

SOME USES OF RADIUM IN DISEASES OF WOMEN*

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IN dealing with a substance such as radium and its application in medicine, we must remember that it is only a little over twenty years since its discovery by the Curies working in their laboratory in Paris. Because of its scarcity and expense, it has been inaccessible to the vast majority of patients and physicians, and our knowledge of its value and its uses has in consequence been much hindered. Having regard to this, I thought that it might not come amiss to take up a few minutes of the time of this section in the presentation of some points relative to its application in some of the diseases peculiar to women.

To the public, and perhaps to many of our own profession, radium is almost exclusively associated with the treatment of malignancy in its various forms. We cheerfully grant that if its value as a remedial agent were confined to this dread scourge, it has achieved a place in our armamentarium, comparable with any of the discoveries of recent years. But we are convinced, from a knowledge of medical literature and a limited personal acquaintance with

its uses in gynaecology, that it has gained a place in the treatment of those diseases which, while not so hopeless as malignancy, still are baffling in our attempts to secure results satisfactory alike to the patient and surgeon.

To digress for a moment, may we be permitted to say that whatever the opinion of our radiological friends may be, its application in gynaecology should be directed by one familiar with the pathology of the pelvic organs. It is not without its dangers, and so far as our present knowledge goes, it has distinct limitations.

For convenience of discussion, we have chosen to divide its application into those diseases that are non-malignant and those malignant. Of the non-malignant, we have:—(1) the menorrhagias; (2) the haemorrhages of the climacteric; (3) the fibro-myomata; (4) the pruritus vulvae and cervicitis.

Of the malignant, we have:—(1) uterine cancer; (2) cancer of the vulva; (3) cancer of the urethra.

So far as our present knowledge goes we believe the normal flow of blood from the uterus is regulated by the activity of the ovary and the increase in flow in menorrhagia is probably the result of interference with the

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proper functioning of that organ. When we come, then, to consider the treatment of this abnormality with radium, it is not merely the local condition in the uterus which we must consider, but more particularly the secondary effects in the ovarian tissue.

Menorrhagia in young women.—Having this in mind, let us consider first that type of menorrhagia found in young women during the second decade. Profuse menstruation, often prolonged, painful and sometimes showing a good deal of neuro-psyche disturbance; added to this there is a progressive anaemic state almost always present. In these patients the judicious use of moderate doses of radium has proved beneficial in shortening and regulating the period. Objection has been urged that you endanger the fertility of the ovary. Undoubtedly if massive doses are used, the Graaffian follicles will be destroyed and a permanent menopause established. Recent research in rabbits rather points to the fact that fairly full doses of radium have only a slight effect upon the fecundity of the ovary in young life, and we think experience justifies this statement. W. P. Graves says, "In our earlier cases, we were greatly apprehensive of establishing a complete menopause in these young girls, but our experience seems to prove that the younger the ovary the more difficult it is to stop the menses by radiation." Hence it would seem that with reasonable care, this type of case can be treated with confidence.

A second variety of haemorrhage which we class with the menorrhagias is that seen in comparatively young women following a full term pregnancy or miscarriage. There is pronounced haemorrhage and sometimes metrorrhagia. There is some thickening of the endometrium; the uterus is sub-involuted; the ovary is oftentimes enlarged and tender with the occasional presence of small cysts. Treatment here should be on ordinary surgical grounds. We are here dealing no doubt, with an infection of a low virulency, and the ordinary surgical and hygienic treatment should be followed. If no specific trouble is present, good results are usually obtained. Some of these cases, however, in spite of all that can be done, persist in bleeding profusely at the period. In these cases radium can often be used to good advantage in controlling and regulating the menstrual

flow. We have in mind of course, always the contra-indication for radium in recent or old infections of the adnexa and would not use it where evidence existed of gross inflammatory reaction.

