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DIVISION OF THE UTERO-
SACRAL LIGAMENTS AND
SUSPENSIO-UTERI FOR IM-
MOBILE RETROPOSITION
WITH ANTEFLEXION.

BY

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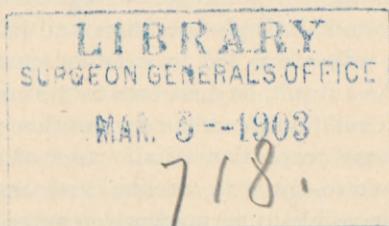


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DIVISION OF THE UTERO-SACRAL LIGAMENTS AND
SUSPENSIO-UTERI FOR IMMOBILE RETRO-
POSITION WITH ANTEFLEXION.*

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By immobile retroposition with anteflexion is meant a uterus situated as a whole in the back of the pelvis and so changed from the normal in shape as to be bent forward either in the neck, in the body, or in both and at the same time impossible of replacement. The condition is to be found in the text-books under the heading of Anteflexion. Mention is made that in some cases the utero-sacral ligaments are shortened and thickened, but the faulty position that the uterus as a whole occupies in the pelvis is generally not referred to. B. S. Schultze, however, under the title of Pathological Anteflexion describes and figures the combination of pathological conditions very closely in accordance with the views of the writer. Figure I, taken from his book on "Displacements of the Uterus," shows diagrammatically the relation of the parts.

The writer's interest in the treatment of anteflexion was revived several years ago by the unsatisfactory results obtained in the cases of this affection that were treated by dilatation, curetting and gauze drainage. It was made plain to him that although this energetic method of treatment was generally effective in relieving the symptoms for a longer or shorter period of time in given cases, that after a number of months the symptoms returned.

Having formerly had a considerable experience in observing the results of the treatment of anteflexion by some of the most noted

* Read before the Obstetrical Society of Boston, Oct. 19, 1897.

gynæcologists with vaginal pessaries, stem pessaries, posterior division of the cervix and Dudley's operation, and having found them all ineffectual, the writer was led to examine cases of ante flexion with more care. As a result, he has come to the conclusion that the chief cause of the condition he calls retroposition with ante flexion, forming a very large proportion of all cases of ante flexion, is a shortening of the utero-sacral ligaments, and that the principal reason that it is impossible to permanently remove the flexure from an ante flexed uterus is the fact of the shortness of these ligaments.

The operations described in this paper were hit upon in the course of abdominal operating in a hospital service. After noting

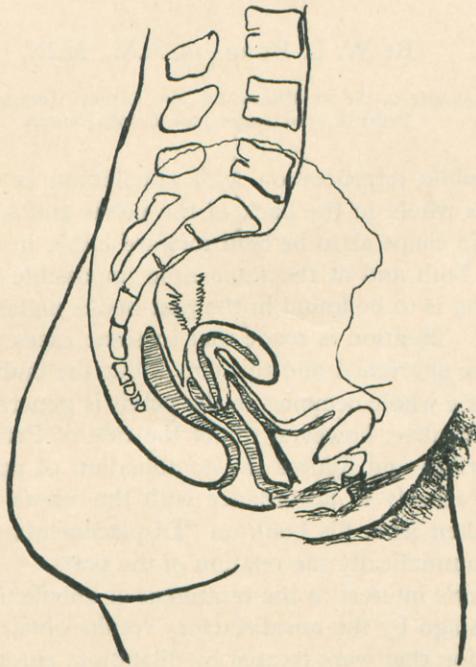


FIG. 1. Shows diagrammatically the Relation of the Parts.

the ease with which the utero-sacral ligaments could be divided from the vagina it was only necessary to divide them from the abdomen to find that the procedure was quite as feasible by the latter route.

