TREATMENT OF BREAST CANCER BY TUMOUR EXTIRPATION AND ROENTGEN THERAPY INSTEAD OF RADICAL OPERATION*

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ALTHOUGH radical operation and post-operative roentgen treatment is the recognized treatment of breast cancer and involves little risk, yet we must not forget the patient who may still live for many years after the operation. The psychological effect of a radical mastectomy is very great. Further, impairment of the strength of the hand and swelling of the arm are frequent sequelæ. Against this background it is easily understood that some patients refuse radical operation.

By exploring the possibilities of roentgen therapy in the treatment of breast cancer, and carefully investigating the course of the disease and the results of treatment in patients who developed metastases and died, I arrived at the following conclusions (1945): Those patients who had undergone a radical operation followed by roentgen treatment, and who later developed metastases, almost invariably died of distant metastases without showing any local metastases in the skin or glands. If there were local metastases, distant metastases were simultaneously or almost simultaneously to be found. My investigation showed that the distant metastases had not spread post-operatively by way of local lymph-nodes or the operative field, but had obviously already developed before or during the operation. It also appeared that local metastases could be controlled, or cured, with roentgen therapy.

In view of the results of this investigation radical operation seemed unnecessary in cases in which the primary tumour could be easily extirpated from the breast and in which there were no axillary metastases, since a radical operation does not in any case reach distant metastases. This opinion is supported by those cases which were treated with extirpation of the tumour and roentgen therapy only. I thus arrived at the conclusion that extirpation of the tumour, sparing the breast, and roentgen treatment is a satisfactory method in those cases of breast cancer in which lymph-nodes cannot be palpated in the axilla or the supraclavicular fossa and in which the primary tumour is not larger than a hen's egg. This method of treatment is thus indicated where clinical examination reveals that the cancer has not spread beyond the mammary gland. It should be pointed out, however, that even in these cases microscopical examination may often reveal metastases in the axillary glands, according to Harrington (1935) in as many as 29 per cent of cases. In this conservative method of treatment such invisible metastases are controlled with roentgen therapy.

The method of treatment that I use has developed into the following: Extirpation of the tumour and histopathological examination are first performed. Post-operative roentgen treatment is given according to the following schedule: 6 × 350 r, measured at the skin, to the supraclavicular region, the same doses from both sides to the mammary gland and to the axilla both from the front and the back (180 kv., 0·5 mm. Cu filter, distance 40 cm.). In this way the breast of the patient is saved and the axilla is not emptied (*Figs.* 15, 16).

The removal of the tumour must, of course, be performed by careful dissection, leaving only sound tissue. This method should not be used in cases in which the tumour is clinically ill-defined. The surgeons K. Ignatius and A. Järvinen, who have often acted as my assistants, have frequently performed resection of the mammary gland, but even then the greater part of the breast is left, and since the axilla is not emptied there is no swelling of the upper extremity. Post-operative treatment may be commenced immediately following the extirpation, in which case the breast will be left to the last.

* Presented at the Seventh International Congress of Radiology, Copenhagen, Denmark, July 19–24, 1953.

I present here the series which I have treated by the method described. 127 cases have been followed up for more than 5 years. The average age of the patients was 50·8 years. The youngest patient was 24 years old and the oldest 82. The age distribution of the patients appears from the following table.

Table I.—Age Distribution

	No. of Cases
20–30 years	4
30–40 ,,	18
40–50 ,,	46
50–60 ,,	26
60–70 ,,	20
70–80 ,,	12
80–90 ,,	1
Total	127

It is seen that age did not influence the choice of method of treatment. In a report on breast cancer which I have published earlier, the average age of the patients was, however, almost 3 years higher. The results of treatment were as follows :—

Table II.—Five-year Survivals

	No. of Cases
Lived 5 years or longer	107 (84 per cent)
Died from metastases	14 (11 per cent)
Died from other disease	6 (5 per cent)
Total	127

There was thus a total of 20 deaths, in which length of life after irradiation is seen from the following table.

Table III.—Deaths

Length of Life	Less than 2 years	2–3	3–4	4–5	*Total*
Died from metastases	7	1	3	3	14
Died from other disease	2	2	—	2	6
	9	3	3	5	20

It will be of interest to follow up the treated cases for even more than 5 years. Some patients may die later of metastases, as will appear from the following table.

Table IV.—Five- to Ten-year Survivals

Years of Survival	5–6	6–7	7–8	8–9	9–10	Over 10	*No. of Cases*
Living	31	14	28	5	7	12	97
Died from metastases	2	1	—	—	—	—	3
Died from other disease	1	—	3	1	1	1	7
	34	15	31	6	8	13	107

It should further be mentioned that of the patients who were followed up for more than 10 years, one has had metastases but is still living. There are 18 patients who have been under observation for more than 10 years and, as appears from the above table, 13 of them lived more than 10 years (72 per cent). In my opinion the above table clearly shows that breast cancer treated with

extirpation of the tumour and roentgen therapy alone shows no greater tendency to recur than in cases treated with radical operation.

Histopathologically these cases of cancer were of very varying types, but the histological type does not seem to be of any noteworthy importance with regard to the results of treatment.

