

The Present Status of the Treatment of Uterine Fibroids

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There is no little confusion at the present time in the minds of practitioners, as well as of specialists, as to the indications and contraindications in the treatment of fibroid tumors of the uterus. This is a pity, because the methods of treatment at our disposal today, properly applied, are capable of brilliant results, and improperly applied may be fraught with failure or even disaster. Too many patients are told that their tumor may be treated by operation or by radiotherapy, and the choice is then left more or less to them. This is all wrong, because the indications for operation and for radiation are different, and in the light of our present knowledge these indications are clearly and sharply defined.

In this paper no other conditions but distinct fibroid tumors of the uterus, fibromata or fibromyomata, will be included. The term radiotherapy will be used to apply equally to the use of x rays or of radium or its emanations.

In the first place, it should always be clearly borne in mind that a large proportion of all fibroids require no treatment whatsoever. All such tumors as are not giving rise to any symptoms, are not growing appreciably in size, and are not so situated as to cause a possible dystocia in a woman in the child-bearing age, can safely be left alone. When these conditions do not prevail and treatment is indicated, we have two methods at our disposal, radiotherapy and operation. No others need be considered. Treatment by any drug at our disposal is futile, and the use of endocrines, in the present state of our knowledge, is fanciful.

Let us consider radiotherapy first. This is often looked upon as the more conservative method of treatment, and yet as regards the ovary, which is a far more important organ than the uterus in the economy of the woman, it is absolutely radical. The doses of x ray or radium required to bring about the cessation of the symptom of bleeding alone, except in a woman at or close to the menopause, is equivalent in its action upon the ovary to a total castration. Thus, J. G. Clark, who has had a large experience with this work, says: "Radium is quite as potent in its power to bring on a premature menopause, and is quite as upsetting to the nervous equilibrium of a young woman, as the removal of the ovaries."

It is a mistake to consider the menopause as coincident with the cessation of menstruation. This is only one of its first and most striking symptoms. The normal menopause extends in the female, just as a similar process does in the male, over a period of many years. Indeed the atrophy of the ovary extends over a period of decades rather than months, and it is probable that its internal secretions play a part until senility. One cannot get away from the fact of the destructive action of radiation on ovarian substance and activity, for it is by this very action upon the ovary that the rays produce their effect on uterine fibroids. We hear a great deal of the so-

called specific and selective action of the rays on the fibroid tumor itself. This has never been proved, and we all know that the ovary and the testicle are among the most susceptible tissues of the body to radiation.

It is true that small sized tumors do apparently disappear under radiation. What has been largely forgotten is that in the early days of abdominal surgery, before the technic of hysterectomy had been sufficiently worked out to make it reasonably safe, fibroid tumors of the uterus were treated by surgical castration. This was in those days a much easier and safer operation than hysterectomy. In many instances it also succeeded in bringing about the shrinking or disappearance of small sized fibroids. When large tumors are radiated, even after all the symptoms to which they gave rise have disappeared, there remains a shrunken degenerated mass of tumor tissue. As some one has aptly put it, the living woman walks about a sarcophagus for her dead tumor.

CONTRAINDICATIONS TO RADIOTHERAPY.

The contraindications to the use of radiotherapy are definite and distinct.

1. *Age of the patient.*—The younger the woman the larger the dose of radium or x ray required to produce an effect, and the greater the destruction of ovarian tissue and functions. All authorities agree that this is not the treatment of choice in young women. Some put the lower limit of age for radiation at thirty-five and some at forty. After all, this is a relative matter, and if the case is one which is suitable for radiation, the patient herself should be permitted to decide whether she prefers to have her tumor removed and retain her ovaries, or have her ovaries destroyed and keep her tumor.

2. *Size of the tumor.*—Large tumors should, wherever possible, be removed surgically. At best, radiation results in a shrunken degenerated mass which may, and frequently does, give rise to subsequent symptoms, and which is more or less of a constant menace. This again is a relative matter. Many authorities do not advise radiating tumors larger than a three months' pregnancy in size. Some enthusiasts essay to treat tumors the size of a five, or even a six months' pregnancy.