To describe the condition of retroposition with ante flexion

more in detail I shall quote from B. S. Schultze. He says: (Loc. Cit., page 166) "Pathological Antelexion is one of the most common of the diseases of woman and in far the greater number of cases is the result of parametritis posterior." Also (page 161) "As long ago as 1850, Sommer insisted upon the importance of the shrinking of perimetric exudations (exudations found below the peritonæal investment, therefore according to our nomenclature parametric) in causing infractions and flexions of the uterus." And (page 160) "The stability of the flexion of the uterus may depend

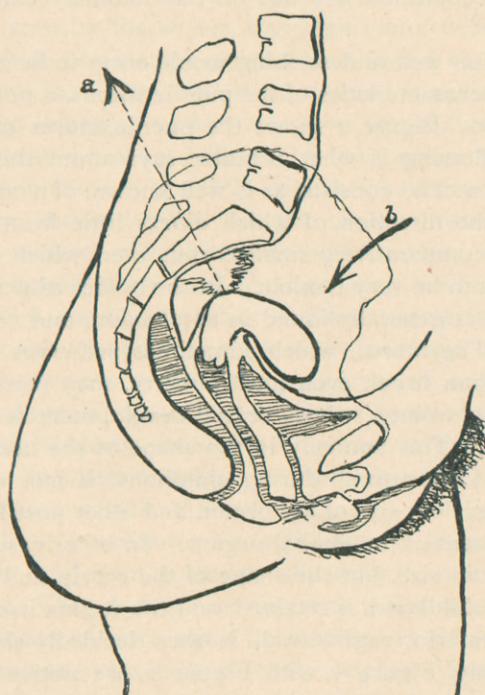


FIG. 2. Shows the Puerile Uterus diagrammatically.

on causes either situated in the organ itself or acting upon it from without. Of these, the former diminish or destroy the normal flexibility, and give rise to rigidity of the angle of flexion. Metritis, which otherwise causes rigid extension of the uterus, causes rigidity of the previous flexible flexion if it attacks a uterus fixed in antelexion. * * * Atrophy of the tissue at the seat of the normal flexion is not altogether rare, and is commonly a secondary result of acute

flexion of long standing, but the very exceptional cases of flexion in the body of the uterus, and in the cervix can, from their nature, only depend upon a partial contraction of the uterine wall." "Stability of the anteflexion is much more commonly due to causes lying outside the uterus."

Schultze takes strong ground against the view that retroposition with anteflexion is of congenital origin, holding that in no single one of all the conditions in the adult which have been described as congenital anteflexion, is there internal evidence sufficient to prove that the condition depends on any anomaly existing before birth.

The condition we are describing would seem to be a persistence of some of the characteristics of the puerile uterus, a post-foetal lack of development. Figure 2 shows the puerile uterus diagrammatically. The following is what Schultze says about this condition: "The uterus of a child consists, as is well known, of a comparatively large cervix, the direction of which differs little from that of the vagina, and a comparatively small corpus uteri which is so united to the cervix as to be very flexible. In the bodies of new-born children the organ is generally found in anteflexion, and very rarely in retroflexion. The uterus, which sometimes preserves the childish shape longer than usual, even until puberty, may permanently retain it in young women, whose sexual development is in any way interfered with. This anomaly in the shape of the uterus, this retention of the form normal during childhood, is met with in connection with deficient size of the organ, and other post-foetal arrests in the development of the genital organs. In other cases the organ is not deficient in size, but the shape of the cervix and the vaginal portion had in childhood, is retained, and the vagina itself and more especially the anterior vaginal wall, is often decidedly short."

In comparing Figure 1 with Figure 2, we notice the greater length of the vagina in Figure 1, and that the region of the internal os is much nearer the sacrum in this figure. In retroposition with anteflexion the length and shape of the intra-vaginal cervix varies in individual cases as does the degree of flexion. The seat of flexion is generally at the region of the internal os and it is difficult to see the clinical importance of distinguishing flexures of the body from flexures of the neck.

In considering the causation of retroposition with anteflexion it is only necessary to suppose a uterus having the puerile characteristics held in the back of the pelvis by the shrinking of inflamma-

tory exudate involving the utero-sacral ligaments, *i. e.*, held at the region of the internal os. It is plain that from the direction of the intra-abdominal pressure, shown in the figure by the arrow, the body of the uterus must necessarily be carried forward. The excursion of the cervix backward as a result of the forward pressure on the body is limited by the curve of the rigid sacrum (the uterus being held very near to it) and by the attachments of the vagina to the cervix, therefore the uterus is anteflexed.

