

RADIATION TREATMENT IN MALIGNANT DISEASE OF THE OVARIES

By

K. P. MODY, B.A., L.M. & S., F.C.P.S. (Bombay), D.M.R. (Eng.), F.A.C.R.

Director, Department of Radiology, Tata Memorial Hospital, Bombay.

Radiation treatment in malignant disease of the ovaries plays a secondary role, the treatment of choice is surgical. In cancer of the breast also surgery is accepted as the best treatment, but in this location radiation holds an important place. Pre-operative and post-operative treatment by radiation are recognised procedures of great value in breast carcinoma. Moreover in many cases the eradication of metastatic deposits in the axilla and mediastinum is entirely left to the radio-therapist, after simple removal of the breast. In some cases radiation treatment alone has been known to produce satisfactory results, whereas in malignant disease of the ovaries radiation alone has not been known to produce satisfactory results.

Very advanced cases are often passed on to the therapist, to use a popular expression, he is made to hold the baby. The surgeon operates, finds the case inoperable and passes it on to the radio-therapist to become his responsibility and liability. If the disease is controlled, the surgeon gets the credit but if she gets worse the therapist gets the blame. There is a sense of frustration and futility as the large majority of cases are sent

in an advanced stage. It must be emphasised that only those cases be subjected to radiation therapy where there is reasonable chance of alleviation of symptoms. It must be borne in mind that there are serious limitations to radiation therapy, patients beyond a certain stage should not be subjected to a course of treatment which could do them no good but a lot of harm. At the Tata Memorial Hospital, we exercise a great deal of selection, nearly 40% of cases were rejected. Unfortunately, in the early stage, symptoms are absent, the patient does not come under observation unless she finds her abdomen getting distended and painful, when the disease has already advanced too far. The surgeon attempts to operate but often has to leave behind large masses of adherent tumour tissue, and finds the abdomen studded with metastatic deposits and peritoneal implants. What can one expect in such distressing circumstances, radiating these cases is like radiating a stone wall?

The crux of the problem is to get the cases in the early stage. Mass examination of women over the age of 40 would be the ideal solution and has been attempted in Western countries, but would obviously be impossible in ours. In our

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country the rational way to early diagnosis would be to attempt to investigate from this angle all women attending the out-patient departments of our hospitals for medical, surgical or gynaecological complaints, so that early changes in the ovaries, cystic degenerative or inflammatory, can be detected and treated. Opportunities for investigating the condition of the ovaries are available during pelvic operations, and if the ovaries are found diseased they should be removed. In a series of 800 cases operated for fibroids, 5% presented evidence of ovarian carcinoma. Meigs, in a recent study of 260 patients with malignant ovarian conditions, states that 26% of these had undergone previous operations that should have permitted inspection of the ovaries and their removal if found diseased. It has been statistically computed that the average interval from the beginning of the disease to the time the patient comes under observation is 9 months, in our country it is probably more.

Radiation is a very potent procedure, capable of doing great damage to diseased as well as to the healthy tissues. It acts on individual cells and damages their functional activities and anatomical configuration. It must be emphasised that the cell is damaged however small the dose; if the dose is minimal the cell will recover sooner or later. In the large majority of cases radiation treatment is administered to produce such alteration in the cellular structure as will put the cancer cells out of action for as long a period as possible so as to bring about growth restraint for a time during which the pa-

tient can remain in comparative comfort. This is all we can achieve in advanced cases, and it is well worth it. It gives the patient hope and confidence and permits her to live in reasonable comfort. The tumour deposits regress, though only partially in many cases, and so also the peritoneal implants resulting in diminishing ascites, relieving distension and pain. In early cases, on the other hand, our aim and object is to knock out the malignant cells completely so that they may not recover. Such a dose is designated "the cancericidal dose", it is a heavy dose entailing severe strain on the patient and producing violent reactions. This introduces us to an important conception, namely, the radio-sensitivity of cells. Some cells are highly vulnerable to small doses of X-rays, such as the lymphocytes and lympho-sarcomas, others are moderately sensitive, such as squamous and epidermoid carcinoma, and lastly there is a large group of tumours which are radio-resistant. Unfortunately as a class ovarian carcinomata are radio-resistant and surgical excision alone can eradicate them. Since this is so, a question may be asked, why is radiation therapy recommended as a post-operative procedure? The answer is that even in radio-resistant tumours there are a certain number of sensitive cells which can be destroyed by radiation. As regards the predominantly resistant cells which constitute the bulk of the tumour, the growth restraining effect of radiation comes into play so that partial regression and prolonged intermission take place and the growth can be kept under control for a

period of time. It must be remembered that though the large majority of ovarian tumours are resistant, in some cases they prove to be sensitive. As it is difficult to ascertain before treatment the type of response to radiation, the benefit of the doubt should be given to the patient and radiation treatment must always follow surgical procedures for all it is worth.

The large majority of cases are adeno-carcinoma, the cystic and solid types of malignant teratomas. Two distinct classes of tumours are the granulosa cell and dysgerminomas. They are rare entities and deserve special mention. These are functioning ovarian tumours with classical symptoms of their own. The granulosa cell tumour is in the large majority of cases a benign lesion, only 30% are apt to turn malignant. Surgery is usually adequate and as they are known to recur only after a number of years, they are best kept under observation. Radiation treatment is not necessary unless they recur or turn malignant.