The conclusions of the Mayo Clinic, as reported by Stacy, are as follows: "Surgery is still the treatment of choice for young women who have definite fibroids causing menorrhagia; for those who have a normal sized uterus but a history suggesting the presence of an intrauterine polyp, or a small submucous fibroid, and for those with a history suspicious of malignancy of the fundus of the uterus. We believe that large fibroids are best treated by hysterectomy as a certain means of quickly removing the tumor without the possibility of degenerative changes occurring later. It has been our policy to limit the use of radium to fibroids the size of a three and a half to four months' pregnancy, unless

there is a quite definite contraindication to operation."

3. *Tumors giving rise to pressure symptoms.*—The objections to radiating these are largely the same as under the last heading, only here there is a more general agreement that prompt operation is the better treatment.

4. *Inflammatory conditions of the annexa.*—It is coming to be a well recognized fact that in the presence of inflammation in the pelvis radiotherapy is fraught with grave danger, and is strictly contraindicated. Peritonitis and even death have ensued from the use of radium for fibroids in the presence of undiagnosed and unsuspected pyosalpinx. I myself know of an unreported case, vouched for by a prominent gynecologist of this city, in which peritonitis arising from an unsuspected pyosalpinx resulted fatally, in spite of prompt operation.

In discussing this subject Clark says: "The tumor must be uncomplicated with coincident inflammatory disease; it must be causing hemorrhage, and it must not be too large." He states that when pain is present, even without coincident evidences of inflammatory disturbance, it is seldom relieved, even though the tumor largely disappears. He mentions instances in which there was old salpingitis and a flare up of the quiescent process occurred. He has established a rigid rule that no patient suffering with pain lateral to the uterus is to be radiated. It is his practice to confine radiation to cases in which the tumors are the size of a three months' pregnancy or smaller.

In discussing Clark's paper, E. C. Samuel, of New Orleans, stated that he had had "three unhappy experiences" with a lighting up of infection after radium was used. In the same discussion Harold Bailey, of New York, said "that the mortality from radium treatment of fibromyoma, together with that of the undiagnosed and untreated complications, may be higher than one and a half to two per cent."

Stacy, in reporting upon the results obtained at the Mayo Clinic, concludes that radium should not be used where there is a clinical history or physical signs of pelvic infection, nor in those patients who complain of chronic pelvic pain, since the application of radium may light up a quiescent infection. They had three cases in which operation became necessary because of this untoward result.

In general, then, it may be definitely stated that in those cases in which there is pain, or above all fever, radiation is contraindicated. Clark goes so far as to state that pain rarely disappears after radiation, even with marked shrinking of the tumor. The difficulty of diagnosing latent infection will be dwelt upon later.

5. *Submucous and subperitoneal growths.*—Opinion is well nigh unanimous that these should not be radiated. Sloughing and necrosis of the tumors are almost bound to result from radiation.

6. *Ovarian tumors.*—Malignant ovarian tumors are prone to be, if anything, stimulated in their growth, and benign ovarian cysts may undergo malignant degeneration under radiotherapy.

7. *Carcinoma of the fundus.*—This form of cancer yields such uniformly excellent results after reasonably early operation, that no other form of therapy should be considered. Irregular bleeding is the

most prominent symptom of carcinoma of the fundus. No case of fibroids which has bleeding as a symptom should have treatment by radiation until a diagnostic curettage has been performed, the curettings examined, and carcinoma of the fundus ruled out. In a uterine cavity which is distorted by the presence of fibroid tumors the curette may miss the area involved in cancerous degeneration. Therefore at the Mayo Clinic hysterectomy is advised in those cases in which the history is suspicious of carcinoma of the fundus.

Martindale, an English enthusiast for radiation of fibroids, sums up as follows: "As long as one's diagnosis necessarily remains faulty, there is danger in using intensive x ray therapy for any but those cases in which we are fairly certain we are dealing with a straightforward uncomplicated case, e. g., a fibroid uterus well under the size of a six months' pregnancy, interstitial rather than subperitoneal, and in which the chief and only symptom is excessive menorrhagia. In such a case it seems to me the treatment *par excellence*. In all cases that are at all doubtful in diagnosis, I am certain that an exploratory laparotomy, followed by hysterectomy where necessary, is the only right treatment.