From the fact that stenosis of the uterine canal at the point of flexure has not been a feature in a large majority of the cases of anteflexion seen by the writer, although many exhibited the well-known pin-hole os externum, and from the fact that many competent observers have noted that when a sound is passed into an anteflexed uterus during a violent attack of dysmenorrhœa the withdrawal of the sound is not followed by the passage of blood or clot, the writer is inclined to put little faith in the obstructive dysmenorrhœa theory, and to believe that the cause of the dysmenorrhœa, from which patients with this malformation suffer, is due rather to the uterine engorgement and accompanying endometritis and the inability of the uterus to be relieved of its congestion.

The theories advanced to explain the ætiology of retro-position of the puerile type have been many and varied, *e. g.*, constipation, with the passage of masses of hard fæces between the utero-sacral ligaments; tight lacing, causing an increase in the intra-abdominal pressure on the posterior surface of the body of the uterus, etc., but none of them are capable of proof.

Immobile retroposition with anteflexion is seen following labor and abortion, and from posterior adhesions from tubo-ovaritis and hæmatocele. This class of cases is much easier to account for than the puerile class of cases, but I am inclined to think that when the cul-de-sac comes to be more carefully inspected from the abdomen that traces of past inflammatory action in that region will be more often found.

It has been my experience that in retroposition with anteflexion one generally finds either one or both ovaries prolapsed and enlarged and that endometritis is almost invariably present.

To treat this condition successfully, attended as it generally is by dysmenorrhœa, scanty menstruation or profuse flowing, pelvic pains, frequent abortions or sterility in the married, chronic constipation, bladder irritability and leucorrhœa, has been a problem that has well nigh baffled solution at the hands of the most eminent

gynæcologists. It is probable that if pregnancy supervenes before the tissues at the point of flexure in the uterus have become sclerosed and permanently fixed, and before the endometritis has gotten well settled in the uterus, that the flexure will be lastingly removed and the utero-sacral ligaments permanently stretched in a majority of cases, although cases are on record *e. g.*, a case reported by W. Moseley, Transactions of the American Gynæcological Society, Vol. 16, page 548, where the deformity has returned after labor.

Relief of the pelvic congestion, which, in my estimation, stands in a direct causal relation to the symptoms, has been successfully sought by the use of emmenagogues, cathartics, massage, hot douches, tampons, vaginal suppositories, leeches, electricity, pessaries, and, more radically, by curetting and gauze drainage. These measures are sometimes sufficient to stimulate the uterus to a more healthy development, but too often the uterus, with its strong posterior guys, remains as before, and it is only a question of time when the pelvic congestion and its resulting endometritis return. The attempts to permanently stretch the posterior ligaments of such uteri by packing the vagina have now been pretty generally abandoned. So also Schultze's forcible massage with the patient anæsthetized is thought to involve too great risk to the integrity of the ovaries and tubes. The operation for anteflexion devised by Dr. E. C. Dudley, of Chicago, an operation which I formerly performed several times, now seems to me to be wrong in principle because it does not aim to do away with the cause of the deformity, namely, the traction exerted by the shortened utero-sacral ligaments.

The Alexander operation on the round ligaments, intra-abdominal shortening of the round ligaments, and suspensio-uteri are by themselves contra-indicated because of the immobility of the uterus.

It is plain that the longer the malposition of retroposition with anteflexion is allowed to persist the greater the chance of sterility and of permanent impairment of function of all the pelvic organs through the results of the chronic congestion, viz.: endometritis, oöphoritis, salpingitis, trigonitis and cystitis, and proctitis. It is of the treatment of the intractable cases, cases that have not yielded to the ordinary modes of treatment, that this paper has to do, and it is my purpose to describe a method of dealing with them that has given the best of immediate results in my hands. It is in brief as

follows: Dilatation of the uterine canal with curetting, and abdominal section. A short incision is made, the utero-sacral ligaments are divided in sight at the points where they leave the posterior uterine wall, the uterus is suspended to the parietal peritonæum and transversalis fascia by sutures of chromicized catgut passing through the anterior face of the fundus, and the abdominal wound is closed by layer suturing of the same material. By attaching the anterior fundus to the belly wall the direction of the intra-abdominal pressure on the body of the uterus is changed from a faulty to a more nearly normal one.

