THE RADICAL OPERATION FOR CANCER OF THE UTERUS

By THOMAS S. CULLEN, M. B., Baltimore

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THE early recognition in recent years of cancer of the body of the uterus, and, as a consequence, the complete removal of the uterus, has led to such excellent temporary as well as permanent results that a consideration of this variety of cancer of the uterus is at this time entirely unnecessary. Some operators claim that nearly all of these patients are permanently cured of their cancer, and a most conservative estimate would be that fully two thirds of all cases of cancer of the body of the uterus operated upon never show any further manifestation of the disease. This fact is often lost sight of in the gloomy reports frequently published on the final results in cancer of the uterus. The diagnosis in the majority of the cases of cancer of the body of the uterus has been made from scrapings, and from them the diagnosis is rendered certain in the incipient stage of the disease. In no other branch of surgery has the value of the microscope as an aid to the surgeon been more signally demonstrated. In the present address, therefore, I shall limit myself to a consideration of cancer affecting the cervix.

CANCER OF THE CERVIX

Before considering the immediate and end results in the radical operation for cancer of the cervix, permit me to outline the salient points in our operative treatment of these cases.

Operability. It is very difficult to ascertain the percentage of cases that are suitable for operation. Many patients never see a physician until the disease is too far advanced for any radical operation, and often it happens that the surgeon is not even called upon to see the patient. Again, as pointed out very clearly by Taylor, numerous far advanced cases of cancer of the cervix are seen in the dispensaries, and only a minority of these reach the operating room.

When the cervix is freely movable, we consider the case operable; and although the growth may have extended to the vaginal wall, and even if the broad ligament on one side shows diminished mobility, provided the patient is in a fair physical condition, the abdominal operation is considered justifiable.

Before declining to operate, it is, as a rule, advisable to examine the patient under an anæsthetic, as one is occasionally able to detect that the lateral thickening is due, not to an extension of the cancer, but to a coincident inflammation of the tube and ovary. This we have noted on several occasions, and Taylor has recently drawn attention to this point.

TECHNIQUE OF THE OPERATION

I have never performed a vaginal hysterectomy for cancer of the cervix, but would not hesitate to do so were I dealing with a very stout patient suffering from a carcinoma of the cervix, associated with marked prolapsus.

Preparatory treatment of the cervix. In some of the cases, we have cauterized the cervix thoroughly and then abstained from all local treatment for a week, thus giving the raw area a chance to contract down. In some instances, this procedure has been followed by a marked "loosening up" of the cervix, and the uterus, which, prior to the cauterization had apparently been somewhat fixed, in the course of a few days had become freely movable. On the other hand, I have noted that some patients take a second anæsthetic within seven or eight days very badly; and so much have I been impressed with this fact that for several years I have, whenever possible, done the cauterization only just prior to opening the abdomen.

My colleagues at the Johns Hopkins Hospital, at the present time, after cauterizing the cervix and washing out the vagina, flush it out with an iodine and alcohol solution (iodine 3.5 per cent). When this is removed, the vagina is filled with alcohol. After this

[1] Read before the Third Clinical Congress of Surgeons of North America, New York City, November 14, 1912.

in turn has been removed, the vagina is thoroughly dried and is then filled with gauze. This method has proved to be most satisfactory.

ABDOMINAL HYSTERECTOMY

The operation is patterned after that described by Wertheim. Good exposure of the field of operation is absolutely necessary to secure a thorough removal of the diseased structures. When the patient is very stout, a transverse wedge of skin and fat down to the fascia may be removed, and the abdomen then entered through a longitudinal incision. This procedure greatly reduces the depth from the surface to the floor of the pelvis, and materially cuts down the time consumed in the operation.

In quite a number of the cases, we have employed an electrically heated table throughout the operation, and it has seemed to me that these patients left the table in a much better condition than the average patient after hysterectomy for cancer.

Proper illumination is of great importance in this operation, and we have found the Krönig light of much value in flooding the field of operation with a steady and most satisfactory flow of artificial sunshine. This light is a great adjunct to any operating room.

