversion is when the lower part of the uterus is primarily extruded (Figs. 1 and 2).

Causes of Inversion.—The causes of inversion are predisposing and determining.

The predisposing causes are very numerous; they may be enumerated as follows: distension or relaxation of the parturient canal, a large pelvis, the erect posture during labour, a short cord, first pregnancy, depression of the fundus, laceration of the os, and, more more potent than all, the attachment of the placenta or of a tumour to the fundus.

The determining causes may be divided into automatic, systemic, and mechanical.

It must always be borne in mind that a number of predisposing, and one or more determining, causes, may be in operation at the same time; and that every case of inversion is probably due to the combined action of many conditions which favour the occurrence of the displacement.

Automatic inversion of the uterus is caused by its own muscular contractions. It is always of the fundal variety, and is determined by an indentation of the top of the uterus, or by some body attached inside to the fundus. In puerperal inversion, the placenta originates this action; in the non-puerperal, a tumour produces the same result. It is only necessary that the uterus should be able to grasp a portion of its fundus, or some body attached to it, to enable the contractions to continue the process of introcession until the organ is turned completely inside out.

Systemic inversion of the uterus is caused by muscular contractions outside the uterus. If certain predisposing conditions exist, such as inertia of the body of the uterus and relaxation or laceration of its os, inversion may be produced by the action of the abdominal muscles, or of the abdominal and respiratory muscles combined. The mode of inversion caused in this way is usually the cervical, the displacement commencing at the cervix, and the fundus reaching the vagina last. The fundal and lateral modes, however, cannot be looked upon as impossible.

Mechanical inversion of the uterus may be either propulsive or extractive, or both.

The propulsive causes are blows on the abdomen, manual compression, such as is used in expelling the placenta; the weight of the abdominal viscera when the patient is sitting or erect; and distention of the abdomen by fluid or gas. Inversion has been caused *post mortem* by the accumulation of gas in the intestines. The mode of displacement from mechanical causes is doubtless usually cervical; but it is possible to imagine the force to be directed against the side of the uterus in such a manner as to determine lateral inversion.

The extractive causes may be manual or gravitatory. Traction on the cord during the third stage of labour has, more than other, been considered as the most common cause of inversion. It may undoubtedly be thus produced, but it is not nearly of such frequent occurrence as many writers imagine. When the uterus is in a state of extreme inertia, traction on the placenta attached to the side of the uterus may produce lateral inversion, for in this mode of displacement comparatively slight force is required; one side of the uterus gliding over the other down through the os, and meeting with little resistance. Traction may be effected by pulling the cord or seizing the placenta itself. Inversion may also be caused by traction on a tumour situated at the fundus, during an operation performed for its removal. If the cord be short, it is quite possible the expulsion of the child might cause such traction on the placenta as to determine inversion; and this displacement has been attributed to traction on the cord produced by the sudden descent of the child, when born during the erect position of its mother.

Diagnosis of Inversion.—The detection of inversion of the uterus is by no means so easy as might be imagined. The occurrence of the displacement is so rare, and the conditions with which it may be compared, and for which it may be mistaken, are so numerous, that the practitioner is very apt to see only what experience has taught him to look for.

The earliest grades of incomplete inversion must be difficult to diagnose. It is, however, stated that a slight depression of the

fundus may be felt through the abdominal walls; and this may be possible, if they be thin and yielding. The more certain way of detecting incomplete inversion is by passing the finger in chronic, or the hand in recent, cases into the uterus, and feeling the indented fundus from within. If there be any doubt still left as to the character of the fundal protrusion, a bimanual examination will clear up the doubt.

It is with complete inversion the practitioner has most frequently to deal; and, as the diagnosis of the later grades of incomplete inversion is similar to that of the earlier grades of the complete form, it will be well, in order to prevent repetition, to consider the subject as one.

During recent puerperal inversion, the usual mistakes made are: taking the protruding fundus for the head or breech of the child, a mole, a clot, a polypus, or a placenta. The symptoms are so urgent, and the condition of the patient so critical, that errors are often committed in consequence of the practitioner not giving himself time to determine the exact nature of the presenting body. Hence arise those most distressing cases, in which the inverted uterus is torn away in mistake for something else, and by the act the patient's life and the medical man's reputation are simultaneously destroyed. In recent puerperal cases, the symptoms assist materially in diagnosis. The nervous condition is very marked; shock, pelvic discomfort, and faintness, are observed. Manual examination discovers a large rounded mass in the vagina, which can be pushed up, replaced, and does not fall again, as would be the case with all the other presenting bodies for which it might be mistaken. The fingers passed through the os are also arrested, and no uterine cavity is to be found. The sensibility of the inverted uterus is another valuable diagnostic symptom. In recent cases, the inverted uterus, with a placenta attached (as is usually the case), or a tumour growing from the fundus, has been mistaken for uncomplicated inversion; and I have known a case of inversion, with placenta attached, erroneously pronounced to be a polypus.

