

HYSTERECTOMY FOR CANCER OF THE CERVIX BY COMBINED ABDOMINAL AND VAGINAL DISSECTION.¹

BY MAURICE H. RICHARDSON, M.D.,
Visiting Surgeon, Massachusetts General Hospital; Assistant Professor of Anatomy, Harvard Medical School.

THE following brief consideration of this subject, from the standpoint of a general surgeon and anatomist, will not, I hope, prove uninteresting.

In liability to recurrence after operation, uterine cancer equals, if it does not exceed, cancer of the breast. The reasons for this are to be found in the local malignancy of the uterine growth, a malignancy developing and extending as rapidly in the cervix as in the breast, and in the almost insurmountable difficulties encountered at its complete extirpation. Secondary infiltration of the broad ligaments — the earliest possible metastasis in cancer of the uterus — renders the entire removal of the disease impracticable, if not impossible; and were this invasion as universal as that of the axillary lymph-glands in cancer of the breast, no radical or dangerous operation upon the uterus would be justifiable. The surgical procedures, therefore, would be limited, and only those measures would be selected that relieve suffering and prolong life.

Clinically we do not find the broad ligaments invariably affected, even in cases of extensive local disease; on the contrary, in many instances no secondary infiltration whatever is found in separating the uterine ligaments. Not only by the absence of infiltration in these cases, but also by the numerous permanent cures following hysterectomy, are we justified in concluding that uterine cancer is infrequently associated with early metastases. Not that cancer of the cervix manifests as slight a malignancy as cancer of the lip in its early stages, for in some instances, at least, the former shows a tendency to rapid growth and invades the surrounding parts almost before its presence is known, or even suspected. Nevertheless, my experience leads me to believe that cancer of the cervix is distinctly less malignant in its early development than cancer of the breast.

In breast tumors the patient's fears lead more frequently to early consultation than in uterine disease, for the existence of the latter often remains unsuspected, the patient supposing her symptoms merely an excess of the normal physiological discharge. A natural tendency towards concealment gives us but rarely a chance to investigate and treat either disease in its earliest stage. Moreover, in both breast and uterine disease, pain is so frequently absent that no conspicuous symptom remains to call attention to these regions, so that a tumor may obtain considerable size in the breast before it is discovered, or the uterine discharges may become excessive or even offensive, before a physician is consulted. Hence, most cases of early uterine cancer are discovered by the physician in the course of treatment for symptoms in which serious disease is not suspected; while the occasional absence of symptoms allows breast tumors to become hopelessly extensive before there is any suspicion of their growth.

Cancer may extend from the cervix in all directions and invade the vaginal mucous membrane and the important structures lying in close relation with it. In fact, the epithelial infiltration must be very circumscribed not to involve also, in a hopeless entanglement,

the bladder wall, the rectum or the ureters; yet the disease is occasionally limited to the internal layers of the cervix or to the body of the womb without appearing in the peri-uterine structures at all. But, unfortunately, cancer seldom confines itself in this manner; we must expect the contrary in most instances and find the disease spreading in all directions in hard and ulcerating masses.

It follows from clinical and pathological considerations that cases of cervical cancer favorable for extirpation and permanent cure are rare, that operations for relief have very decided limitations and that at best the outlook is gloomy.

From a brief consideration of the anatomy of this region, we shall find ourselves still more limited and unsuccessful in our efforts thoroughly to extirpate cancer of the cervix.

The analogy between cancer of the lip and cancer of the cervix is striking, clinically, in that both seem at first to have only a local malignancy, while both, when well under way, exhibit a rapidity of growth and area of metastases that is deplorable. In lip cancer, however, the nearest structures, the invasion of which makes interference well-nigh hopeless, are the sub-maxillary glands and the lower jaw, not to mention the body of the cheek. In uterine cancer, on the contrary, a peri-cervical extension of much less than an inch renders cure by excision absolutely hopeless.

A clear idea of the relations between the cervix, bladder, rectum, peritoneum and ureters is therefore of the greatest importance, not only for prognosis but for technique. The following brief description of their relations is based upon numerous dissections upon both the living and the dead subject, made with special reference to hysterectomy.