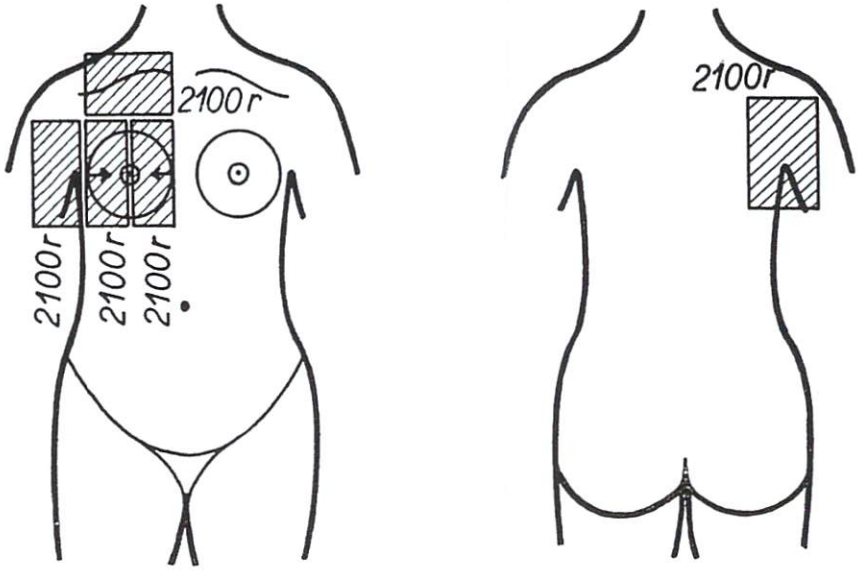

Fig. 15.—Field arrangement for X-ray therapy.

As appears from my tables, 14 patients died of metastases during the 5-year period of observation, and in addition to this some patients had recurrences which were treated either surgically or with roentgen irradiation. There is reason to look into these cases more thoroughly. Radical operation was later performed on 4 patients. Of these 1 died after having lived for almost 5 years, the remaining 3 are still living and are symptom-free. This indicates that radical operation can be successfully performed in cases of recurrence in the breast.

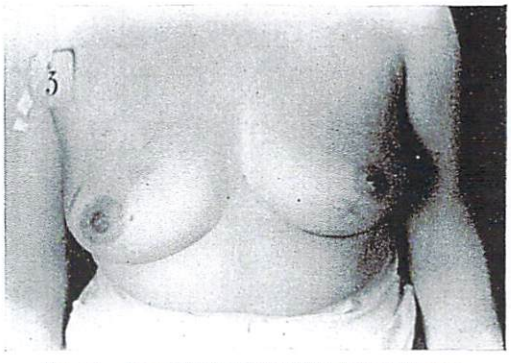

Fig. 16.—Appearance of breasts following treatment.

Owing to later axillary metastases the axilla was emptied in 7 cases. Three of these died of distant metastases. These 3 deaths might possibly be considered to be due to the method used, although it is doubtful whether in these cases the cancer spread to the distant sites by way of the axillary metastases, since these were removed at a fairly early stage. However, local and axillary metastases show that where this conservative method of treatment is used, the patient must be kept under close observation even after treatment.

There are cases in my more recent series in which a secondary breast tumour has again only been extirpated. Radical operation should, however, be the rule in cases of local recurrence. In axillary

recurrence there is reason to evacuate the axilla, but if the breast is symptom-free it is not necessary to remove it.

Although this treatment of breast cancer can be applied to women of all ages, there are, however, stronger indications on the one hand in cases of young women who still have the greater part of their lives before them and on the other hand in very old and frail women for whom a radical operation would be an unnecessarily exhaustive measure.

How large, then, is the group of breast cancer cases for whom the method of treatment here described can well be recommended? According to my estimate one third of all cases of breast cancer arriving for treatment can be considered suitable for this treatment. As a result of the educational work in connexion with the campaign against cancer, however, there has been a comparatively rapid increase in the number of breast cancer patients who arrive for treatment at an early stage. On the other hand, the present-day principle of treatment, immediate removal of every clearly palpable tumour in the breast, is apt to increase considerably the relative number of breast-cancer cases diagnosed at an early stage. I do not believe that it will be long before half the breast-cancer patients present themselves for treatment early enough to be treated in the conservative way indicated above.

It is natural that 127 cases followed up for over 5 years is still too limited a number to allow of a final evaluation of this method of treatment. I may be justified in asserting, however, that the method of treatment in which the breast is saved has passed its experimental stage and can now well be recommended for more general use. One absolute condition is, however, that proper and careful roentgen treatment should be given. It is equally important that the patient should be examined at regular intervals after the treatment and that a recurrence should be duly dealt with. If this programme is not followed the method of treatment that I have suggested cannot be recommended for wider use.

SUMMARY

Although radical operation and post-operative roentgen therapy is the recognized treatment of the breast cancer, yet it involves the patient in psychological and functional sequelæ. Against this background, and based on his earlier investigations, the author presents a more conservative method of treatment: extirpation of the tumour, sparing the breast, and roentgen treatment. This method is indicated where clinical examination reveals that cancer has not spread beyond the mammary gland. Of 127 patients, 107 (84 per cent) lived 5 years or longer, and of 18 patients, 13 (72 per cent) lived more than 10 years.

REFERENCES

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