The diagnosis of chronic inversion, whether puerperal or non-puerperal, is the same. Involution being complete, a hard, rounded, and smooth body is discovered hanging from the os uteri, which can be traced all round its attachment as a distinct rim. All these characteristics may be found so exactly simulated by a polypus, that the mistake of diagnosing an inverted uterus for a polypoid growth is the one most frequently made. Numerous cases are recorded in which the uterus has been removed in error for a polypus; and a still greater number are related in which the operation has been abandoned in consequence of the pain and shock immediately produced, and which have shown in time the true character of the body about to be removed. In ordinary cases, there is no difficulty in diagnosing between chronic inversion and polypus. The uterine sound can be passed between the polypus and os, until it reaches the fundus, when the organ is found of normal length. A finger passed into the rectum discovers the absence of the uterus from its natural site, and a sound passed into the bladder can be made to touch the finger, positively proving that the uterus is not in its normal position. This is looked upon as conclusive evidence of inversion; but it is not so, for the uterus may be retroflexed with polypus, and the retroflexion felt by the finger in the rectum may be mistaken for the polypus. Another difficulty is met with when the polypus is attached to, or grows from, nearly the whole circumference of the os uteri. I know a case of this sort which was treated by my sigmoid retractor, I need hardly add without success. Physically, the diagnosis was difficult; for the tumour was continuous with the os, and only a small opening existed in front of the tumour, through which a sound could be passed into the uterine cavity. The tumour was, however, softer and larger than an inverted uterus, and the history of the case pointed distinctly to the conclusion that it was not inversion. The patient was ultimately sent to me that I might try my retractor myself. I removed the tumour, and sent it to the distinguished practitioner who, with two others, had made a wrong diagnosis.

A great difficulty in diagnosis arises when an inverted uterus has a growth in its fundus, and it is difficult to find a line of demarcation between the two. In these cases, the uterus is not of the usual form found when inverted, and the tumour may be so large as to lead the practitioner to believe the whole mass to be new growth, and endeavour to remove it.

One other error is sometimes made. When inversion of the vagina has allowed an inverted uterus to protrude from the vulva, the displacement has been mistaken for prolapsus uteri. The wrong diagnosis is all the more easily committed when the os uteri has become closed, a condition not rare in old women. The forms of an inverted and of a prolapsed uterus are very different. In the former, the greatest

diameter is to be found at its distal extremity; in the latter, at its proximal end. The passage of a sound into the bladder will clear up all doubt. In inversion, the instrument will pass up in the normal direction; in prolapsus, it can be made to penetrate the bladder, and pass out of the vulva beside the prolapsed uterus. Even if the inverted uterus be extruded beyond the vulva, it will be found impossible to pass the catheter down to the distal extremity of the prolapsed mass.

Treatment of Inversion.—In considering the treatment of inversion of the uterus, I shall not take into consideration the palliative and mutilative measures which some authors advise, for I believe every case of inversion can be cured by reposition, and of this mode of treatment I shall therefore only treat. Supporting the inverted uterus by a pessary, and removing the organ by operation, are, it is to be hoped, proceedings of a time for ever passed away. I am aware that inverted uteri can be attacked by disease, and in such cases reposition might be impossible.

Modes of Reposition.—As the uterus can be inverted in three different ways, so can it be reinverted.

Fundal reposition is attempted by pressing upon the fundus, with the object of driving it through the cervix. It is the most unscientific method of replacing an inverted uterus, as it demands unnecessary dilatation of its neck.

Lateral reposition is a very effective plan of reducing recent inversion. The manœuvre consists of sliding one half of the uterus over the other and through the os.

Cervical reposition is the best mode of reducing chronic inversion. Reinversion begins at the os, and extends upwards until it reaches the fundus (see Figs. 1 and 2).

Recent puerperal inversion of the uterus can be successfully treated by taxis, the patient having been previously anaesthetised. The ease with which reposition can be effected depends on the promptness with which the displacement is discovered, and the grade at which it has arrived. In all these cases, the reinversion should be done by the lateral method; that is to say, pressure should be exerted on the side of the fundus, so as to make one side of the uterus slide over the other and through the cervix, until the whole organ is reduced. The very worst plan is that of endeavouring to indent the fundus and press it down into the uterus, with the hope of causing it to dilate the parts before it, as it descends. In all cases, the placenta should be removed before attempting reinversion; for, if left attached, the placenta adds materially to the bulk which has to pass through the cervix. It may also be here stated that, in cases of chronic non-puerperal inversion caused automatically by fundal tumours, these should be removed before any attempt at reduction is made. In reducing recent, as in chronic inversion, the axes of the pelvic cavity must be remembered, and taxis made in a line with the axis of the brim of the pelvis. This point will be referred to again. In applying force for the treatment of inversion it should never be forgotten that, although nature is a willing servant, she must have time to do her work. Steady sustained pressure, with short intervals of rest, is by far the best way of employing taxis. Sudden and violent efforts at reposition only end in causing laceration and disappointment. I succeeded in reinverting a uterus which had been ten days displaced, by the lateral method of taxis. The operation did not last more than two or three minutes. I was requested to see the patient with the object of removing a polypus, for which the inverted uterus had been mistaken.

Chronic inversion of the uterus, whether puerperal or non-puerperal in its origin, has been treated in a great number of ways; and it is most distressing to think what unnecessary torture poor women have suffered, while the measures adopted were so insufficient and unscientific. The time has, however, at length arrived when the treatment of uterine inversion can no longer be looked upon as an opprobrium to gynecology.

Let us glance briefly at the various procedures which have been proposed and adopted in treating chronic inversion. They may be divided into aids to reposition, and repositors. Aids to reposition have been used in great numbers. Posture, hot and cold water syringing, belladonna, galvanism, and anaesthesia have all been recommended; but, with the exception of the last, they are all useless. Many operative measures have also been adopted as aids to reposition. Compression of the uterus by hand, forceps, or bandage has been used, with the idea of expelling the blood from the uterus, and relaxing its walls. The plan is not free from danger, as in some cases it has caused extensive sloughing.