Haemorrhage at climacteric.—In our second division we have placed that form of uterine haemorrhage that is found in women about the time of the climacteric. Some of the most alarming haemorrhages we have ever seen, occur at this time. We remember a patient brought into the hospital, who had been having uterine haemorrhages for weeks, and in whom the haemoglobin was only 30, and her red blood count, 1,100,000. Transfusion had been resorted to without much permanent success. The uterus was enlarged and hard, with regular and smooth outline. Radium was applied together with general treatment. This case had no more haemorrhages and gradually improved, and is to-day able to attend to her usual household duties. This represents, in our experience, a common type of diseased uterus, *fibrosis uteri*. Marked increase in the fibrous element, and interference with the normal blood control of uterine body, probably play their part in producing the menorrhagia. Examination of the endometrium shows marked hyperplasia. In these patients, the period is much prolonged, with marked increase in the quantity of blood lost, and uncertainty as to onset; hence they are always uneasy about themselves. They suffer from increasing evidences of anaemia, associated with the neuro-psyche symptoms often present at this time. Notwithstanding all we may do in the way of tonics, rest and hygiene, these patients frequently drift into a state of semi-invalidism. Thorough curettement with judicious application of radium will, in the large majority of cases, cure your patient. The haemorrhage either ceases altogether or is brought back to normal type. In our experience, there is no class of case that responds to radium with better success than this. With your pathological report you can assure your patient in the majority of cases that no malignancy is present, but if, on the other hand, cancer be found you are in a position to deal early and sometimes effectively with the disease.

Fibro-myomata.—The third variety is the fibro-myomata. Closely associated with the

above class comes the fibro-myomata. In many of these enlarged, hardened uteri, we have intramural fibroids. A good deal of the differences of opinion with respect to the use of radium in gynaecology, circles about its use in this particular class of case. There are undoubtedly many fibro-myomata that should not be treated with radium. A study of the large number of cases reported by J. G. Clarke, Miller, Crossen, Polak, and others, shows well the range of treatment. Small fibro-myomata in women over forty, with no adnexal involvement, respond satisfactorily to treatment where haemorrhage is the dominant symptom. Here the menstrual function is not the important factor it is in younger women, and consequently freedom can be exercised in the use of radium.

Fibroids giving trouble during the 3rd and 4th decade come in a different class. It is here highly undesirable to disturb the menstrual function, hence surgical interference is the better treatment, if treatment is necessary. Myomectomy is a satisfactory operation and does not endanger the possibilities of pregnancy in the same way that a dose of radium sufficient to destroy the fibroid would in all probability do.

Small fibroids not giving trouble should, in our opinion, be left alone, but kept under observation. Large pedunculated or soft fibroids should be treated surgically. The rapidly growing tumour should only be considered surgically, in view of the fact that in about 1% or 2% of fibroids, cancer is found. Further, the possibility of sarcomatous changes in the fibroid must be remembered, particularly those of the submucous variety; as high as 9% of this type have been reported sarcomatous. Careful curettage should be a preliminary operation to the application of radium in all cases where it is to be used intrauterinely. The pathological report should determine any subsequent treatment. If cancer is present surgery and later, radium, or x-ray should be resorted to. In the large fibroids where surgery is the elective method of treatment but where, from repeated haemorrhages, hysterectomy is contra-indicated, radium can often be used with very satisfactory results. The bleeding can be controlled or stopped and the patient given

an opportunity to get into safe physical condition for operation.

Pruritus Vulvae is another condition that is oftentimes baffling to the physician. Like many other diseases, the causation of which is unknown, many remedies have been suggested, some of which are more or less successful. The application of radium has been advocated and practised to a certain extent, and we are glad to know, both from literature and personal experience, that some success has been attained. As many of these cases are in patients nearing the climacteric, one can use radium or x-ray with comparative freedom, and in those cases where no definite cause for the disease can be found, we feel that the thorough application of radium should be followed.

Leucorrhoeal discharge from an endocervical infection is one of the most annoying conditions which a patient has to bear. Various forms of operative treatment have been devised with varying results. It is gratifying, therefore, to note that favourable results are being reported from the use of radium.

Curtis of Chicago, together with other workers, reports a considerable amount of work done and with sufficient success to warrant the investigation of every case of persistent leucorrhoea with a view to radium treatment. In our experience, a large number of these cases occur in comparatively young women so that non-interference with the menstrual function must be kept in mind. A valuable factor brought out is this, that cases heretofore sterile have become pregnant after the elimination of the infection by radium. It is quite true the same results occur after some plastic operation upon the cervix, but if we can attain equally good results without operation, the number of patients who will submit to treatment will be increased.