As many of the patients are weakened by the long standing hæmorrhage and discharge, I try to save the strength as much as possible by not placing the woman in the Trendelenburg posture until the pelvis has been carefully walled off and the operator is ready to expose the ureters.

As a rule, I have found no difficulty in locating and isolating the ureters except in very stout persons. Here the peritoneum appears to be excessively thin, while the underlying fat is correspondingly thick, and the small blood-vessels in the fat tear on the slightest traction. When the patient is thin, I rarely encounter much trouble until the vaginal veins to the outer side of and below the ureter are reached. These are usually readily controlled with the long Wertheim forceps, but now and then give rise to alarming bleeding. Occasionally, prior to cutting across the vagina, I apply the right-angle Wertheim clamps, but usually, after doubly walling off the uterus from the pelvic wall, and having had an assistant wipe out the vagina until the pledgets come away free from stain, I cut across the vagina, picking up the vaginal margins with Ochsner clamps.

After all oozing from the vaginal margins has been controlled the bladder peritoneum is tacked to the edge of the mucosa of the anterior vaginal wall. Thus, as the bladder distends, it is the peritoneally covered area that ascends, and no raw surface is left to ride over any drain that may be left.

In some of the cases I have removed the pelvic glands, in others I have not disturbed them. Many of my patients were much exhausted by the operation, and I felt that any further time expended in manipulation in the abdomen would seriously jeopardize the patient's life. In 1900, in my book on cancer of the uterus, I drew attention to the fact that an enlarged gland did not necessarily indicate cancer, inasmuch as the enlargement might be due to septic absorption from the cervix. Peterson, in his series, removed the glands in 29 cases, and in 5 of these found metastases. Of the 5 patients, one died after operation, 3 had a recurrence, and one was well after 3 years. Whether the glands are to be removed or not must depend on the condition of the patient, and must be left to the judgment of the individual operator.

Closure of the pelvis. After the bladder has been attached to the anterior vaginal wall and the posterior vaginal wall to the rectum, the broad ligaments are closed. If all oozing has been completely checked, a small cigarette drain is laid in the pelvis and brought out through the vaginal opening, which is now not over 1.5 cm. in diameter. Where there is a little oozing in one or both broad ligaments, I have occasionally placed a cigarette drain in the lower angle of each broad ligament, bringing the ends out into the vagina.

Duration of the operation. When the carcinoma of the cervix is in an early stage, the patient is not likely to have lost much blood, and, as little sloughing has occurred, there has been a minimal amount of septic absorption. In such cases the operation is a relatively easy one. In the far advanced cases the

patient is frequently cachectic as a result of the anæmia and the absorption of septic products. In these cases the growth often extends alarmingly close to the ureter, and as a result the dissection is slow. This prolongation of the operation in a patient already greatly weakened by the disease often leads to an alarming collapse before the operation is completed. Such a patient will stand the operation relatively well for from one to one and a half hours, and then suddenly collapse. A Wertheim operation, at best, is one of the most difficult of all the abdominal procedures; consequently the operator needs to be in the best possible physical condition. He should make it his first operation of the day, and preferably perform it early in the morning, when he is fresh. Stimulation of the patient should be undertaken, even before there are the slightest signs of collapse.

When the cervix has been torn across during removal of the uterus, thus materially increasing the danger of peritonitis, I occasionally place an abdominal drain in the lower angle of the incision, in addition to the one emerging from the vagina. In these cases we place the patient in the Fowler position immediately after the operation, if the pulse will permit.

RESULTS IN THE RADICAL ABDOMINAL OPERATION FOR CANCER OF THE CERVIX

When the Committee of the American Gynecological Society met in Baltimore to arrange the program for its annual meeting, which was held in May of this year, it was unanimously agreed that the time had arrived when we should take stock of the results of abdominal hysterectomies for cancer of the cervix in America. The results of some of these labors are to be found in SURGERY, GYNECOLOGY AND OBSTETRICS for August, 1912. That number of the journal includes interesting articles by Peterson, Taylor, and Taussig.[1] At the meeting, Graves reported the results of his work in Boston and Peterson gave his statistics from Ann Arbor, Taylor sent out circular letters to about 175 operators in New York, Brooklyn, and Philadelphia. In his paper he says, "The replies which I received did not give me any information along the line that I wished, and I have not been able to deduce from them anything of value as to the ultimate result of cancer operations in these two states." He learned, however, two things: first, the entire absence of reliable statistics among the operators; second, the universal feeling among the surgeons that the patients were not seen early enough to be permanently relieved.