Anteriorly, the extravaginal portion of the cervix is separated from the walls of the bladder by areolar tissue, easily dissected by the finger after cutting the vaginal attachment. The intravaginal portion is separated from the bladder by the superior vaginal wall. The vagina is not so easily separated from the bladder as the uterus, being more intimately attached. When infiltrated, the vaginal mucous membrane is inseparable from the bladder wall, though the disease does not grow towards the vesical mucous membrane as rapidly as it spreads laterally.

Posteriorly, the cervix is separated from the rectum by the fold of peritoneum and vaginal mucous membrane, which together make the base of the pouch of Douglas. This interval varies somewhat in extent. Separation of the vagina and rectum is easy because they are connected only by loose areolar tissue, easily dissected with blunt instruments or with the finger. Separation of these structures, however, is not so easy as we go back, the vagina and rectum being more intimately connected near the cervix. As in the upper vaginal wall, malignant disease shows a greater tendency to spread than to penetrate; so that there may be a very extensive infiltration and ulceration limited to the posterior wall, the rectal mucous membrane apparently remaining intact. This fact I have observed frequently in advanced cancer of the cervix and vagina. The rectal mucous membrane, in many cases, is scarcely, if any, involved, so that it slips easily in all directions over the vaginal mass. Not that this is always the case, for we often find recto-vaginal fistulae in advanced cancer; but it is frequent enough to justify us at times in operating where the vaginal mucous

¹ Read before the Obstetrical Society of Boston, June 10, 1893.

membrane alone is involved. The prognosis is very unfavorable, however, because we must literally shave the tumor in our dissection.

In the intimate relations between the ureters and the cervix, we find our most discouraging facts, both as regards prognosis and technique.

Entering the pelvis under the peritoneum, near the origin of the internal iliac artery, the ureters pass downward, forward and inward. Approaching the cervix they run directly forward on each side toward the superior vaginal wall. In their passage to the bladder they are separated from the cervix by a very short interval, varying in different subjects, but practically almost in contact with it. They are loosely placed in the surrounding tissues in this part of their course, and they may easily be isolated and drawn to one side. The distance between the ureters and the cervix may depend upon disease and upon the width of the cervix itself. In the blind manipulations of a vaginal hysterectomy, where nothing can definitely be seen, there is always danger of wounding these vessels. Vaginal hysterectomy, therefore, is not only hazardous because the ureters may be wounded, but it is also likely to fail of permanent cure, for the slightest extra-cervical infiltration must involve tissues in the immediate vicinity of these structures so essential to life.

The broad ligaments, extending outwards from the anterior and posterior surface of the uterus, are reflected at the pelvic brim, to which they are attached. Thin above, the duplication of peritoneum becomes widely separated as we approach the cervix. An antero-posterior longitudinal plane, passed through the ligament at its reflection from the uterus, makes, therefore, a triangular section, the apex of which is the Fallopian tube, and the base the lateral vaginal attachments.

Between the peritoneal folds at the apex of this triangle we have the Fallopian tube. As we descend close to the uterine body we find the peritoneal reflections gradually separated. In tying and dividing the attachments of these folds the tissues broaden, till, at the vaginal insertion, our clamps embrace a mass of considerable size. In vaginal hysterectomy the reverse is true. The most important structures involved in the operation — the arteries, veins and ureters — are situated between the lower portion of the peritoneal folds. From the position of the ureters, between these folds, always very close to the cervix, we cannot hope for a broad margin in the excision of cancer of the cervix, under any circumstances, as we may in cancer of the lip and cancer of the breast.

The dangers encountered in vaginal hysterectomy are wounding of the ureters and hæmorrhage. It is, therefore, desirable so to perform the operation that, first, the ureters may be avoided by as narrow a margin as possible; and, secondly, that the arteries and veins may be securely tied. Leaving for the present the question of septic infection, it is evident that vaginal extirpation of the uterus must be performed without a definite knowledge of the location of the ureters. They can only be avoided by clinging closely to the cervix and to the uterine body. This is very undesirable where it is necessary to remove the disease as radically as possible. In vaginal hysterectomy we grope between the ureters and not only run great risk of wounding them, but we do not give the disease as broad a margin as we otherwise might.