Dilatation of the cervix has been the most popular and widely used of all aids to reposition. Attempts have been made to do this by thrusting the fingers into the depression on the abdominal surface

of the inverted uterus; and this depression has been reached through the abdominal walls, either immediately through their thickness, or immediately by incision. The cervical ring has also been reached through the rectum and the bladder. Dilatation has also been attempted by introducing the hand into the vagina, and endeavouring to dilate the cervix by spreading out the fingers. Dilatation has been effected by opening the abdomen, and passing dilating instruments into the cervical ring. It has also been employed by opening the fundus uteri, and dilating from within.

Incisions have also been popular, and have been employed by many. They are made on the vaginal surface of the inverted uterus; but it has been proposed to pass a small knife through the fundus, and make them from within. The cervix thus divided certainly loses a large amount of its resisting power; but the proceeding is not safe, for laceration by extension of the incisions takes place. Sutures have been advised for the purpose of maintaining the fundus, when partly reinverted within the cervix.

Repositors.—Various repositors have been used from time to time for the purpose of replacing inverted uteri. The most important of these are the hand, elastic bags, and rods, either straight or curved, with ends round or cupped.

The hand has been used in various ways. The oldest plan was the endeavour to cause reposition by the fundal method, when an attempt was made to indent the fundus by persistent pressure. This, of course, only ended, as taxis usually does, in lacerating the vagina, and not reducing the displacement. The hand is a valuable instrument in recent inversion, but useless in all the chronic forms. It could, indeed, effect reinversion perfectly safely if less time were required, but no hand can maintain the fatigue of taxis for a sufficiently long time. It is most unscientific to demand suddenly from the uterus that which it will willingly grant if reasonable time be afforded. Whether we look upon the uterus as a plastic organ to be moulded, or a muscle to be tired out, it must be equally wrong to endeavour to force it to change its form rapidly. The hand should therefore be discarded as a repositor in chronic inversion, for the plans of making counter-pressure and slight dilatation of the cervical ring by fingers acting through the abdomen, rectum, or bladder, do not make taxis commendable.

Elastic Bags.—It is to the use of elastic bags we owe the knowledge that sustained pressure will safely reinvert a uterus. To our countryman, Dr. Tyler Smith, we are indebted for the first great step towards the scientific and successful treatment of this perilous displacement. He made his plan known in 1858, and, since that year, his mode of treatment, modified in many ways, has been the means of curing a number of very difficult cases. The elastic bag has, however, many faults. It compresses parts which need no pressure; it slips out of the vagina; it obstructs the action of the bladder and rectum, and lacks precision in exerting its power upon the point requiring pressure, and ceases to act effectively when the fundus has been reinverted to the level of the os. The elastic bag has done good service in curing cases, and teaching us the proper principles of successful practice, but its day has passed.

Rods with Rounded Ends.—To a Frenchman, Viardel, must be attributed the credit of having proposed a rod with a rounded end for repositing an inverted uterus. He published his description of the instrument in 1874. Chailly Honoré bent the rod so as to conform with the pelvic curve. His instrument had also a round head, and was used like Viardel's, to reduce the uterus by the fundal method.

Rods with Cupped Ends.—The first cupped repositor is that referred to by Madame Boivin, who makes the following suggestion concerning reinversion. "Might not pressure from below upwards be also made available? A pessary like that of a cup and ball might for this purpose be introduced into the vagina." This eminent medical lady little thought what an important suggestion she was then making. The change from convex to concave ends of repositors was, however, a great advance, and, in fact, became inevitable as soon as operators abandoned the fundal and adopted the cervical method of reposition. The straight cupped repositor just escapes being a perfect instrument. It must always act to a certain extent indirectly, causing the cup to slip back past the fundus, or to urge it against the posterior wall of the vagina in a line diverging 25° (Fig. 3) from the axis of the pelvic inlet.

Curved rods with cupped ends have also been used, but they are less perfect instruments than the straight ones last described. They are, however, much in favour with some gynecologists who have not taken the trouble to master the mechanism of operative reinversion. With a curved repositor, the direction of pressure against the fundus is in a line diverging as much as 45° from the axis of the pelvic inlet (Fig. 3). Our countrymen early recognised the necessity of making

pressure in the most advantageous direction when reinverting a uterus. Burns, in 1728, said reposition "may be facilitated by pressing up the fundus in the direction of the axis of the uterus"; and Aitkin, in 1784, remarked that reposition of an inverted uterus might be best "effected by pressure in a just direction." But Gooch, in 1831, gave the most explicit directions on this subject. He wrote, "You are to press the uterus against the os tincæ, not upwards and backwards, but in the direction of the upper axis of the pelvis, upwards and forwards towards the præcordia." Nothing more of a practical nature relating to the line in which force should be used can be added to these words, and their importance cannot be overrated.

