

# The Pioneering Work of William J. McCormick, M.D.

Andrew W. Saul, Ph.D.<sup>1</sup>

## Introduction

Darwin had a far easier time with the acceptance of evolution than orthomolecular physicians have had gaining acceptance of the therapeutic use of ascorbic acid.

It takes vitamin C to make collagen and strong connective tissue. That fact is in every nutrition textbook ever written. It has also been shown that vitamin C supplementation enhances collagen synthesis<sup>1</sup> and does so rapidly, too.<sup>2</sup> But few know that, some 50 years ago, it was Toronto physician William J. McCormick, M.D., who pioneered the idea that poor collagen formation, due to vitamin C deficiency, was a principal cause of diverse conditions ranging from stretch marks to cardiovascular disease and cancer.

## Stretch Marks

In 1948, Dr. McCormick<sup>3</sup> wrote:

“[T]hese disfiguring subdermal lesions, which for centuries were regarded as a natural sequence of pregnancy, are the result of increased fragility of the involved abdominal connective tissue, secondary to deficiency of vitamin C.”

The strength of a brick wall is not truly in the bricks, for a stack of bricks can easily be pushed apart. Collagen is the “mortar” that binds your cells together, just as mortar binds bricks together. If collagen is abundant and strong, body cells hold together well. It is possible to see how this property would prevent stretch marks.

## Cancer

It is a logical but large step to propose that, if cells stick together, tumors would have a tough time spreading through them. Irwin Stone<sup>4</sup> credited McCormick with taking that very step:

“In cancer, the maintenance of collagen synthesis at optimal levels, may provide such tough and strong tissue ground substance around any growing cancer cells so that they would be firmly anchored and could not break away and metastasize.”

This simple theory would be the foundation for Linus Pauling and Ewan Cameron’s decision to employ large doses of vitamin C to fight cancer. After all, if cancer cells are going to try to metastasize, it makes sense to provide abundant vitamin C to strengthen collagen to keep them from doing so.

McCormick was among the first to comment that persons with cancer typically have exceptionally low levels of vitamin C in their tissues, a deficiency of approximately 4,500 mg. This could help explain why a cancer patient’s collagen is generally not tough enough to be able to prevent cancer from spreading.

McCormick also thought that the symptoms of scurvy, the classic vitamin C deficiency disease, closely resemble the symptoms of some types of leukemia and other forms of cancer. Today, although scurvy is generally considered to be virtually extinct, cancer is all too prevalent. If the signs of development of cancer and scurvy are similar, could they be fundamentally the same disease under different names? In his 1962 paper “Have We Forgotten the Lesson of Scurvy”<sup>5</sup> McCormick writes:

“As long ago as 1609, Martini cited by (scurvy research pioneer Dr. James) Lind stated that scurvy is nearly allied to the plague, as it occasions carbuncles, buboes and cancer. In an effort to clarify this relationship we published two papers<sup>6,7</sup> in which we advanced the hypothesis that deficiency of vitamin C, by bringing about disintegration of epithelial and connective

1. 8 Van Buren Street, Holley, New York 14470 USA  
drsaul@doctoryourself.com

tissue relationships, owing to liquefaction of the intercellular cement substance (collagen) and disintegration of the connective tissue of the basement membrane, results in breakdown of orderly cellular arrangement, thus acting as a prelude to cancer.”

He also cites this obscure but interesting reference in the 1905 edition of *Northnagel's Encyclopedia of Practical Medicine*<sup>8</sup> which describes the scorbutic aspects of acute lymphatic leukemia: “The most striking clinical symptoms of this disease are the hemorrhages and their sequelae... Every touch produces hemorrhage, making a condition completely identical with that of scurvy.”

Dr. McCormick's conclusion is that

“Our major effort (against cancer) should be directed toward prevention of the cause of the cellular disarrangement - collagenous breakdown of epithelial and sub-epithelial connective tissues - as manifested in open sores or fissures that fail to heal readily, and unusual or easily produced hemorrhage. Such lesions may be early warning signs of future cancer. They likewise are early signs of scurvy.”<sup>10</sup>

If our civilization is suffering from a scurvy epidemic under the current name of cancer, then the symptoms, progress and results of the two diseases may have a common cause (vitamin C deficiency) and a common treatment: vitamin C in large quantity. If this is even partially true, then all cancer patients should receive large doses of ascorbic acid as a matter of routine.

### Cardiovascular Disease

As scorbutic gum tissue spontaneously hemorrhages, so also a scorbutic artery can literally “bleed” into itself. McCormick, more than twenty years before Linus Pauling, reviewed the nutritional causes of heart disease and noted that four out of five coronary cases in hospital show vitamin C deficiency. In one paper<sup>9</sup> he wrote that, as early as 1941,

“Paterson<sup>10</sup> called attention to the low vitamin-C status of coronary thrombosis

cases. He found that 81% of such cases in hospital practice had a subnormal blood-plasma level as compared to 55.8% in a corresponding group of general public ward patients. He attributes the precipitation of thrombosis to a prior subintimal capillary hemorrhage at the site of the lesion, which he has verified at autopsy. He regards this hemorrhagic prelude as due to C-avitaminosis and suggests that patients with this disease be assured of an adequate intake of this vitamin.”