Taylor then reports his own results. His immediate mortality was only 3 in 28 cases. Unfortunately many of his patients were lost track of, so that he could not determine the relative percentage of permanent recovery.

Taussig communicated with surgeons west of the Mississippi River. In all, he collected records of 60 patients; only 14 of these operations dated beyond the five-year limit. He says, "By a strange coincidence, there was not a single operative mortality among these first 14 patients. Apparently, each operator was particularly careful in the selection of his first cases." Of the 14 patients, one could not be traced and one had died of an intercurrent disease. Of the remaining 12 patients, 5, or 41.6 per cent of these, were still free from recurrence. This is an exceptionally good showing, even though the numbers be small.

Neel,[2] after much labor, was able to trace the records of the cancer cases operated on by the radical method at the Johns Hopkins Hospital. These operations were performed by Dr. Kelly and his associates, and by the residents during the various years. Neel reported, in all, seventy cases in which over five years had elapsed since the radical operation had been performed. There was an immediate mortality of 20, or 28.6 per cent. Of the 50 patients leaving the hospital, nine had been lost track of, and one had died two years later of pneumonia; 14, or 20 per cent of the total number of patients, are to-day free from recurrence, and the remainder had died with unmistakable evidence of return of the growth. Neel draws attention to the fact that, if we deduct the 20 that died immediate-

[1] Dr. John G. Clark of Philadelphia, Dr. J. Sampson of Albany, and several others also briefly reported their results in the radical operation. Dr. Clark's paper appears on p. 255 of this issue; Dr. Sampson's on p. 303.

[2] Dr. Neel's paper appears in this issue, on p. 292.

ly and discard the patient dying of an intercurrent affection, and also subtract the nine cases that were lost track of, he still has 40 patients that survived the operation, and concerning whom he has definite data. Fourteen, or 35 per cent of the 40 patients, are still alive.

At the request of the Committee of the American Gynecological Society, I was asked to find out to what extent the radical abdominal operation was employed for carcinoma of the cervix in the Southern states. Letters were sent out to most of the surgeons in the South, and I take this opportunity of thanking the many who took the time and trouble to reply. The majority had never done a Wertheim operation; a few had performed it two or three times, and had lost sight of the patient. Only in a few instances were the statistics of any value to us, either because the operation was of such recent date or because the patient could not be traced.

Under date of April 6, 1912, Dr. George Tully Vaughan of Washington writes: "In reply to your letter asking for data of Wertheim or other abdominal hysterectomies for cancer of the cervix, I should say that I have not had a large experience in gynecological work. About five complete abdominal operations for cancer are all I can muster — one death and the others still living, so far as I know. One, at least, was heard from recently, three years after the operation."

Dr. H. H. Grant of Louisville, Kentucky, replying under date of April 9, 1912, says: "I have done but seven panhysterectomies for carcinoma, and but two of these included exploration for intra-abdominal glands, none claiming to be Wertheim. There was no immediate mortality. Two of these patients were subjected to amputation of the cervix, because of doubt, and in one, Mrs. L., aged 37 years, reoperation was done after three months for a threatening recurrence in 1900. She died of recurrence ten months after the second operation. The other, aged 41, was reoperated on in three weeks. She died in five months, of recurrence The other five cases are still living. Mrs. W., aged 54, operated on November, 1909, well; Mrs. B., aged 47, operated on in February, 1910, well; Mrs. M., aged 51, operated on in April, 1911, well; Mrs. C., aged 42, operated on in March, 1910, suspicious; Mrs. M., aged 48, operated on in December, 1911, well."