Uterine Cancer.—Perhaps nowhere else than in cancer of the uterus has radium been used with more striking results. Much diversity of opinion is found with respect to its use in this most distressing disease, but out of it all, we are gradually reaching some well accepted rules in its use. Among those who have given attention to radium therapy in carcinoma of the uterus it is recognized that only in the cervical form of the disease should it be em-

ployed. In the fundal type, the results from total hysterectomy have been so good that, only in those cases in which, for other reasons operation is contra-indicated, should radium be used. In cancer of the cervix, we are dealing with a much more virulent type of the disease, and unfortunately many of the cases when seen first are too far advanced for any operation. Cases of this kind are unquestionably best treated with radium and x-ray. Oftentimes one sees what would be considered a hopelessly advanced case clear up and after a few weeks scarcely any trace of the growth can be found. Unfortunately this is not the rule, but practically all these cases can be benefited by stopping haemorrhage, destroying necrosed tissue and thus eliminating the very offensive discharges which are present. Pain is relieved and the general morale of the patient, which is so important a factor, very much improved. In a series of 412 inoperable cases published by Dr. J. G. Clarke, he reports 20% living after four years, and 19% after the five-year period. In this type of the disease these results compare very favourably with surgery, with this advantage that you have no primary mortality. The use of radium here is practically free from danger, and your patient is saved the trying days of convalescence from a severe, mutilating operation, the shock and devitalizing effect of which goes a long way in producing a condition favourable to early recurrence.

There is a borderline case where the surgeon is in doubt. Here the disease has passed in some direction beyond the cervix, adjacent tissues are involved, some degree of fixation of uterus is present and the exact pathology cannot be determined until the abdomen is opened. Here we believe the results of radium are quite comparable with surgery and there is a growing belief in the mind of many that this class of case should also be turned over to radium therapy.

In recurrent cases and in cancer of a retained stump, radium would seem to be the treatment of choice, or radium plus x-ray.

In the very early cases where the disease is localized and no attachments formed with neighbouring structures, surgery should be the method of choice, because here you have an opportunity of making a clean dissection of the

pelvic organs and glands. It would seem logical to follow up these cases with x-ray or radium, preferably x-ray, as then the wider lymphatic field can be reached and isolated cancer cells destroyed. There is another factor which must not be lost sight of in dealing with all forms of menstrual disturbance about the menopause, and that is, the patient will come earlier and submit to treatment more readily when she sees before her a plan of salvation that does not involve a serious operation with its attendant high mortality. We feel that this is a very important point and cannot be too strongly stressed, particularly in view of the very high cancer mortality in our land and the propaganda waged against it. Further we must be honest with these unfortunates. While holding out a ray of hope we must intelligently point out to them that radium is not a panacea for cancer but a valuable addition to our present armamentarium, and with it, we can with increased confidence attack this fatally destructive foe of our race

In *cancer of the vulva* not much success has been attained with radium. If the lesion is seen early when it is confined to the labiae, removal of the parts together with dissection of the inguinal glands would appear to be the safest course. The subsequent application of radium plus x-ray would seem logical in that any cancer cells lying in the lymphatics might be destroyed. In the advanced cases radium should be tried, together with x-ray, rather than attempting any surgical intervention.

Cancer of the urethra arising from urethral caruncle is a rare condition. Only some 69 cases have been reported; consequently, little information is available with respect to the use of radium. The author had experience with only one case and here wide dissection was made of the labiae and the anterior portion of the urethra and vaginal wall. Radium was then applied. As to result, we can offer no opinion at the present time. We would be inclined, however, to believe that these cases if seen early enough, should be submitted to radical operation with dissection of inguinal glands, following the same procedure as in cancer of labiae. Afterwards the use of radium and x-ray would, no doubt, be justified. In passing, we might emphasize the fact that urethral caruncle, while usually a harmless

growth, has in some cases proved potentially a very virulent type of cancer.

Leukoplakia of the labiae and introitus offers a field for the use of radium. As this condition is oftentimes a precursor of cancer, we believe that radium should be given a thorough trial. It is interesting to note that very good results are being reported from this treatment.

In conclusion, let us say that while much of the work is yet in the stage of investigation, a great deal has been done towards the attainment of a permanently accepted therapy and time enough has elapsed in the work of many, for them to have reached definite conclusions with respect to the end results.

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