FIG. 3.
LINES OF PRESSURE EXERTED BY STRAIGHT, CURVED AND SIGMOID REPOSITORS

Sigmoid Rod, with Cupped End.—It was a case of obstinate chronic inversion, to be related more fully presently, which induced me to invent the sigmoid repositr. This case came under my care in 1878. I had, in 1868, invented sigmoid axis-traction forceps, ten years before those of Tarnier, which have the same form, and, remembering that the sigmoid shape of this forceps gave traction in the axis of the pelvic inlet, I came to the conclusion that axis-pushing in the same line might be effected by a repositr having the sigmoid form. With an instrument thus constructed, I felt I should be able to carry out Gooch's instructions, and press the uterus "in the direction of the upper axis of the pelvis," thereby rendering the reduction of an inverted uterus more easy and certain. (Fig. 3.) My anticipations have been fulfilled in a most satisfactory and gratifying manner, for I shall now have the pleasure of relating ten cases of chronic inversion, which have been treated and cured by my sigmoid repositr; and I am sure I may boldly challenge any operator by any other method to show equal success, either as to ease of performance, painlessness, safety, rapidity, and unfailing action. Of course, I am referring to cases treated by sustained elastic pressure, and I exclude from these those of White, whose plan is a combination of taxis and violent pressure, by means of a ten-pound spring against the chest. Before relating these cases, it is due to Dr. R. Barnes to state that he was the first to apply elastic pressure by India-rubber bands to the stem of a repositr.

CASE I.—Mrs. W. came under my care, suffering from chronic inversion of the uterus. She had been treated by several eminent gynecologists with a variety of repositors, and by taxis, and had been sent to Sir Spencer Wells to have the uterus removed. The patient, however, thought she would have one more attempt at being cured without mutilation, and fell into my hands. It was for this case my repositr was made, and it was applied, without causing much pain, on May 7th, 1878, at 3 P.M. The cup was fitted to the fundus; and, by means of four elastic rings, two in front and two behind, all being fastened to a belt kept up by braces, pressure was exerted in a line with the axis of the pelvic inlet to an extent never exceeding two and a half pounds. On May 8th, at 10 A.M., the uterus was found reinverted as far as the internal os. At 9.30 P.M., in consequence of pain, all pressure was removed for thirteen hours. On May 9th, at 10.30 A.M., the repositr was again made active. On May 10th, at 10.35 A.M., the uterus was found completely reinverted. This most obstinate case, therefore, was cured in sixty-seven hours and a half, or in fifty-four hours and a half of active treatment. The patient had no constitutional disturbance, and spent the day after in writing and knitting.

CASE II.—Mrs. H., aged 26, was admitted into University College Hospital on August 30th, 1878, with chronic inversion of the uterus, under the care of Dr. John Williams. September 3rd, the sigmoid repositr was applied. September 4th, at 10 A.M., the uterus was found partly reinverted. At 11 P.M., the uterus was found completely reinverted. An offensive discharge continued for some days; but the patient was soon discharged cured. Reposition in this case was effected in thirty-three hours.

CASE III.—Mrs. L., aged 26, was admitted into the Chelsea Hospital for Women, under the care of Dr. Aveling, on June 4th, 1879. She had chronic complete inversion of the uterus. Previously to her admission, attempts at reduction by taxis had been made. June 5th, at 4.30 P.M., Dr. Aveling applied this repositr. June 6th, at 3.15 P.M., the uterus was found partly reinverted. June 7th, at 1 A.M., the patient felt the elastic rings "suddenly go loose," and all pains ceased. At 1 P.M., the cup was tilted and easily removed. The finger passed into the uterus to the fundus, and the cavity measured 3½ inches. An offensive discharge continued for some days; but the patient left the hospital for the seaside on June 25th, three weeks from the date of her admission.

CASE IV.—S. A. P., aged 22, married, was admitted into the Adelaide Ward of St. Thomas's Hospital, October 30th, 1878, under the care of Dr. Gervis. She had had one child fourteen months previously. Nine hours after her confinement, she had a sudden gush of blood from the vagina, and hæmorrhage had continued with slight intermission ever since. She had been treated for menorrhagic, and had worn a pessary for displacement of the womb. On her admission, she was extremely anæmic, and on examination an inverted uterus was found in the vagina, about the size of a hen's egg. It was decided to make an attempt at reduction by taxis, and on November 4th she was placed under chloroform with this object. The left hand was introduced into the vagina, and counter-pressure with the right made over the hypogastric region. This was continued until partial reinversion of the uterus had occurred, and further pressure was maintained by an air-pessary placed in the vagina. On the following day, the pressure was continued by a soft globular air-pessary, kept in position by a cupped stem-pessary. On the third day, pelvi-peritonitis set in, forbidding any continuance of the vaginal pressure. After this, she became seriously ill, and was in "much peril;" and no further treatment was adopted until January 9th, when a second attempt at reposition was made by means of a boxwood cup and straight stem. Constant pressure being effected by four strips of elastic webbing fastened to the extremity of the stem, and to a band passing round the waist. She bore this treatment for forty-eight hours, when it was found that the fundus had retreated some distance within the cervix. The cup was then removed, and reintroduced on the 13th, and worn until the 15th, when the recurrence of pain and sickness necessitated its removal. During the following month, six different attempts were made at intervals with different cups, but all failed to secure complete reposition, and a further attack of peritonitis, followed by abscess of the right broad ligament, made it necessary to desist from further efforts. On March 31st, Dr. Aveling's sigmoid repositr was introduced at 3.15 P.M., and soon afterwards morphine was injected, as the patient complained of pain. On April 1st, the four elastic bands were tightened without causing any increase of the slight pain, which she felt only when moving. On April 2nd, at 11 A.M., the bands were again tightened, and during the day she had more discomfort. At 7 P.M., she had a rigor, and the temperature rose to 103.4°. The bands were therefore loosened; and, while in the act of

doing so, the resident accoucheur and patient both "felt something give way," and she experienced immediate relief. The repositr. at the patient's request, was not removed until the next day, April 3rd, when the temperature had fallen to 100.8°. At 2 P.M., an unsuccessful attempt was made to remove the cup, which was found tightly grasped by the cervix. At 5.30 P.M., the patient being under chloroform, Dr. Gervis, by tilting the cup, removed it without difficulty, and the uterus was found completely reinverted. Not a single unfavourable symptom followed. She made a speedy recovery, and on the 18th left for the country.