Dr. J. Mason Hundley of the University of Maryland has had quite a number of permanent cures, and is a most enthusiastic advocate of the radical operation. Under date of November 1, 1912, he writes: "I find we have records of 21 radical operations for cancer of the cervix done by me since 1905. Of that number, 2 died as a result of the operation and one died after reaching home. Four are living and apparently well: one operated upon about six years ago, three between seven and eight years; and one is now dying, operated upon three years ago. Three are living after two years. The remainder have been lost track of."

At the meeting of the American Gynecological Society, I reported my results in 49 cases in which a complete abdominal hysterectomy was attempted. As noted from the accompanying table, brought up to June 1, 1912, there were 11 immediate deaths, a mortality of 23 per cent; 3 patients were lost track of, and are accordingly included among the dead; 21 died at periods varying from a few months to six years. Fourteen were living and apparently well at the time of the meeting.

Some of the deaths were due to uncontrollable venous oozing, others to shock due to hæmorrhage or to the greatly weakened condition of the patient, others to renal complications, and, in a few instances, to a localized purulent peritonitis. In the tabulation of remote deaths, it will be noted that in some it was clearly evident at the time of operation that the entire growth had not been removed. The death in nearly all of these cases was due to a continued progress of the disease.

Five-year limit. Twenty-six of my cases were operated on over five years ago. Of this number, seven died while the patient was still in the hospital. One of the patients was lost track of. Eleven died at periods varying from a few months to six years, and seven, or 26.9 per cent, are well to-day.

1 is well 6½ years after operation.
1 is well 8 years after operation.
1 is well 8 years and 4 months after operation.

1 is well 8 years and 6 months after operation.
1 is well 9 years and 8 months after operation.
1 is well 9 years and 10 months after operation.
1 is well 13 years after operation.

In three of these cases, the ureters were catheterized prior to opening the abdomen.

The cancer in four of these successful cases was apparently confined to the cervix, the uterus being freely movable. In one case, the growth had extended into the right broad ligament and encroached alarmingly on the ureter.

In one case, the carcinoma had made such extensive inroads on the anterior wall of the cervix that the bladder had become densely adherent to it, and was opened during the dissection.

In the remaining case, the cervix was so extensively involved that, during the operation, the body was almost completely torn away from the cervix, and on examination of the specimen after removal, the carcinoma was found to have extended almost to the cut surface. In this case a most guarded prognosis was given. It is now over eight years and six months since this uterus was removed. I need hardly add that in every case a histological examination was made.

RESULTS OF ABDOMINAL OPERATIONS FOR CANCER OF THE CERVIX [1]

Immediate death, 11 cases —
Richardson, April, 1902.
Tate, July, 1902 (H).
Kyle, October, 1902 (H).
Compton, April, 1903.
Rogers, March, 1905.
Hayward, February, 1906.
Vogelsang, November, 1906 (H).
Havistick, August, 1909.
King, December, 1909 (H).
Pfaff, January, 1910.
Harris, November, 1910 (H).

Not located, 3 cases —
Collins, January, 1905.
Welch, January, 1908 (H).
Owens, February, 1908 (H).

Patients living, 14 cases —
Ryan, June, 1911; 11 months (H).
Carroll, May, 1911; 12 months (H).
Griffith, October, 1910; 18 months.
Lucas, November, 1909; 2 years, 5 months (H).
Heilman, December, 1908; 3 years, 5 months (H).
Sangwin, May, 1909; 3 years, 6 months.
Conklin, June, 1908; 3 years, 8 months (H).
Humphreys, December, 1905.
Herzen, April, 1904; 8 years.

[1] Those marked with (H) I performed at the Johns Hopkins Hospital; the others were done at the other hospitals with which I am connected.

Yerkes, January, 1904.
Brown, August, 1903; 8 years, 6 months.
Wotten, August, 1902; 9 years, 8 months.
Mrs. M., patient of Dr. Geo. H. Carveth, Toronto, December, 1902; 9 years, 10 months.
Ketler, June, 1899, 13 years.