By the vaginal route, hæmorrhage is a conspicuous

danger. If our ligatures slip, or our clamps break or come off, we may have, deep within the pelvic cavity, an alarming hæmorrhage which can only be checked with the greatest difficulty. Indeed, it is impossible at times to prevent a fatal hæmorrhage, even with the greatest skill and experience. Not that the control of bleeding is difficult in all cases, for we often find the uterus so movable that all the manipulations may be performed at the vaginal outlet. Where the uterus is large and firmly fixed, however, it is impossible to bring the broad ligaments within easy reach, and we must then apply long clamps, which are liable at any time to slip or to break. In difficult cases, therefore, we must expect formidable dangers and deplorable accidents.

The advantages of the vaginal operation lie chiefly in drainage.

By the suprapubic operation, in the Trendelenberg posture, we are able to determine the condition of the broad ligaments, to recognize a hopeless metastasis, and to dissect with precision. The slight dangers of this method are more than balanced by the thorough knowledge we may obtain of the nature and extent of the disease. In cases evidently hopeless the abdomen can be closed and a palliative operation by the vagina substituted. But if, by abdominal exploration, we find no contra-indications to a complete hysterectomy, we may proceed with much greater safety, and more thoroughly remove the diseased uterus and appendages. From the pathological standpoint, therefore, the abdominal route is preferable because we can remove not only the uterus and the cervix, but we can include the broad ligaments and the structures contained within their folds.

From the standpoint of the anatomist this operation is much preferable to the vaginal method. With the patient in the Trendelenburg position, a clean dissection with the knife or scissors may be made as far as the vaginal attachment. Starting at the pelvic brim, the structures may be successfully tied and cut until we approach the cervix, when by careful manipulations the ureter may be brought into view. The dissection from this point may be carried on as intelligently as a dissection of the common carotid. The ureters on either side may be brought into view, held out of the way by an assistant, and the vaginal attachment severed. The uterine arteries can be found by their pulsation, and tied. As we approach the vaginal attachment, however, it is very hard to tell just the limits of the disease. Up to this point the operation may be performed with great ease and with perfect safety. Separation of the vaginal attachments on all sides must now be made with great care if we would avoid wounding the rectum, the bladder and the ureters. During the prolonged manipulations necessary to avoid these errors, we run a considerable risk of a serious septic infection. It is to avoid these difficulties and dangers that I advocate the combined vaginal and abdominal dissection.

By the abdominal method the septic masses are constantly drawn toward the area that we wish to protect; by the vaginal method they are constantly drawn from that region. By the combined abdominal and vaginal operation the uterus may be delivered either through the abdomen or through the vagina. It makes little difference, however, which way is selected, because, having separated carefully the cervical attachments of the vagina below, the completion of the operation by

the abdominal route is rapid, and the peritoneum runs little if any more danger of infection than by the vaginal route alone.

The method which I advocate as the safest and most rational procedure for the radical excision of uterine cancer is first to separate by clean incision the diseased cervix from the vaginal mucous membrane by as broad a margin as possible without wounding the rectum, bladder, or ureters. The incision should be carried through the mucous membrane until the areolar tissue is reached; then dissection should be carried on by the finger or by some blunt instrument until we are close to the peritoneum, care being taken not to open the peritoneal cavity. It is, of course, necessary previously to have disinfected as far as possible the cancerous ulcerations. The hands should now be thoroughly sterilized, and the abdominal incision made with a second set of instruments. Having, in the manner described, separated the broad ligaments and isolated the ureters, we may rapidly connect the vaginal with the abdominal incision. The uterus may be delivered through the vagina or through the abdominal wound. If the mass is too large easily to be delivered by the vagina, the abdominal route should be chosen; not that it makes any great difference where the exposure is so brief, especially if the intestines, in the Trendelenburg position, are abundantly protected by sterile gauze. After removal of the uterus the folds of the peritoneum may be united by continuous suture, or a gauze drain may be provided through the vagina. In my experience there has been, by the abdominal method alone, a mild sepsis in two cases; by the vaginal method alone there has been a fatal general peritonitis in one case; all other cases have recovered without complications of any sort.