FREQUENCY OF COMPLICATIONS.

How often do complications which contraindicate radiation of fibroids occur?

Broun, in a study of 1,500 cases of myoma uteri operated in at the Woman's Hospital, New York, found that 355 cases (twenty-three and seven tenths per cent.) presented complications which contraindicated the use of x rays or radium. Almost one patient out of four who came for the relief of symptoms due to myomata had such complications. These included, for example, carcinoma of the ovary, papillomatous cyst of the ovary, abscess of the ovary, pyosalpinx, or similar conditions.

R. T. Frank, in a series of 419 unselected cases operated in the service of Brettauer at Mount Sinai Hospital, found that 140 (thirty-five per cent.) were complicated cases. Of these 140 complicated cases, at least seventy-four (eighteen and five tenths per cent.) presented conditions absolutely contraindicating radium. He stated, "Many of these conditions were not and could not be diagnosed before operation."

In a personal series of seventy-eight consecutive hysterectomies for fibroid, I encountered the single complication of double pyosalpinx seven times. These were old pyosalpinges associated with large fibroid tumors, and in no instance were they diagnosed before operation, though they were hospital cases and were examined by several members of the attending staff. Of course there were other complications in this series which I might enumerate, but the two large series of cases just quoted are sufficient to carry home the point.

The difficulty of diagnosing many of these complications is obvious. Large fibroid tumors dominate the clinical picture and the physical findings upon examination. Anyone familiar with bimanual examination will readily grasp the difficulty or impossibility of palpating small inflammatory annexal masses when the pelvis is filled with multiple fibroid tumors, or of differentiating, for example, a small

dermoid cyst of the ovary from an irregular mass of coexisting soft myomata. It may be exceedingly difficult or impossible to determine whether any of the fibroids are submucous in their development, or on the other hand whether any of the subperitoneal growths are pedunculated to such an extent that radiation would lead to necrosis and sloughing. It is sufficient merely to point out these difficulties, one need not emphasize them any further.

In view of all this, how can physicians diagnose large fibroid tumors and blithely send their patient to the radiotherapist? I myself feel a far graver sense of responsibility in advising radiation to any patient with fibroids, other than one in whom the tumors are small and pelvic conditions accurately diagnosed, than in advising operation.

INDICATIONS FOR RADIOTHERAPY.

Is radiotherapy, then, to be discarded in the treatment of fibroids? By no means, for there still remain a very considerable number of cases which constitute a legitimate field for its use. Indeed, it is only fair to state that radiation is today an indispensable part of our therapeutic armamentarium. It should be clearly borne in mind, however, that a diagnostic curettage is imperative preceding radiation whenever irregular bleeding is present.

Radiotherapy is the treatment of choice for all patients having organic disease sufficiently grave to render anesthesia and operation unduly hazardous. In these cases it is the treatment *par excellence* for stopping the bleeding. It should, of course, be used only where there are none of the pelvic complications which are in themselves contraindications. Radiation is also indicated in cases of very small uncomplicated fibroids where hemorrhage is the sole symptom, and the patient is approaching the menopause.

It is hardly feasible at present to set an arbitrary limit to the size of the tumors in which its use is to be recommended. Further trial and experience will be necessary to elucidate this point. However, it would not seem advisable to employ radiation for tumor masses larger than a three to four months' pregnancy in size, because of the difficulty of diagnosing complications.

Radiation is particularly advantageous in women approaching the menopause, because here the dose necessary to stop the bleeding need not be so large as to cause total atrophy of the ovary. The matter of the lower age limit at which to employ radiation is a knotty problem. Some investigators arbitrarily fix thirty-five years, others forty years, and so on. The age of beginning natural menopause varies within wide limits in different individuals. Certainly, raying ought never to be employed in younger women without definitely and explicitly explaining its effect upon the ovaries. It is my personal custom to tell every patient under forty years of age that the radium treatment of a fibroid is equivalent to castration.

