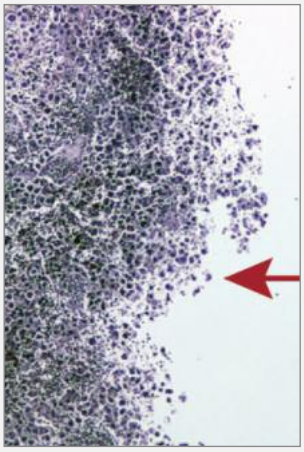
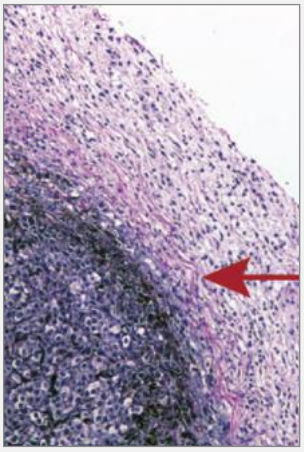
STRONG CONNECTIVE TISSUE: A KEY FACTOR IN CONTROLLING CANCER METASTASIS

The term "connective tissue" is frequently used in association with skin or joint disorders. However, many people are not aware of how important it is in other chronic diseases such as heart disease and cancer.



Weak or absent capsule seen in vitamin C deficient tumors: **cancer cells spread easily.**



Intact collagen capsule surrounds the tumors with abundant vitamin C: **spread of cancer cells prevented.**

Over 90% of cancer deaths are due to the extensive spread of cancer (metastasis). Cancer cells metastasize by breaking the connective tissue barrier that surrounds them. The strength and stability of connective tissue is dependent on an optimum production of collagen fibers and the prevention of uncontrolled tissue destruction. An abundant availability of several micronutrients, especially vitamin C and the amino acids lysine and proline, is essential for this function. Unlike most animals, humans are not capable of internal production of vitamin C. Moreover, humans share with most species the inability to produce the amino acid lysine. Yet, most cancer research is conducted on mouse models that do produce vitamin C. To overcome this barrier, our research institute utilized a special type of mice that mimic human metabolism in respect to the lack of internal vitamin C production.

We studied whether the presence or absence of vitamin C in the diet of these mice can affect the growth and spread of cancer[1]. The results showed that dietary supplementation with just vitamin C could significantly impair the growth of tumors, which were 64% smaller than those developed in mice not taking vitamin C. More importantly, tumors in vitamin C supplemented animals were surrounded by a strong border of collagen fibers (see the picture). This makes it more difficult for cancer cells to escape and spread into the tissue. In contrast, the collagen border was absent in tumors originating in the mice with a shortage of dietary vitamin C; consequently this allowed the cancer cells to move freely and spread. This impressive result removes any doubts about the critical role of vitamin C in cancer.

Even more, by combining vitamin C with other collagen supporting micronutrients, including lysine, proline and others, cancer metastases to the lungs, liver and kidneys could be curbed by about one third[2]. This confirms the enhanced efficacy of micronutrient synergy compared to the use of individual micronutrients.

In addition to the direct effect of vitamin C on tumor growth, we observed that mice supplemented with this nutrient had inflammation markers reduced by about 90%. This effect of vitamin C is very important because low-grade inflammation is common in cancer patients and is one of the causes of weight loss and poor health.

More than 40 years after the "War on Cancer" was declared, cancer remains the second leading cause of death and there is no pharmaceutical solution in sight. With this background, our research brings a better understanding of the value of micronutrients in the defense against cancer and provides hope to millions of cancer patients.

Ref:

1. *J. Cha, et al., Experimental Oncology 2011, 33(4):1-5*
2. *J. Cha, et al., Proceedings of the 104th Annual Meeting of the AACR, Vol 54, Abstract #2822, page 691*

Health Science News Page

This information is provided to you courtesy of the Dr. Rath Research Institute. Led by two former colleagues of two-time Nobel Laureate Linus Pauling († 1994) this Institute has become a leader in the breakthrough of natural health research in the field of cancer, cardiovascular disease and other common diseases. The Institute is a 100% subsidiary of the non-profit Dr. Rath Foundation.

The groundbreaking nature of this research poses a threat to the multi-billion dollar pharmaceutical "business with disease." It is no surprise that over the years the drug lobby has attacked Dr. Rath and his research team in an attempt to silence this message. To no avail. During this battle, Dr. Rath has become an internationally renowned advocate for natural health saying, "Never in the history of medicine have researchers been so ferociously attacked for their discoveries. It reminds us that health is not given to us voluntarily, but we need to fight for it."

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