

# TEN YEAR CURES OF MALIGNANT DISEASE BY ROENTGEN THERAPY

## *Report of Three Cases*

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For less than forty years, roentgen therapy has been employed for the treatment of malignant diseases. The methods of administering the treatment have changed rapidly as knowledge of the biological and physical aspects of radiation has increased and mechanical improvements have been made. Frequently, it is difficult to evaluate the benefits of roentgen therapy because the patients to whom it is administered often have extensive disease and are hopelessly ill from the standpoint of curability. The treatment is given for the palliation of pain or to extend the economic usefulness of the patients, especially after other therapeutic procedures have failed or were contraindicated. Actual cures of malignant diseases by roentgen therapy in the past have not been common; however, they have been reported more and more frequently during the past few years.

The following cases serve to illustrate what has been accomplished by the use of the methods employed more than ten years ago.

*Case 1:* A man, 40 years of age, was seen in June, 1923, complaining of gastric disturbances. A mass was palpable in the epigastrium, and this caused a deformity by pressure upon the stomach as shown by roentgen examination.

A clinical diagnosis of extragastric tumor was made and laparotomy was performed by Dr. William E. Lower. A very large, soft, purplish, extremely vascular, retroperitoneal tumor was found to occupy the epigastric portion of the peritoneal cavity. The growth extended laterally downward to the level of the third lumbar vertebra and was in contact with the right kidney but did not involve it. The stomach and hepatic colon were adherent but did not seem to be invaded. It was impossible to remove this mass which was considered to be a highly malignant neoplasm, probably a retroperitoneal sarcoma.

Biopsy was performed and, on microscopic examination, the specimen was called a round-cell sarcoma. The pathologist in reviewing this tissue recently has called it alveolar carcinoma.

Within a period of five days, after the operation and during convalescence, roentgen therapy was administered. This was during July, 1923. The factors employed were 200 Kv. filter of 0.75 mm. copper plus aluminum, at 50 cm. distance. Although dosage was not measured in roentgens at that time, it is estimated that the area in which the epigastric tumor was located received approximately 1000 roentgens through the anterior and posterior fields.

The patient remained well and had no complaints but the epigastric tumor was still palpable four months after treatment. A second course of roentgen therapy similar to the first was given and, following this, the tumor was no longer palpable.

Six months later, although the patient was well in other respects, he complained of pain in the lumbar region. Roentgen examinations of the spine and chest showed no evidence of metastases but some pressure deformity in the

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stomach still existed at the level of the first and second lumbar vertebrae. A third course of roentgen therapy was administered at this time. During the period of treatment which lasted ten months, the total roentgen dosage to the tumor area was approximately 3000 roentgens.

Three months after the third course of treatment, no deformity in the stomach was demonstrable by roentgen examination, nor has there been any since that time. The patient has been well, as far as evidence of malignancy is concerned, for almost fifteen years and no doubt roentgen therapy cured the retroperitoneal alveolar carcinoma.

*Case 2:* A man, 67 years of age, was seen in March, 1923, complaining of goiter. He said that he had had an enlargement of the neck since boyhood but that it had not changed in character until about ten years previously. Since that time, there had been a gradual increase in the size of the goiter and during the preceding year it had grown much more rapidly. He had a sensation of pressure in his throat, was nervous and disturbed by palpitation, and had lost about 30 pounds in weight. The thyroid gland was very hard and contained several irregular, hard tumors, ranging in size from that of a nut to an orange. The right side was especially involved so that the trachea was pushed to the left. The tumor had apparently invaded the surrounding muscles and in the supraclavicular areas there were palpable nodes, all of which were firmly fixed. There was no interference with the vocal cords.

Roentgen examinations of the chest and skeletal system showed no evidence of metastases. Dr. George Crile removed the major portion of the right and median lobes together with a part of the left lobe of the thyroid in order to free the tracheal obstruction to some extent. Microscopical examination of the removed tissue was made by Dr. Allen Graham who named it malignant adenoma.

Immediately after convalescence, roentgen therapy was administered. This was in April, 1923. The factors used were 200 Kv. filter of 0.5 mm. copper plus aluminum, at 50 cm. distance. The dosage is estimated at approximately 800 roentgens on the skin to each side of the neck and the mediastinum.

Three months after the treatment the patient was feeling much better and, although the mass on the left side of the neck had been reduced in size, that on the right side seemed to be increasing and a new tumor had appeared just above the clavicle. Roentgen therapy was again administered, and was repeated one year later because, although the tumors were very much smaller, they were extremely hard and fixed, and were thought to be potentially malignant.

During the ensuing years, the tumor masses in the neck remained stony hard but quiescent. The patient was entirely free from symptoms referable to the thyroid malignancy. As he grew older a chronic myocarditis with coronary sclerosis developed and he died of this condition in September, 1933, at the age of 77 years.

This patient lived for more than ten years and no doubt was cured by roentgen therapy of an advanced, inoperable, malignant adenoma of the thyroid.

*Case 3:* The patient, a woman 26 years of age, was seen in March, 1924, complaining of a shifting pain in the lower part of the abdomen and in the suprapubic region. Examination revealed a large mass in the pelvis. This was thought to be a pedunculated fibroid of the uterus although menstruation was normal. At laparotomy, which Dr. George Crile performed, a large, cellular tumor of the left ovary was found. The mass occupied the cul-de-sac and this was removed.

On microscopic examination, the tissue proved to be a medullary carcinoma of the ovary.

Consideration was given to the advisability of using roentgen therapy but this was thought to be unwise because it was possible that all the malignant tissue had been removed and, in that event, it would be undesirable to bring about menstrual disturbances in a woman less than 30 years of age.

The patient remained well for almost two years and then she returned, complaining of severe pain in the bladder area, pressure on the rectum which caused constipation, and the loss of considerable weight. Menstruation had been normal. Examination at that time revealed a very large mass in the pelvis. It encroached upon the rectum, bladder, and uterus, and apparently invaded these organs. The tumor was sufficiently large that it could be palpated through the abdominal wall. A diagnosis of recurrent carcinoma of the ovary was made and Dr. William E. Lower performed a laparotomy because of the obstruction of the rectum. At operation, the uterus was found to be very large, hard, and smooth. It was removed in order to obtain a satisfactory exposure of the area about the rectum which was found to be surrounded and invaded by a neoplastic growth so extensive that colostomy was necessary.

On microscopic examination, the uterus proved to be leiomyomatous and, of course, the rectal obstruction was caused by extensive recurrence of the ovarian carcinoma.

Roentgen therapy to the pelvis was given during convalescence for a period of ten days during September, 1926. The factors employed were 200 Kv. filter of 0.75 mm. copper plus aluminum, at 50 cm. distance. Although the dosage was not measured, it can be estimated that the pelvic cavity received approximately 1000 roentgens through one sacral and three abdominal fields. A similar course was given about two months later.

The patient continued to improve, presenting no evidence of recurrence of the malignant disease and, except for menopausal disturbances, caused by the treatment, remained well during the next year. At that time she began to object to her colostomy and, therefore, this was closed since she had no gastrointestinal disturbances and there was no evidence of rectal obstruction. At this operation there was no evidence of the neoplastic disease.

The patient has remained well for more than ten years and no doubt roentgen therapy cured an extensive postoperative recurrence of medullary carcinoma of the ovary.