Severe anemia is not of itself an indication for radiation. Here the treatment of choice is first transfusion and then operation. Some years ago I had a patient who after months of severe bleeding had a hemoglobin of twenty per cent. She had a

blood transfusion, followed in several days by hysterectomy, and made an uneventful recovery.

To sum up, while the class of cases in which radiation is the treatment to be preferred is limited, their actual number is by no means small.

OPERATIVE THERAPY.

What has surgery to offer us in the treatment of fibroids? In the first place, it takes care of the pelvic complications. Secondly, it is always conservative, at least of the ovary. Unless the ovaries are totally diseased, or the site of a neoplasm, they can be conserved.

In this connection it may be well to point out that it is not enough to leave the ovary *in situ*, its blood supply must be properly maintained. The ovary left without proper circulation atrophies. With adequate arterial supply and venous drainage it does not atrophy.

As to the uterus itself, operation may be radical or conservative, depending upon the location and relation of the growths. Myomectomy often conserves menstruation and sometimes makes future pregnancies possible. With improved technic myomectomy promises to be employed more and more in the future.

Hysterectomy may be total or supravaginal. Both myomectomy and hysterectomy may be performed by the abdominal or vaginal route, depending upon local conditions, and the technic at the disposal of the individual operator. In many instances vaginal myomectomy proves little more than a minor operation in its effect upon the patient.

As to the frequency in general of these various procedures, this is to a considerable extent a matter of choice with the individual operator. In order to illustrate to some extent their relative frequency, I have tabulated my own last one hundred operations for fibroids. Intrauterine polypi and small pedunculated or subperitoneal fibroids, removed incidental to other operations, are not included.

Abdominal supravaginal hysterectomy.....	59
Abdominal total hysterectomy.....	12
Vaginal hysterectomy	7
Abdominal myomectomy	14
Vaginal myomectomy	8
Total	100

There were eighty-five abdominal and fifteen vaginal operations; seventy-eight excisions of the uterus, and twenty-two excisions of the tumors only. In twenty-two per cent. of this series of cases it was possible to remove the neoplasm and leave the uterus intact. There is every reason to hope that the percentage of myomectomies will be steadily increased. There was one death in this series of cases, an abdominal supravaginal hysterectomy. A mortality of one per cent. for all the operations for fibroids, and of 1.26 per cent. for the hysterectomies (one out of seventy-eight hysterectomies).

Broun, in his series of 1,500 operations performed by a number of surgeons at the Woman's Hospital, reported a mortality of one and eight tenths per cent. In general the operative mortality varies between one and two per cent. These results are entirely comparable to those of the operation of interval appendectomy. Moreover, the operative re-

sults are burdened with such severe complications as necrosis and sloughing of the tumors, with more or less sepsis.

In the future, if cases with serious organic disease are palliated by treating with radiation, rather than attempting to cure by surgery, we may hope for even lower mortality statistics.

CONCLUSIONS.

1. Many fibroids require no treatment whatsoever.
2. Radiotherapy is a more radical method of treatment than operation because it destroys the ovary.
3. The contraindications to radiotherapy are youth of the patient, large tumors, pain as a symptom, inflammatory conditions of the annexa, submucous and subperitoneal pedunculated growths, ovarian tumors and carcinoma of the fundus.
4. Radiation should always be preceded by a diagnostic curettage.
5. Indications for radiation: As a palliative measure in patients with serious organic disease; small uncomplicated fibroids, where bleeding is the sole symptom, and the patient is approaching the menopause.
6. The indiscriminate use of radiotherapy in the

presence of unsuspected and undiagnosed complications will lead to a high mortality.

7. Surgery is the more conservative method of treatment, especially as regards the ovary.

8. Surgery takes care of the pelvic complications.

9. Myomectomy should be more frequently employed; it conserves the function of menstruation, and occasionally permits of future pregnancy.

10. Surgery has a mortality of from one per cent. to two per cent., including cases with severe complications—figures entirely comparable to those of the operation of internal appendectomy.

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