Remote death, 21 cases —
White, April, 1903; partially removed.
Tolley, April, 1903; partially removed.
Bowen, November, 1911; 2 months, uræmia, blindness.
Olfers, April, 1908; recurrence, 3 months (H).
Jones, 1910; died, 6 months (H).
Bozeman, December, 1910; incomplete removal. Died, 6 months.
Snively, June, 1910; died, 6 months.
Finkle, April, 1903; died, 8 months.
Porter, January, 1905; not entirely removed; died, 11 months.
Karr, July, 1906; died, 14 months (H).
Franklin, February, 1908; died, 16 months (H).
Willis, October, 1905; died, 18 months (H).
Mack, February, 1908; died, 19 months (H).
Raymond, January, 1908; died, 21 months (H).
Ferguson, September, 1906; died, 21 months (H).
Trego, January, 1900; lived 2 years.
Baldwin, May, 1907; lived 2 years.
Ardinger, July, 1908; lived 2 years, 10 months (H).
Stehle, May, 1904; lived 4 years.
Riggins, January, 1905; lived 5 years.
Mengel, May, 1904; lived nearly 6 years.

Operated on over 5 years ago; 26 cases —
Immediate death, 7 cases.
Not located, 1 case.
Remote deaths at periods varying from a few months to nearly 6 years, 11 cases.

Living —
7 cases or 26.9 per cent.

PROGNOSIS

Even after removal of the uterus, it is very difficult to give a satisfactory forecast as to the ultimate result. Sometimes a case that seems most favorable shows an early recurrence, while a border-line case that looks most unfavorable may remain free of the disease. When the growth of the cervix is of a glandular type, however, we may look for a speedy return.

An early local return, while most disconcerting, need not necessarily prove fatal. Nearly two years ago, a very competent surgeon in a Southern state did a radical operation, and within a few months a carcinomatous nodule was detected in the vault. In this case, on account of the proximity of the carcinoma to the ureter, I opened the abdomen and isolated the ureters and removed a long cuff of the vagina. This patient, up to the present time, 16 months later, has had no further manifestation of the disease.

Temporary Relief. Some surgeons are of

the opinion that, if the entire growth has not been removed, the patients suffer much more than if no radical operation has been performed. In my experience, the patient in the late stages is no more prone to pressure symptoms than is the woman who has not been operated upon. On the other hand, frequently the growth spreads in such a manner that the vaginal mucosa is not again involved, and the patient is accordingly spared the frequent hæmorrhages and the foul-smelling discharge. I am frank to admit that in some cases I would have refrained from operatng had I been aware of the widespread extension of the disease; but sometimes, when tihe growth is not very dense, the extent is only ascertainable when the operator has partially completed his dissection, and complete removal of the uterus cannot then be avoided.

DEDUCTIONS

It is difficult to lay down a hard and fast rule as to what cases should and what cases should not be operated upon. All familiar with the course of this dread disease know that in time the hæmorrhages become very severe, and that later on, in the intervals between hæmorrhages, the patient has a most foul and loathsome discharge, and that in some cases rectovaginal or vesicovaginal fistulæ or both may develop. They also know that the patient becomes a burden to herself and a source of the greatest anxiety to her family, who are powerless to do anything; and, finally, that most painful pressure symptoms may develop. With such an outlook, I feel sure that there is not a man in this audience who, if brought face to face with such a problem in his own family, would not gladly take the chance of an operation, if there were only one or two chances in a hundred; as a matter of fact the chances are infinitely better.

Over a decade ago, when speaking before the Academy of Medicine in this city on the early diagnosis of cancer of the uterus, one of the most distinguished gynecologists of New York, in the discussion, said, if I remember correctly, that he had operated on over 120 cases of carcinoma of the uterus, and that at the time of the meeting not one of them was living.

The splendid results obtained by Wertheim and others in Europe leave no doubt that great strides have been made in the cure of cancer of the uterus, and even from the limited observations in America, it is clear that considerable progress has been made, and there is no reason why we should not materially increase our percentage of permanent cures. The Germans certainly have one advantage over the American surgeons. Many of their patients have had large numbers of children and, owing to their manner of work, have not accumulated the large amount of adipose tissue that is so prevalent with us. Consequently the continental operator can at once secure a much better exposure, and is not troubled with the abundance of adipose tissue around the ureter and in the broad ligament.