My cases number nine. The operations have all been done in the last few months, and the results have been so extremely satisfactory that I make bold to offer them now to the profession, not as indicating final conclusions on the subject but rather as a promising means of treating a hitherto baffling class of cases.

Before proceeding to a description of the steps of the operation it is proper that a few words should be said as to the treatment of those cases of retroposition with anteflexion in which the ovaries are quite normal to the feel as regards size, and are normally placed with reference to the uterus. These cases it has been my custom to treat by curetting the uterus for the relief of the endometritis and for asepsis; posterior colpotomy and division of each short utero-sacral ligament after rolling it into view in the vagina on the operator's finger, and an Alexander operation on the round ligaments, all at one sitting. The results by this method have been satisfactory.

As has been already indicated, it has been the experience of the writer that a majority of cases of this malposition have, in addition, some abnormal condition of one or both ovaries, generally prolapse with cystic degeneration of one ovary, and more commonly the right one. The prolapsed ovary usually has an elongated ovarian ligament and with this condition the Alexander operation is not effective in securing an approximately normal position of the ovary. In performing suspensio-uteri the ovarian ligament may be shortened at the same time that the uterus is suspended. By doing celiotomy one is enabled to diagnose and treat ovarian and tubal diseases and but one incision instead of two is necessary. As far as subsequent pregnancies are concerned one would prefer the Alexander to suspensio-uteri, but, suspensio-uteri done in the fashion to be described, is, in my opinion, attended with little or no risk of dystocia, and in cases where the ovaries are prolapsed or

diseased is the operation of choice. Ventral fixation with permanent sutures through muscle and fascia is not allowable in child-bearing women.

Suppose we have to do with a case of retroposited ante-flexed uterus, the utero-sacral ligaments shortened and thickened, one ovary enlarged and prolapsed on the pelvic floor and the uterus the seat of endometritis. My manner of treating such a case is as follows: The cervix is dilated and the uterine cavity curetted thoroughly, special attention being given to the region of the internal os to remove any valve-like ring of tissue at that point that may interfere with drainage. The cavity is irrigated with salt solution and swabbed out with pure carbolic acid.

A short median abdominal incision, from five to seven centimetres long, according to the thickness of the abdominal walls, is then made. The tissues are divided in the linea alba and the peritonæum opened. Each ovary and tube is then carefully palpated, drawn through the incision and inspected. The intestines are walled off with handkerchiefs of sterile gauze, cysts in the ovaries are punctured with the cautery, a slightly diseased tube with closed ostium abdominale is resected, a badly diseased ovary is removed with or without its tube, or a partially diseased ovary resected, every effort being made to preserve some ovarian tissue. A reef is taken in the long ovarian ligament of a prolapsed ovary by attaching the ligament at the point of its insertion into the ovary to the posterior uterine body just above the uterine insertion of the ligament by one or two stitches of chromicized catgut. This procedure insures against future ovarian prolapse, a condition against which suspensio-uteri alone does not provide.

A curved, round-pointed needle with carrying thread is next passed deeply through the anterior face of the fundus uteri, taking a bite about two centimeters broad. This stitch serves to hold up the uterus and to tighten the utero-sacral ligaments while they are being divided and also to draw through the suspending ligatures later.

Careful preparation for the operation, ensuring an undistended state of the intestines, is to be insisted upon, and in this connection I wish to caution operators that in women of very stout build, and in those patients in whom by previous insufficient preparation the intestines are inflated with gas and the intra-abdominal pressure correspondingly great, division of the ligaments by sight is an extremely difficult procedure. On one case, not included in my list,

where both of these conditions obtained, I cut the tightened ligaments by touch, instead of by sight. There must have been a good deal of oozing following the cutting, for there was a boggy-feeling mass in the cul-de-sac after the operation that prolonged the convalescence several weeks, though the patient ultimately made a good recovery.

After dividing the ligaments it is always advisable to inspect the region of Douglas' cul-de-sac and be assured that there is no bleeding before closing the abdomen.