CASE V.—Mrs. S. B., aged 29, married, had a child two years ago. The birth was followed by great flooding, which had continued more or less ever since. Inversion of the uterus had been discovered, and two attempts at reduction by taxis had been made. In April, 1879, the patient entered the Samaritan Hospital under the care of Dr. Rogers. On the 28th, at 10 A.M., Dr. Aveling's sigmoid repositr was applied to the fundus of the uterus without any difficulty, and the required tension was given to the bands by Dr. Aveling. During the day, the patient complained of very little pain, and at 9 P.M. the bands were tightened. The patient slept pretty well, and at 10 P.M. on the 29th, she was very comfortable, and the bands were again tightened. At 5 P.M. they were tightened again. At 10 A.M. on the 30th, the patient said that at 2 A.M. she had felt great relief, something having "given way." On examination, the cup was found within the uterus, and it was removed without difficulty. The fundus was found restored to its natural position. The patient recovered rapidly, without a bad symptom, and left the hospital on May 8th.

CASE VI.—Mrs. D., aged 29, married, was admitted into the Middlesex Hospital under the care of Dr. Edis. She had suffered, more or less, from continuous uterine hæmorrhage since her last confinement, which took place nearly five years previously. Inversion was discovered, and attempts to reduce the displacement had been made by means of air-ball pessaries, which treatment had, on one occasion, been continued for two weeks consecutively. On August 22nd, 1883, at 9.30 A.M., Dr. Aveling's sigmoid repositr was carefully adjusted, an adhesion which existed between the uterus and the posterior vaginal wall having been previously torn through with the finger. During the day, the pressure was carefully regulated, and at 10 P.M. the patient was very comfortable. On August 23rd, at 9.30 A.M., the cup, which was found buried within the rim of the cervix, was removed and readjusted, after syringing the vagina. At 9.30 P.M., the patient was very comfortable. On August 24th, at 9.30 A.M., the patient had passed a comfortable night; the cup was completely within the uterus, and the stem gripped by the contracted os. The repositr was removed, and the partly inverted fundus could just be felt within the uterus. A small India-rubber ball was then passed into the uterus, and the repositr reapplied. At 9.30 P.M., the cup of the repositr was found external to the os uteri, evidently exerting no pressure on the fundus. The ball was therefore removed, and the cup readjusted to the still partially inverted fundus. On August 25th, at 9.30 A.M., on examination, the cup of the repositr was found to be completely imbedded in the cavity of the uterus. It was removed, and, on passing the finger within the cervix, the fundus uteri could be no longer detected. At 4 P.M., the uterine sound was passed three and a half inches, and the fundus could be felt in its normal position by conjoint manipulation. The patient convalesced rapidly, and, when seen some months afterwards, reported herself as "quite well."

CASE VII.—A. N., aged 24, was admitted into the Samaritan Hospital, under the care of Dr. Bantock. She was confined of her last child on September 25th, 1884. About ten minutes after the birth of the child she became very faint, and lost consciousness for several hours. She was admitted on November 24th, in a very weak and anemic condition. On November 25th, an attempt was made to reduce the uterus by taxis, the patient being under chloroform. The fundus, however, could not be made to pass within the os; she was therefore put back into bed, and Dr. Aveling's repositr applied, but it was not considered prudent to continue its use, in consequence of the discovery that during taxis the mucous membrane of the recto-vaginal septum had been torn for about two inches longitudinally from the perineum. On December 10th, at 9 A.M., Dr. Aveling saw the case with Dr. Bantock, and applied his sigmoid repositr, pointing out that the bands of the one which had been used before were of insufficient strength. On December 11th, at 9 A.M., the uterus was still unreduced; the cup was removed, and re-applied after washing out the vagina with iodine solution. Three hours afterwards, the patient began to complain of pain, and morphine was administered subcutaneously. At 5 o'clock, the uterus was found reduced, and the cup of the repositr was relieved from the grasp of the cervix by a little manoeuvring. On December

15th, the patient returned home, feeling wonderfully well and complaining of nothing.

CASE VIII.—Mrs. H., aged 33, was admitted into the Royal Hospital for Women and Children, on September 1st, 1884, under the care of Dr. William Duncan. The patient had been confined three times. After the last she swooned, and did not come round for some hours. For nine years afterwards, she continued to have a discharge of blood almost without intermission. She was very blanched from this constant loss. On examination, a rounded smooth red mass, about the size of a large green fig, was found on the vagina, which was readily diagnosed as an inverted uterus. September 2nd, at 4 P.M., Dr. Duncan inserted the cup of Dr. Aveling's sigmoid repositr into the vagina, and a moderate amount of elastic pressure was applied in the usual manner to the stem. A hypodermic injection of morphine was given. On September 3rd, the patient slept well, and appeared comfortable. The repositr was found to have slipped in front of the uterus, and was consequently doing no good. It was replaced, plugged all round, and considerable pressure applied. On September 4th, the patient had little pain and slept well. The stem seemed to have entered further into the vagina, but the instrument was not disturbed until 4 P.M., when the uterus was found completely reduced. Some difficulty was experienced in removing the cup from the uterine cavity, but this was eventually effected by unscrewing the cup from the stem, and seizing it sideways with strong lithotomy-forceps. Some sickness and feverishness followed, but the patient was practically well on the 18th.