The oftener the surgeon performs this operation, the more expert he becomes; the length of the operation is shortened, and consequently the death rate is lowered. The German surgeons apparently see many more of these cases than surgeons in this country. During my last trip to Germany, I was making rounds with Professor Zweifel, in Leipzig, and he told me that in one month he had performed fifteen Wertheim operations for cancer of the cervix. It is, therefore, only natural that the German surgeon should have a lower operative mortality. Again, the continental surgeon has materially profited by the widespread publicity which the cancer problem has received, both in the profession and among the laity.

From time to time attempts have been made in America to start an education of the women of this country to the necessity of reporting any suspicious symptoms at once to their physicians, but, apart from some spasmodic efforts, nothing has really been accomplished. It would be most fitting if this splendid society should here and now start a cancer campaign that would extend from coast to coast. It can and should be undertaken at once. Publications that have done much to enlighten the laity on medical matters could be of invaluable service in the dissemination of this knowledge.

The laity now have a clear idea of the sub-

ject of appendicitis, and whereas a decade ago it was often necessary for the family physician, after making the diagnosis, to spend hours in urging the necessity for immediate operation, at the present day, after he has given his verdict, the first question asked by the family is, to what hospital the patient should be sent.

The splendid crusade against tuberculosis is another example of the immense amount that has been accomplished by the education of the rank and file of the community.

Two or three well-illustrated articles, explaining in simple words just what cancer is, how it spreads, and what may be accomplished by early operative interference, will be all that is necessary to put women on their guard. Many of them have an innate fear that they will some time develop cancer of the uterus, and are fully aware of the distressing train of symptoms in the advanced stages of this dread disease. What we want to do is to impress upon them the fact that any abnormal bleeding, no matter how slight, should be immediately investigated by their physician to ascertain if cancer be present. If no malignancy be found, they are relieved of their unnecessary anxiety. If cancer be present, it can be combated in the early stages. The fact that early cancer may be successfully eradicated by operation, and that it is in the beginning a strictly local process instead of a "general blood disease," as it is so often referred to by the laity, should be most forcibly impressed upon the community.

The sooner this subject is launched the sooner will our percentage of permanent cures increase. I feel sure that after women in general are thoroughly familiar with the necessity of an examination just as soon as they present any symptoms, the surgeon will be able to save, at a conservative estimate, from 20 to 25 per cent of these cases.

Among the most important surgical papers that emanate from the larger clinics are those which deal with the after results in various operative procedures, and it is well worth the while of every surgeon to "take stock" at regular intervals. Having a vivid recollection of the numerous immediate deaths I had encountered following the Wertheim operation, I hesitated long before I could make up my mind to attempt to locate the patients that had left the hospital. But when, finally, the work was commenced, and it was found that some patients had enjoyed comparative comfort for one, two or three, or even six years, I felt that the operation had been worth while. And when seven letters came back saying that the patients were well at periods varying from six to thirteen years, and expressing the most profound thanks for what had been done for them, I could not help feeling that the radical abdominal operation is the one destined to yield the best results.

This is an operation, however, that cannot be lightly undertaken, as it requires the very best efforts of the surgeon. My friend, Reuben Peterson, has expressed my sentiments so well that in conclusion I will quote what he has recently said on the subject.

"My belief in this operation has only become stronger. However, the experience afforded by eleven additional cases has not made me any more confident that the next patient I operate upon will either survive the primary operation or will ultimately be cured. On the contrary, in contrast with other abdominal operations, the more I perform this operation the more I respect and, possibly, dread it. Yet I adhere to it for the simple reason that, in my hands, all other operations for cancer of the uterus have been disappointing in their uniformly bad ultimate result, while with the radical abdominal technique I I have been able to save a fairly good percentage of my patients, and that, after all is said, is what the surgeon is after. If he be not content to set at naught his surgical reputation as far as primary results are concerned for the sake of ultimately curing more patients, he would best not meddle with this operation, which, in apparently favorable cases, is only too apt to turn out to be grave."