Factors Related to the Spontaneous Regression of Cancer

"Spontaneous regression of cancer is the most fascinating chapter of medicine" Willam Osler

Editorial

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Abstract

The goal of the present editorial is to remind us of a very rare phenomenon in medicine, which is the spontaneous regression of cancer.

Factors related to this type of regression are mentioned. Among them are the following:

- Infections
- Fever and therapeutic hyperthermia
- Hormonal factors
- Various other factors
- Exclusion of inaccurate diagnosis of malignancy of a tumour is essential to the validity of reported cases.

Key words:

Cancer, Spontaneous regression, Regression of cancer

Introduction

Spontaneous regression of cancer is a rare phenomenon that occurs once in every 60.000 to 100.000 cancer victims [1,2]. In some particular types of cancer, it is more frequent. For example, in melanoma it is estimated to happen in one out of 400 cases of melanoma patients. Likewise, in infant neuroblastoma, it occurs in one out of 6 patients with this particular cancer. Infants under one year of age, in particular, have a very good chance of undergoing spontaneous regression in contrast to older children, among whom this cancer may behave rather aggressively [3]. Several investigators have discovered a number of factors related to spontaneous regression of cancer. Some of these factors are listed below.

Factors Related to the Spontaneous Regression of Cancer

- *Infections or suppuration of wounds* is a factor which has been correlated with spontaneous regression in

cancer patients. In 1868, professor Busch [4] reported a cancer patient whose tumour regressed following an infection by *Streptococcus pyogenes*. This particular case, possibly, inspired Coley [5-7], a surgeon at Memorial Hospital in New York, to prepare an extract from killed *Streptococcus pyogenes* bacteria, which he used to inject into the tumours of patients suffering from advanced sarcomas that were considered to be inoperable. The injections were administered twice a week and for periods extending to several months. This method, however, was overshadowed by the progress of radiotherapy and chemotherapy. It was eventually forgotten after Coley's death in 1936.

Recent studies, however, by Wiemann and Starnes (1994) [8] revealed that advanced sarcoma patients who had received such injections had a 5-year survival of 44%. In addition to this finding, other studies by Nauts and McLaren [9] revealed that those batches of Collin's "toxin" - as the aforementioned preparation was known - that produced high fever, were more effective than other series. Administered over 6 months, these specific infections achieved an increased patient survival of 80% that lasted from 5 to 88 years.

Another report by Ruckdeschel [10] demonstrated that patients who developed empyema after pulmonary surgery for lung carcinoma increased their survival by 50%.

Likewise, Hopton Cann et al [11] reported the case of a patient with an inoperable, advanced carcinoma of the pancreas who developed peritonitis, following which his cancer disappeared. They also found 3 similar cases in the literature, two of whom had also presented with high fever. A similar case of inoperable carcinoma of the stomach is reported by Army Surgeon Kousouris [12], who decided to perform a palliative gastroenterostomy. Postoperatively, the patient developed peritonitis, due to a small leak of the anastomosis. He recovered after conservative therapy. Strangely enough, the cancer disappeared postoperatively.

- *Fever is frequently related to the spontaneous regression of cancer*, and is considered to be part of the body response to infection. According to Hobohm

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[13,14], cancer cells are less resistant to fever than normal cells. The remains of necrotic cancer cells provide tumour antigens, which help dendritic cells (D.C.) to mature [15], thus energizing T-lymphocytes to act immunologically. Similarly, heat-therapy or hyperthermia (41° C for 6 hours) mobilizes the actions of cytokines (IL1, IL6, INF, CNTF, INF α) in a therapeutic way.

- *Another factor is related to hormonal influences.* The effect of hormones on the growth of cancer of the breast and the prostate is well known. A very impressive case of cancer growth related to the thyroid hormone is reported by Hercbergs [16]. It concerns a patient with carcinoma of the lung, who also developed hypothyroid coma. When he finally recovered from the coma, his carcinoma had disappeared.

- *Other factors related to the spontaneous regression of cancer are:*

- a) the interruption of carcinoma promoters (carcinogens) as in some cases of ureterosigmoidostomy, which stops the flow of urine (that possibly contains carcinogens) from the urinary bladder;

- b) allergy;

- c) unusual sensitivity of cancers cells to therapies that are considered inadequate;

- d) damage to the vascular supply of the tumour during an inadequate excision;

- e) psychological and other factors that current knowledge has not yet understood. W.H. Cole [17] summarizes these factors as being numerous, and they include bacterial products, enzymes, infections, hormones, trauma etc.

The accuracy of the histologic diagnosis

The highly laborious research of Everson [18,19] in verifying the histologic diagnosis of the 1000 cases of spontaneous regression of cancer reported in the literature ran into many difficulties during his attempt to locate the histology slides and have them reevaluated by two other pathologists. Eventually, they were able to verify that 130 of the patients were suffering from cancer.

His reason for getting involved in such an undertaking was because occasionally a histologic diagnosis of cancer may subsequently emerge as a benign tumour, following examination by another pathologist. Likewise, widespread nodules in the lungs of a patient considered to be metastatic spread, may be due to some other cause. Even a case of multiple pulmonary lesions due to many small infarcts has been reported.

Conflict of interest

The authors declare that they have no conflict of interest.

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