

## A NEW AND SUCCESSFUL TREATMENT AND DIAGNOSIS OF CANCER

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Statistics show that there are over 200,000 cases of cancer in this country alone. The mortality is one out of eight for females, and one out of twelve for males, in spite of the great advances in diagnosis, surgery, and in the use of X-ray and Radium. It is hardly to be wondered at that the successful treatment of this disease should be sought in some other field of endeavor, as chemistry, for instance. I am glad to be able to announce that such a search has not been barren, and that indeed a number of inoperable cancer cases have already been clinically cured through a bio-chemical treatment with which a fair portion of the Detroit Profession is now familiar.

It is the purpose of this paper to explain briefly the history and principle of this treatment in order to engage interest and co-operation in this very necessary work.

In 1912 and 1913 (I), I reported the occurrence of the toxic quantities of guanidine, methyl-guanidine and other alkylated guanidines in the urines of parathyroidectomized dogs, and concluded that these substances were responsible for the symptoms and death of such animals. In 1917, (II), this work was amply confirmed at the University of Glasgow. In the meantime, I was able to isolate from parathyroidectomized dogs' urines the precursor of the guanidines, namely, methyl-cyanamide. (III) This substance which is formed by other body cells than those of the parathyroid glands after parathyroidectomy quite quickly combines the amino groups liberated in the metabolism of amino-acids and thus becomes a guanidine.

I was never able to isolate guanidine from any normal tissue or unputrified protein. So it was presumable that whatever guanidine was formed in the body had its origin in a cyanamide. Now by preparing the protein of the various living organs so as to kill immediately all the ferments, dry it, and free it from all fats, those groups, which are metabolically active, are preserved for study. And by applying a certain chemical compound which readily binds the cyanamide group, it appeared that all normal tissue proteins contained this group. On testing cancer proteid, however, a peculiar behavior was observed which differentiates cancer and normal protein.

This substance when purified, taken up in water and immediately injected subcutaneously into a cancer patient, causes practically no local reaction; but instead, after about 24 hours, a very decided focal

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reaction takes place. Wherever the cancer tissue may be, its cells are killed, their ionic concentration increases, the osmotic pressure increases, they take up water, swell and disintegrate. The swelling causes pain and the absorbed, disintegrated products are oxidized causing fever.

Those two things, focal pain and fever, constitute a reaction which lasts all the way from 6 to 48 hours, depending upon the amount of cancer tissue killed, and of course this depends upon the quantity of substance injected. Such a reaction occurs only in cancer cases and only in the presence of cancer tissue. After the cancer tissue has disappeared, no more reaction can be elicited, no matter how large an injection is given, an important diagnostic aid. The specificity of the substance for cancer is evidenced by the fact that while giving these injections in rapid succession (that is daily or every two days for a period of five weeks), a blood count will rise from 2,350,000 to 4,600,000 red cells and the haemoglobin from 37% to 82%. Thus the delicate red cells are not injured. At the same time a mass of cancer tissue, the size of a large cabbage, will entirely disappear, and all the signs and symptoms of the particular cancer will disappear with it, function return, and the patient become clinically cured.

Stomach, liver and rectal cancer clear up the quickest. Uterus cancer responds slightly more slowly. Squamous cell carcinoma responds about one-half as fast as stomach cancer. No cases of cancer that have previously received X-ray or Radium treatment respond to this treatment at all since these agencies have altered the chemistry of the cancer cell. I therefore, cannot make any statements regarding breast cancer, since those breast cases that I have treated have all been previously rayed.

Before presenting a few brief case descriptions, I wish to express my gratitude and appreciation to Dr. Carstens, Dr. Judd, Dr. Paterson, Dr. Irvine, Dr. Palmerlee, Dr. Palmer, Dr. Blain, Dr. Watkins, Dr. Hewitt, Dr. Friedlander, Dr. Hackett, Dr. John Burleson, Dr. Ash, Dr. Van Baalen, Dr. Hurst, for the excellent cases they have offered and for their kind co-operation in the treatments of their cases. I think that interviewing them would prove more interesting and instructive than any mass of details that I could here append.

Case I: Mrs. McG——— referred by Dr. Alexander Blain, age —, weight, 97 lbs., red blood count, 2,850,000. History symptoms and examination led to the diagnosis of cancer of the Uterus. Laparotomy (July 11th, 1918), revealed carcinoma of the Uterine body and cervix with extensive pelvic involvement. Specimen confirmed the diagnosis. The fundus was amputated and the cervix cauterized, but a large quantity of cancer left. Two weeks after the operation, she was treated with my compound, receiving six injections in the buttock. Each treatment was followed by a reaction, the focal pain was severe, and the fever reaching 104. The seventh injection gave no reaction, so the patient was allowed to return home for a rest. Blood count, 2,900,000. Two weeks later, blood count, 3,896,000. She returned for three successive trial treatments. To none of them did she give a reaction. She has been clinically cured now for a year, holding a weight of 131 pounds. Her maximum normal weight some years ago was 136 pounds. This case was prognosticated to have terminated at the latest six months after the operation. So far the treatment has added six months longer of perfect health. She is well to date.