CASE IX.—Mary P., aged 25, was admitted into Guy's Hospital in March, 1884, under the care of Dr. Galabin. She was delivered in September, 1883, and the inverted uterus appeared externally on the third day after. The medical attendant, who appears not to have recognised the character of the case, satisfied himself with returning the mass into the vagina. Metrorrhagia continued up to the date of her admission, and the patient was much blanched. There had been no attempt at reduction. Dr. Aveling's sigmoid repositr was applied, and the reposition of the uterus was completed suddenly when it had been worn fifty-three hours. The reduction was followed by rather severe symptoms of collapse and shock, leading to suspicion of internal hæmorrhage. The patient, however, eventually did well, but had an attack of cellulitis.

CASE X.—E. C., aged 37, was admitted into the Chelsea Hospital for Women on February 4th, 1886, under the care of Dr. Aveling. She was confined on September 26th, 1885. Her labour lasted six hours, delivery being effected by the forceps, continuous traction being made for fifteen minutes—the pains at this time following one another very rapidly. The medical attendant removed the after-birth ten minutes after birth of child, and remarked afterwards that another child was still to come. A great deal of blood was lost after removal of placenta, and ever since there had been a constant vaginal hæmorrhage, amounting to a flooding three weeks before admission. There had been no pain whatever at any time.

On admission, the breasts were very tender to the touch, and much distended with milk. *Per vaginam*, a smooth, hard, pyriform mass was felt projecting into the vagina, having no depression on its surface, becoming somewhat attenuated as it passed upwards, and being encircled by a smooth ring superiorly. The uterus could not be felt bimanually in its usual position, and a sound would not pass. *Per rectum* (with patient straining), a cup-shaped depression was felt surmounting a pyriform mass. A sound passed into the bladder could be readily felt *per rectum*, no structure intervening.

February 5th, 3 P.M. Dr. Aveling applied his sigmoid repositr. The patient, Irish, was very restless afterwards, and therefore received a hypodermic injection of one-eighth of a grain of morphine, with one one-hundredth of a grain of atropine. There was a slight sanious discharge following the introduction of the repositr.—12 P.M. She had had considerable uneasiness in the lower abdomen since 9 o'clock. She experienced sudden relief about midnight. *Per vaginam*, the cup of the repositr was nowhere to be felt.

February 6th, 9 A.M. She had had a good night, without further sedative. The breasts were still much engorged with milk. Pulse, 118; temperature, 101.8°. Had no pain.—3 P.M. The uterus was completely reinverted, and had been so evidently for some hours, as the cervix was so firmly contracted over the cup of the repositr, that the administration of an anæsthetic was required to disengage it.

During the treatment, the patient got out of bed, and wanted to go home. This movement did not displace the repositr. Taking it for granted that the reposition took place when the sudden relief was felt about midnight, the time occupied in reinversion was only nine hours. This short time was probably due to the inversion being of only four months' standing.

Remarks on the foregoing Cases.—It will be noticed that in no case was the pain resulting from the treatment excessive, and only in one case, Dr. Galabin's, were there any unpleasant after-consequences; but, in his case, the ultimate result was quite satisfactory. The time required for reversion by my method is a question of interest. The following table shows this.

Case 1.....	Operator, Aveling	Hours, 54½.
" 2.....	" Williams	" 38.
" 3.....	" Gervis	" 51½.
" 4.....	" Aveling	" 52½.
" 5.....	" Rogers	" 40.
" 6.....	" Edis	" 48.
" 7.....	" Bantock	" 31.
" 8.....	" W. Duncan	" 48.
" 9.....	" Galabin.....	" 53.
" 10.....	" Aveling	" 9.

This table demonstrates that, on an average, each case took about 42 hours for its cure, the longest time occupied being 54½ hours, and the shortest 9 hours.

In Case 1, it will be noticed that the pressure employed never exceeded two and a half pounds, and I still think tension to that extent sufficient.

In Case VI, we find valuable experience, namely, not to remove the repositors too soon, and to have no doubt as to the power of the repositors to completely reinvert the uterus.

In Case VII, the cup slipped in front of the uterus exactly the opposite way to that in which the ends of all repositors slip. This displacement was probably due to the tension of the posterior bands being too great. The plan of plugging the cup all round to maintain it in its proper place, I have never found necessary.

Perhaps I may be permitted the satisfaction of calling attention to the fact that, in some of these cases, many methods of treatment, manual and instrumental, had been employed by our most eminent gynecologists, without success. The superior advantage of my repositors consists in its enabling the operator to press the uterus up in a line with the axis of the brim, and incontestably proves by its happy results that the success of a repositors is in exact proportion with the directness of its action.

I have now the painful duty of relating a case in which my repositors failed. M. H., aged 48, unmarried, was admitted into the Rotunda Auxiliary Hospital, November 15th, 1880, under the care of Dr. Atthill. On admission, she was very anæmic, and an examination revealed inversion of the uterus induced by the presence of a small fibrous tumour. By a process of enucleation and avulsion, this was removed, and proved to be about the size of a hen's egg. When the patient had recovered from this operation, an attempt to replace the uterus was made by means of Dr. Aveling's sigmoid repositors. The adjustment of this was effected without much difficulty, although the vagina was narrow; the cup of the instrument was, however, too small to receive the fundus of the inverted uterus, and it slipped off whenever the patient altered her position. A similar attempt was made a fortnight afterwards, without using a larger cup, with a like result. After this, White's repositors was tried, but success was not attained by its use. Finally, it was decided to remove the uterus by means of the écraseur. After removal, the fundus was found to be flat, and in diameter about an inch more than that of the cup of Aveling's repositors.