In clean hysterectomies, I think a continuous suture should be applied; in septic operations a free dependent drainage should be provided by leaving a gauze drain in the vagina.

The prognosis as to recurrence in even the most radical operation upon a cancerous cervix is bad; for, under the most favorable circumstances, the margin of healthy tissues seems utterly inadequate. A small cancerous nodule in the centre of a large breast demands excision of the whole organ, and even then recurrence is the rule. An infiltrating epithelioma of the lip requires in its proper removal the broadest possible margin of healthy tissue; and if that margin is a close one we look upon recurrence as almost certain.

In uterine cancer, therefore, the prognosis is necessarily bad if there is any extra-cervical infiltration whatever; and while under these circumstances hysterectomy is justifiable, its performance cannot be strongly urged. If the vaginal disease is extensive, only local palliative operations, performed extra-peritoneally, are justifiable.

CONCLUSIONS.

The advantages of the vaginal method are:

- (1) Less liability to peritoneal contamination.
- (2) More intelligent and thorough dissection of the local disease.

Its chief objection is the difficulty in controlling hæmorrhage.

The advantages of the abdominal method lie:

- (1) In a conclusive investigation of the disease itself — its local extent and its possible remote metastases.
- (2) In the rapidity and safety by which the broad ligaments may be tied and cut.

(3) In the ease with which the ureters may be isolated and kept one side.

(4) In control of hæmorrhage.

Its chief disadvantage is the impossibility of thorough dissection and removal of the cervical portion of the disease.

The superiority of the combined method is seen:

(1) In the intelligent and thorough dissection both of the local disease and the broad ligaments.

(2) In the certainty by which hæmorrhage may be prevented.

(3) In the protecting of the ureters.

(4) In the saving of time.

The combined method is applicable more especially to cases where the disease involves the cervix and a portion of the vaginal mucous membrane, and to cases in which the uterine body is large and fixed. It should also be employed where for any reason it may be difficult to separate the vaginal attachments.

CASES OF EXTRA-UTERINE PREGNANCY.¹

BY CHARLES W. TOWNSEND, M.D.

THESE cases were seen within the space of six weeks.

CARE I. C. C., twenty-five years old, came to me in the out-patient department of the Massachusetts General Hospital, April 11, 1893, and gave the following history: Her previous health had been good. She had been married five months, and had never been pregnant before. The catamenia, previously regular, occurred last in the normal manner, from February 10th to 14th. Between five and six weeks later, on March 25th, she was seized with cramp-like pains in the right side, and there was a slight bloody discharge from the vagina. On April 4th, more active flowing began, which still continued. A few days ago a piece (described like membrane) was expelled from the vagina. During all this time she has had occasionally sharp pains in the right side, with a feeling of faintness.

Examination showed the uterus to be slightly enlarged and freely movable. In the right broad ligament a mass was easily felt, the size of a tennis-ball, moderately firm and tender on pressure. Tenderness was also present on the left side, but nothing definite could be felt there.

The case was believed to be one of right-sided, extra-uterine pregnancy, with beginning rupture of the tube, and was sent into the house. Here she was seen by Dr. H. H. A. Beach, who agreed with the diagnosis, and performed laparotomy at 5 o'clock the same day, removing a partially ruptured right tube, and finding a moderate amount of free blood in the abdominal cavity.

During the five hours the patient waited before getting her husband's consent to the operation, her color became perceptibly paler, her pulse rose from 80 to 96, she had several sharp pains in her right side, and it was believed, as was afterwards found at the operation, that bleeding was taking place into the abdominal cavity, showing that longer delay might have proved fatal.

CASE II. Mrs. L., thirty-two years old, also nulliparous. Had always been delicate, having had nervous prostration seven years ago, but no uterine trouble

¹ Read before the Obstetrical Society of Boston, June 10, 1893.