Case 2: Mrs. N, age 47, referred by Dr. Blain, weight 90 lbs., blood count, 2,200,000. Came to Dr. Blain, having been previously given up to die of gastric cancer by several Detroit physicians, was too weak and cachectic to walk or to risk a general anaesthetic, vomited everything, very marked bloody ascites—3 gallons per week—continuous abdominal pain, with acute exacerbations palpable mass as large as a loaf of bread in upper abdomen. Prognosis, about ten days to live. August 4th, Laparotomy, under local anaesthesia and abdomen explored, showing extensive carcinoma of the stomach, liver and whole upper abdomen apparently about 20 pounds of neoplasm. A small piece was taken from the liver for microscopical examination. Diagnosis returned, adenocarcinoma of pyloric origin. She was immediately given two small injections of the compound. Was having such violent reaction that her relatives took her home to die. Eight months later, she called upon Dr. Blain for another injection, because although she had rapidly recovered and did all the housework and washing for a big family, nearly the whole eight months, her stomach pain had returned the last week and she wanted further treatment. The mass in the abdomen was still palpable and about the size of a grape-fruit. Four more injections were given. Each was followed by severe pain and high fever. At present (four months after the last series of treatments began), the mass is the size of an egg, and the ascites amounts to about two gallons of clear fluid in three weeks. She feels younger, eats everything without any gastric pain distress or vomiting, and does as much hard work as any healthy woman. Her weight is now 130 lbs., showing a gain of 40 lbs. since treatment started. Blood count, 4,200,000.

Case 3: Mrs. B. ———— referred by Dr. Hackett, weight, 70 lbs. This case is a post-operative recurrence of uterine carcinoma, involving the whole pelvis, and causing a vagino-vesicular fistulae with much discharge and considerable hemorrhage. She was taking varying three grains of morphine per day, very weak, very anæmic and cachectic. She was given nine small treatments, from May 3rd to June 1, responding only with slight reaction. The highest fever was 101.2°. Her recovery was gradual. The patient has no more pain, takes no more morphine, hemorrhage stopped early, there is no more odorous discharge. She is up and about, quite strong, weight 94½, showing a gain of 24½ lbs. in seven weeks. The only remaining sequel is the fistula. There are no palpable or visible signs of carcinoma.

Case 4: Mr. L. ————, referred by Dr. Hewitt, age 56, weight (no record), blood count (no record). This patient had a squamous cell carcinoma, the size of a grape fruit, of the right cervical region, extending from above the ear to below the clavicle and involving the glands of the opposite side. Very severe pain, and frequent copious hemorrhage had left him moribund. Several physicians had prognosticated his maximum length of life to be seven or ten days. His first injection was given January 14, 1919. He started to pick up immediately. After 16 injections he was apparently cured, no longer giving reactions. The mass was gone and the patient strong and buoyant. His neck was explored by Dr. Hewitt, who found no cancer tissue present. Allowed to go home where he has enjoyed several weeks of "life worth living."

Case 5: Mrs. S, age 72, referred by Dr. Watkins, weight (no record), blood count, 2,850,000 haem., 37%. Diagnosis of carcinoma of the stomach was made from clinical history, symptoms and clinical findings. No palpable tumor. Patient had serious gastric hemorrhage pain and inability to retain food. Treatment started May 9, 1919. Given six injections at intervals of two or three days. Reactions, rather violent. Daily blood counts showed a steady rise, till at discharge, June 9, 1919., Blood count, 4,576,000, haem., 78%. No more stomach pain, can eat anything, strength returned, cachecia disappeared and feels better than three years ago, looks ten years younger, and gained nearly 2,000,000 red cells per cu. m. m., while under five weeks' treatment and doubling her haemoglobin content; also increasing her diet in that period from  $\frac{1}{2}$  oz. each of milk and cream hourly, to finally bread, vegetables with meats.

Case 6: Mrs. Z, age 63, referred by Dr. Friedlander, weight (no record), blood count (no record). Diagnosis of carcinoma of the stomach by clinical history, symptoms, signs, and exploratory operation, at which a mass as large as a large cabbage was found involving the upper abdomen. Patient quite weak, could not even hold milk or toast on stomach, pain very severe. After nine injections, mass completely disappeared so far as palpation can reveal. Reactions were severe, fever reaching 104.3. All gastric symptoms are gone. She eats any food, including raw onions, without any signs of distress. Gained weight and strength. Not easily fatigued.

Case 7: Mr. McK. referred by Dr. Burleson, of Grand Rapids. By examination, clinical history and symptoms, diagnosed massive carcinoma of the rectum. Patient very weak but took a room in a squalid basement in a poor quarter of the city. Diet, bananas, when he felt well enough to go after a few. He was given four treatments in the early part of June and went back home much younger and happy. On his way, stopped in at Burleson's for examination. I immediately received a visit of congratulation from Dr. Burleson, who stated that he had three of his associates examine this case after treatment and that they all agreed that all traces of the cancer were gone.

It appears from these brief case histories, that each injection does its work and that the growth does not become immune to the treatment, that destruction of the cancer removes all its noxious activities as eroding blood vessels, nerves, etc., and that the toxic products are no longer generated, so that the cachecia disappears and a return to the normal strength, body weight and blood count ensue.

I believe that you will appreciate the importance of this cancer work and believe that you are all interested in my request for co-operation. I wish to work up very fully several hundred cases for final report. I shall be glad to interview anyone regarding this matter, but for reasons that you will appreciate, wish only cases, that have not received Ray treatments.

#### BIBLIOGRAPHY.

- I. Koch Jour. Biol. Chem., 1912, Vol. XII., p. 313; Jour. Biol. Chem., 1913, Vol. XV., No. 1, p. 43.
- II. Paton, Findlay, Watson, Burns, Sharp, Wishart, Quart. Jour., Phys. 1917, Vol. X., Nos. 3 and 4.
- III. Koch Jour. of Med. and Surg., Jan., 1918, pp. 1 to 9, (727 Jefferson Ave.)