To divide the utero-sacral ligaments a broad, flat spatula in the hands of the assistant, the patient being in the Trendelenburg posture, holds back the gauze covered intestines, and the utero-sacral ligaments, put on the stretch by the upward traction on the uterus, are brought into view. They are seen as two tense, white bands coming from the pelvic wall at the region of the second piece of the sacrum and meeting on the posterior aspect of the uterus in the form of a pointed arch with its apex at about the level of the internal os. Each ligament is cut with a small knife at the place where it leaves the uterus, by a minute incision at right angles to the long axis of the ligament, the operation amounting to a tenotomy where possible. The toughness of the structure of some ligaments has been a noticeable feature of many of my cases, and although the utero-sacral ligaments are described in the anatomies as consisting of muscular and cellular tissue and folds of peritonæum, when they are being divided they cut as if made up of fibrous tissue covered with thin and normal appearing peritonæum.

The uterus, freed from behind, springs forward and a lozenge-shaped raw surface is left where each ligament is divided. On two or three occasions it has seemed best to close the raw surfaces by transverse sutures to the peritonæum, thus lengthening the line of the ligament, but, as a rule, these may be disregarded. In one case only was there considerable oozing, and this was controlled by a stitch. If the cutting is not too extensive there should be little or no oozing, for no vessel of any size is severed.

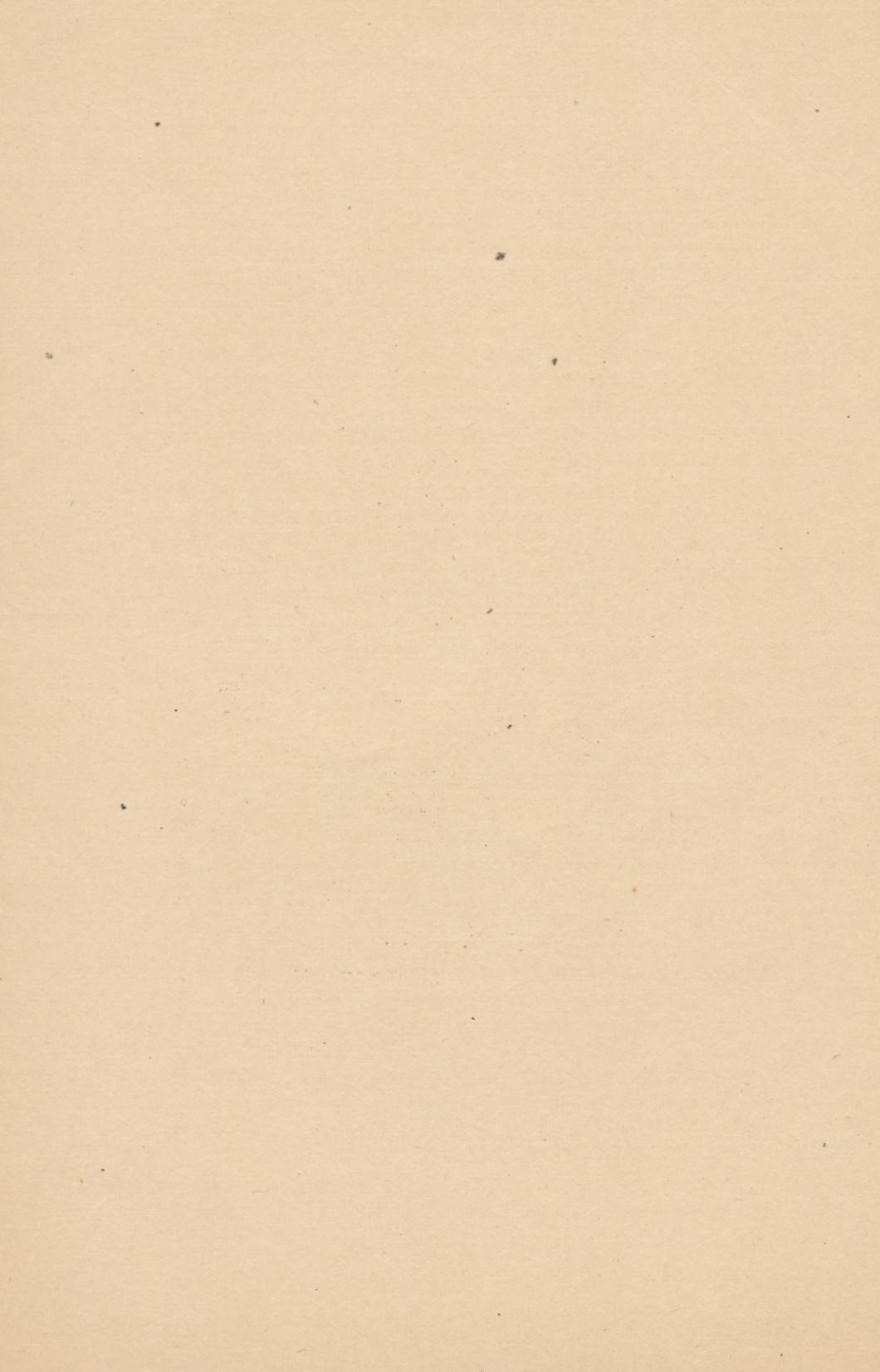
If the ligaments are not much shortened and thickened strong massage will occasionally serve to stretch them sufficiently. Division is, however, generally surer. The suspension of the uterus is next completed by passing the needle attached to the carrying thread, already piercing the uterine wall, through a wide margin of the peritonæum and transversalis fascia on one side of the lower angle of the abdominal wound. Another needle is used to carry