The evident cause of failure in this case was the disproportion between the fundus and the cup of the repositors. By elastic bags, the vagina might have been enlarged sufficiently to have admitted a cup of the required dimensions; and I feel satisfied that the case would have been successful if a larger cup had been used. So confident was I of the curability of the case, that I offered to pay the expenses of the woman coming to London, if I might be permitted to make one more trial before the uterus was removed. I shall always regret that my request was not granted.

Instructions for Using the Sigmoid Repositor.—The first thing to be sure of is, that you have been supplied with a proper sigmoid repositors. Instrument-makers and gynecologists have their own notions as to what an instrument should be, and have them made accordingly. In one exhibition of instruments, I have seen three different patterns of my polyprite shown by various makers. The liberty thus taken is most unfair to the inventor, for his reputation rests upon the action of his instrument. If it have been so altered as to become dangerous, he is naturally blamed for having conceived and advised the use of it. I cannot give a better instance of the complaint I am now making, than by referring you to the engravings of my repositors given in the largest and most exhaustive treatise on inversion, recently published by Denucé, of Bordeaux. Without

having seen my repositors, he has ventured to give illustrations of it, giving a totally wrong idea of its form and mode of action. A repositors such as he has given as mine could not be worse in shape; for, besides acting in an improper direction, it causes the cup to be applied to the fundus in such a way as to insure its slipping off. Instrument-makers in France are, I have no doubt, making repositors of this pattern, and selling them as mine; for Denucé does me the honour of referring to my "résultats très brillants." Another instance of detrimental change in my repositors occurred in this country. Dr. Bantock had supplied to him, instead of the India-rubber rings which I recommend, India-rubber bands quite unable to exercise sufficient elastic pressure to reinvert a uterus. The first thing, then, is, I repeat, to be sure you have the repositors, rings, and bandages, of the proper pattern.

Having diagnosed inversion, determine by touch the size of the fundus, and select a cup of proportionate size. It should be in diameter slightly less than that of the fundus; next apply the belt round the waist, and then the braces over the shoulders, and fasten them by the safety-pins to the belt. This should be done in such a way as to leave room to pass the tapes, to which the rings are attached, between the pin of the safety-pin and the belt. Now the cup of the repositors should be applied to the fundus uteri, and held firmly in position by an assistant while the rings are adjusted, two being taken in front and two behind (Fig. 4). The ends of the tapes

FIG. 4.

THE SIGMOID REPOSITOR APPLIED. A LINE OF PRESSURE. B. C. TRACTION LINES OF ELASTIC BANDS.

should next be passed between the safety-pins and the belt, some of the tape drawn through, and a knot made at its end to prevent it slipping back. Tension may be lastly exerted by drawing the tapes up through the pins, and fastening them at any point by tying a loop. This loop can be easily pulled out and retied, should more or less tension be required. Care must be taken to have the tension equally distributed; for, if the front bands be tighter than the back, there arises the fear of the cup being slipped back off the fundus; and the opposite may occur if the posterior bands be tighter than the front. The India-rubber bands passing to the front should be carefully laid outside the labia, and packed with cotton-wool. If the patient be restless, or complain of pain, morphine may be administered. She should be carefully watched, and the urine should be drawn by catheter when necessary. It is difficult to lay down any rules for tightening and loosening the tapes. This must be determined by the practitioner, who must judge by the existing tension, and the toler-

ance of it by the patient. In my last case, reinversion was accomplished without the tapes being touched after their first adjustment.

Reduction takes place by the cervical method. Newnham advised this mode of reinversion in 1818. He said: "It is wisest and best to endeavour to reinvert the uterus by returning first that portion of it which was last expelled from the os uteri." Pressing on the fundus causes counter vaginal traction on the cervix, making it unroll gradually until the internal os is reached, where a little delay is caused by its being less dilatible. When this point is passed, the body of the uterus soon opens, and admits the cup. The last step must take place rather suddenly, for all patients say they feel that something has "given way," and comparative comfort is the result.

When the inversion has been reduced, the sooner the cup is withdrawn the better, for the cervix immediately begins to close round the rod or stem, and the cup becomes firmly grasped in the uterine cavity. The best way of removing the little cup, is to tilt it on end, and bring it through the os as you would a button through a button-hole. If it have been long retained, an anæsthetic will assist. It might be a good plan to have a hole made through the edge of the cup, through which a stout string might be passed, by which to make traction. Continuous elastic traction on this string would remove the most firmly grasped cup with certainty. The stem might be previously unscrewed from the cup.

When the cup has been removed, pass a thick sound into the uterus; and, by pressing the point of it forward, the rounded fundus will be felt through the abdominal walls. Being satisfied that complete reinversion has taken place, syringe out the uterine cavity with iodine water at 120° Fahr., which will cleanse its surface and make the whole organ contract.

I think, gentlemen, after considering these facts, you will come to the conclusion that every case of chronic inversion of the uterus can be cured by sustained elastic pressure exercised in the right direction; and I hope you will not think me too sanguine when I state my belief that the mutilation of a woman, by removing her uterus, will no longer be necessary in consequence of the impossibility of replacing this important organ when inverted.