The dysgerminomas of the ovaries, on the other hand, are highly malignant tumours and very radio-sensitive. They are the counter-part of the seminomas of the testes in men. They metastasise early and rapidly to the lymphatics of the abdomen and chest. These cases should be operated first, followed by radiation treatment to the entire abdomen, pelvis and thorax. The prognosis is good, over half the number of cases can be saved. As radiation treatment produces complete cessation of menstruation and as the patients are very young, some workers

prefer not to radiate but to do so at the first signs of recurrence or metastasis. This is not advisable at all, it is courting disaster; once recurrence or metastasis takes place, the chances of controlling the disease are much minimised. It is safer to follow operation by a full course of radiation even at the risk of producing unpleasant symptoms in some patients.

In ovarian tumours, the surgeon when he opens the abdomen may meet with several possibilities. He may operate on the assumption of a benign cyst which turns out on histological examination to be malignant. He may, in the early cases, be able to remove the entire tumour, very often he may be forced to leave behind large masses of tumour, metastatic deposits and peritoneal implants. He may also find involvement of the neighbouring organs, the bladder, the uterus, the vagina. Even in these advanced cases it is a distinct advantage to remove as much tumourous tissue as possible prior to radiation. In cases where the neoplasm could be completely excised, a full and intensive course of external radiation should be given; on the other hand in the advanced cases only palliative radiation should be aimed at. An important decision is whether to radiate the pelvis alone or the entire abdomen. Cases should be individualised. Since peritoneal implants are so common it is advisable, in the large majority of cases, to treat the entire abdomen from the epigastrium to the pubis, back and front. Technics vary, we usually divide the abdomen into 4 fields anterior and 4 posterior. Other workers give what are known as

abdominal baths, 2 big fields anterior and 1 large one posterior. Whatever method is adopted, the dose delivered to the tumourous tissues should be adequate, in the region of 3000 r at least.

The prognosis depends to a certain extent on the histological findings, but more so on the extent and anatomical distribution of the disease and the involvement or otherwise of the surrounding organs, the intestines, the bladder, the vagina, the peritoneum, and the lymphatics. In cases where we aim at a cure, doses should be adequate. The dose must be delivered in one course and one only and the treatment should be started as early after operation as possible.

Reactions are apt to be severe. The skin will be affected but the more important ones are the systemic upsets. The WBCs will fall and if they drop to 3000, treatment would have to be suspended. Nausea and vomiting are common symptoms but can be controlled by appropriate measures. Enteritis and diarrhoea can be troublesome. A proper technique, a proper regulation of the daily dose, higher filtration and higher KV can achieve a great deal in carrying the patient through the critical period.

At the Tata Memorial Hospital, 122 cases were seen, out of these 47 cases were rejected outright as being in an advanced and hopeless condition. 22 patients were operated outside and radiated at the hospital. Seven cases received only partial treatment, and they all died within a short period. Fifteen cases received full treatment, out of these:

2 patients were well for 4 years and 1 year,
1 patient was well for 5 years, now has recurrence,
2 patients were well for 3 years, later died,
2 patients were well for 2 years, later died,
8 patients died within 2 years.

Eighteen patients were operated and radiated at the hospital. Out of these:—

6 patients are well and free from disease for 9, 4, 3, 2 years and 1 year respectively.

8 patients are dead:

1 after 4 years,
2 after 2 years,
3 after 1 year,
2 under 1 year.

4 patients are not followed up.

Eleven patients were explored and found inoperable, these were treated by deep X-rays. One is well for 3 years and the other 10 are dead. On the other hand, 13 patients were explored, found inoperable and were not treated by radiation. All these, died within a short time.

Seven patients were so advanced that even an exploratory operation was not done. X-ray therapy was attempted, the only survival was one case for 6 months, the others died shortly after.

A critical analysis of our material presents a gloomy picture, the reason being that our cases come in an advanced stage of the disease. Foreign figures appear to be very encouraging, but a close study of the material presented shows a large preponderance of early cases. Very often their classification of ovarian tumours includes several cases, which

are border-line and which would ordinarily be classified as benign.

There were 7 cases of dysgerminoma of the ovaries and 2 cases of granulosa cell tumour, a small number not suitable for statistical evaluation, particularly as some of them were not followed up.

Summary.

1. Malignant diseases of the ovaries are in the large majority of cases, radio-resistant tumours.
2. Radical surgery is the basic treatment.
3. Post-operative X-ray treatment should be given soon after operation. It improves the results.
4. Prognosis in early cases is good.

Over 60% of 5 year survivals have been recorded.

5. As there are hardly any symptoms in the early stages, patients usually come with advanced disease.
6. Routine examination of elderly women attending the out-patient departments of hospital is advocated, to detect early changes.
7. In inoperable cases X-ray therapy should be given for its palliative effects. Some of these cases keep well and comfortable for a long time.
8. In advanced cases, it is advantageous to remove as much tumour tissue as possible, prior to radiation.