the other end of the carrying thread through the opposite side of the wound and the thread is used to draw through a strand of chromicized catgut (St. John Leavens' No. 3). A similar stitch is carried through the top of the fundus near the insertion of the round ligaments and through the peritonæum and transversalis fascia about one centimeter above the first stitch. Before tying the ligatures the peritonæum on the fundus and the parietal peritonæum is roughened by scratching with a needle. The ligatures are tied, not too snugly, after sponging the anterior cul-de-sac of the peritonæum. After removing the gauze, lowering the patient, and rearranging the intestines and omentum, the peritonæum is closed with a running catgut stitch and then the linea alba is dissected out after the method of La Torre, of Rome, with the object of bringing the bellies of the recti in apposition and thus affording muscular union. The muscles are sutured with two or three interrupted stitches of number three chromicized catgut, each stitch catching up the peritonæum. The fascia is closed with a continuous stitch of the same catgut and the skin with a subcutaneous right-angled stitch of silk-worm gut shotted at either end where it projects through the skin. No attention is paid to the fatty layer. The subcutaneous stitch is removed in three weeks. At the end of this time I have invariably found the uterus suspended in good position in the pelvis, the ovaries in good position, the cul-de-sac free, primary union in the abdominal wound, and the flexion nearly or quite gone from the uterus. The patients suffer little or no pain after this form of suspensio-uteri, in marked contrast to the pain following operations done by the method of fixation where muscle and fascia as well were included in permanent ligatures. On account of the method of suturing the abdominal wound no abdominal supporter is employed.

An analysis of the records of the nine operations done for this malposition shows that in seven, ranging in age from twenty to thirty-one years, the condition was of the puerile type. In three of these seven there had been a history of antecedent pelvic inflammation; in two, four years before, and in the other, ten years before. It is to be said, however, that in only one of these three was there any visible evidence in the peritonæum of former inflammation. In two cases the malposition presumably followed labor, three and five years previously, respectively, and in one, abortion four years before. In the last case there was marked disease of the ovaries and tubes with adhesions. The duration of the symptoms had been fifteen years, or over, in three of the puerile cases, in the others for periods

ranging from six months to eight years. The right ovary was prolapsed in five of the cases, both ovaries in two, and the ovaries were in good position in the remaining two. So much for statistics, which are not of very great value in such a small number of cases.

No attempt is made to indicate the remote anatomical or symptomatic results, nor in what manner patients who have been subjected to this operation pass through subsequent labor, nor the position of the uterus after such labor. Time and observation will determine these facts. If this paper serves to call the attention of the profession anew to the treatment of retroposition with anteflexion, which has long been the *bête noir* of gynæcological treatment and to point out that the malposition and malformation which cause in many women a life of suffering and sterility, may be rectified by dividing the utero-sacral ligaments and suspending the uterus, as described, my object will have been attained.



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