AN ADDRESS ON CHOLERA.

Read before the Bath and Bristol Branch.

By W. B. BEATSON, M.D.,
Retired Surgeon-General, Indian Army.

MR. PRESIDENT AND GENTLEMEN,—When I was invited to read before you, on this occasion, a short paper calculated to give rise to a discussion on cholera, it was probably expected that I would offer for your consideration some new ideas on the etiology and treatment of that disorder, derived from my own personal experience and observation. If such an expectation have been entertained, I am afraid I must disappoint it by saying that, although I am an old Indian medical officer, although I have lived and practised during thirty years in parts of India where cholera was either endemic and ever present, occasional in violent epidemic outbursts, or conspicuous only by its absence; although I have seen and treated many cases of cholera, and have had it myself, I should never have arrived at any kind of conclusion as to the nature, prevention, and treatment of the disease, if my study of it had been bounded by the circumference of my own observation. The study of cholera can be pursued to advantage in no contracted field, nor by the light of any one man's researches; and the whole truth concerning it will, if ever brought to light, be the result of many investigations yet unmade.

It is now nearly five years since I have had anything to do with cholera, my last experience having been the outbreak among British troops which occurred in 1881 at Meer Meer, while I was Deputy Surgeon-General of the Lahore Division of the Army in India. I should but waste your time, were I now to give you a detailed history of that outbreak; I should do worse than waste your time, for I should lead you to look at one aspect only of a question which has many sides, and send you all away each one only convinced of the truth of his own preconceived opinions. This would be a very regrettable result, because we are all too much in the habit of blindly adopting the views of respected authorities, of framing theories and

adjusting facts to support them; of quarrelling with other people who decline to accept our conclusions; of becoming, in short, partisans in pathology. Should this be considered an unjustifiable assertion, let me ask you to consider the present attitude towards each other of those members of our profession who have made cholera their special study, and the method of argument by which some of them endeavour to support their own particular views.

The nosologists of cholera may be broadly divided into two camps, I might say hostile camps; considering, to use the words of one of the latest writers on cholera, the warmth of spirit and vigorous intolerance which have been too often displayed by the propounders and advocates of certain theories.

The first and most influential camp contains all the leaders who believe that cholera is caused by a specific virus, which, obtaining entrance to the body from without, multiplies itself within, and is capable, when thrown off in the shape of exhalations and discharges, of causing an extension of the malady, so as to give rise to epidemic outbreaks. Of this form of belief, there are several phases. Some authorities think that cholera is directly communicable from person to person, by contact with the sick, or with their recent dejecta; some, that the fresh dejecta contain no poison until they have undergone changes dependent upon the media into which they pass; others, that the dejecta contain no poison, either actually or potentially, but that the virus is a kind of ferment, produced by an organism altogether extraneous to the body of the patient, and created by the organism only under certain favourable circumstances, seasonal and local.

All or most believe that cholera is largely dependent upon, and follows the chief lines of, human intercourse; that it is conveyed from one part of the world to another by travellers, sick or healthy, either as a *contagium vivum*, or by means of contaminated clothing or other fomites; that each epidemic is an importation from some infected locality; that cholera never arises spontaneously anywhere, and that some part of India is the centre from which it is diffused.

The second camp consists of all who doubt or deny the existence of a specific cholera-poison or cholera-producing organism, and believe that the disease depends on no definite entity, but is due to local influences, miasmatic, telluric, or atmospheric, the nature of which is at present undetermined. Of necessity, they disbelieve in the diffusion of cholera by human intercourse, by water-carriage, or by infected articles of food and fomites. They hold that successive epidemics have no relation to one another, and that the attempts often made to stay the spread of the disease by quarantine regulations, are generally either utterly useless, or do harm rather than good.

I have thus put before you the salient points of difference between the contagionist and non-contagionist parties. I do not appear as advocate or defender of either side. I think it is possible that each may be right to a certain extent, and that each is wrong only when it claims exclusive possession of the truth.

There are probably many in this assembly who hold decided opinions on the points in dispute. I ask them all to come to the discussion with open minds, to lay aside all preconceived ideas, and to determine, as far as possible, on which side lies the greatest amount of truth.

It must, I think, be admitted that all contagionist theories are imperfect deductions; because, while they are founded on fact, they are supported by partial considerations of evidence, all evidence in their favour being brought forward by their upholders, all that is contrary being subdued or explained away. The one fact on which all contagionist theories are founded is the undeniable one, that there are some diseases that depend on a poison or specific virus which is communicable by contagion or infection. It is a reasonable induction that cholera may be such a disease, but it is not a proven fact. The pronounced contagionist assumes that it is a fact, and uses it as a foundation for his theory. He then produces evidence which goes to establish the truth of his doctrine, and considers that his case is proved. The result is very convincing till the other side of the question is considered, and the discovery made that while every theory is supported by a large amount of evidence, direct and circumstantial, it is opposed, as an impartial authority has observed, by a considerable number of obstinate facts. I will briefly state some of these theories, and a few of the opposing facts. It is asserted that cholera arises in India, and is carried over the world by means of human intercourse; but the apparent progress of cholera is from east to west, while human intercourse proceeds in all directions. When cholera breaks out at a great Indian fair, or concourse of pilgrims, and those pilgrims return to their homes, they do not spread the disease wherever they go; it accompanies them only in certain directions. When cholera appears in the cantonments of a British regiment in India, the regiment is at