While the exact meaning of the word “adequate” has been at the heart of nutrition controversy ever since, supplementation with even a moderate quantity of vitamin C has been shown to prevent disease and save lives. Just 500 mg daily results in a 42% lower risk of death from heart disease and a 35% lower risk of death from any cause.<sup>11</sup>

### Vitamin C as Antibiotic and Antiviral

McCormick proposed vitamin C deficiency as the essential cause of, and an effective cure for, numerous communicable illnesses. In “The Changing Incidence and Mortality of Infectious Disease in Relation to Changed Trends in Nutrition”<sup>12</sup> McCormick cited mortality tables as early as 1840, and suggested that tuberculosis, diphtheria, scarlet fever, whooping cough, rheumatic fever and typhoid fever are primarily due to inadequate dietary vitamin C. It remains as novel an idea today as it was nearly 60 years ago to say that disease trends in history might be understood as waves of lack of vitamin C intake.

McCormick considered vitamin C to be the pivotal therapeutic nutrient “by reason of its chemical action as a reducing agent, and sometimes as an oxidizing agent, vitamin C is also a specific antagonist of chemical and bacterial toxins.” Furthermore, in “Ascorbic Acid as a Chemotherapeutic Agent”<sup>13</sup> he stated:

“Vitamin C is known to play an essential part in the oxidation-reduction system of tissue respiration and to contribute to

the development of antibodies and the neutralization of toxins in the building of natural immunity to infectious diseases. There is a very potent chemotherapeutic action of ascorbic acid when given in massive repeated doses, 500 to 1,000 mg. (hourly), preferably intravenously or intramuscularly. When thus administered the effect in acute infectious processes is favourably comparable to that of the sulfonamides or the mycelial antibiotics, but with the great advantage of complete freedom from toxic or allergic reactions.” (p. 151)

There is considerable evidence that vitamin C in large, frequent doses can cure what are usually called infectious diseases. To establish that these diseases are actually vitamin C deficiency diseases, we should be able to prevent them by regular, abundant supply of the vitamin. This is exactly what can be done, McCormick said:

“Once the acute febrile or toxic stage of an infectious disease is brought under control by massive ascorbic acid administration, a relatively small maintenance dose of the vitamin will be adequate in most cases to prevent relapses, just as in fire protection small chemical extinguishers may be adequate to prevent fires in their incipiency, whereas when large fires have developed, water from large high-pressure fire hoses becomes necessary.” (p. 152)

Along with his contemporary, Frederick R. Klenner, M.D., McCormick was an early advocate of using vitamin C as an antiviral and an antibiotic. Klenner would go on to use much larger quantities (350-700 mg per kg body weight per day). In the 1950’s, even McCormick’s relatively modest four or five daily 1,000-2,000 mg doses were perceived as astronomically high, and something to be feared. In some minds, this remains the case today.

### Kidney Stones

Ever since Linus Pauling began publicizing the value of high doses of vitamin C in the early 1970s, it has been a cornerstone of medical mythology that vitamin C can cause kid-

ney stones. The accusation is false.<sup>14</sup> Everybody has heard about unicorns and can describe one in detail. You could probably see a unicorn in your mind right now. You can draw one. Yet unicorns do not exist. They are imaginary, without substance or proof. Just like a vitamin C kidney stone. The vitamin C kidney stone myth is the best known non-fact in non-existence. Every physician has heard of one, but not one of them has ever seen one. That is because they simply do not exist.

As Abram Hoffer has said, “Contrary to popular medical belief, vitamin C does not cause kidney stones, at least it never has so far. Maybe in it will in the next 1,000 years.”

Writers often pass by the fact that McCormick advocated vitamin C to prevent and cure the formation of some kidney stones as far back as 1946,<sup>15</sup> when he wrote:

“I have observed that a cloudy urine, heavy with phosphates and epithelium, is generally associated with a low vitamin C status... and that as soon as corrective administration of the vitamin effects a normal ascorbic acid (vitamin C) level the crystalline and organic sediment disappears like magic from the urine. I have found that this change can usually be brought about in a matter of hours by large doses of the vitamin, 500 to 2,000 mg, oral or parenteral.” (p. 411)

In what might be seen as a display of almost too much therapeutic versatility, McCormick affirmed that calculi in other parts of the body could be cleared up by plenty of vitamin C, including stones in the biliary tract, the pancreas, tonsils, appendix, mammary glands, uterus, ovaries, prostate and “even the calcareous deposits in arteriosclerosis.” He said that calcareous deposits in the eye “may be cleared away in a few days by correction of vitamin C status, and I find also that dental calculus (tartar on the teeth), which lays the foundation for so much dental havoc, can be quickly suppressed and prevented by an adequate intake of vitamin C.”

Odd though this final statement may seem, “there appears to be a very real correlation between vitamin C state (as a possible

nonmechanical contributor) and debris irrespective of tooth cleansing habits,” wrote Professor of Oral Medicine Emanuel Cheraskin, M.D., D.M.D., in 1993.<sup>16</sup> Cheraskin cited a clinical trial that “reported a resolution of *materia alba*, calculus, and stain when 500 mg of ascorbic acid was daily administered for 90 days.”

### Cigarette Smoking

Fifty years ago, McCormick<sup>17</sup> wrote:

“The writer has found, in clinical and laboratory research, that the smoking of one cigarette neutralizes in the body approximately 25 mg of ascorbic acid, or the equivalent of the vitamin C content of one average-size orange. On this basis, the ability of the heavy smoker to maintain normal vitamin C status from dietary sources is obviously questionable, and this alone may account for the prevalence of vitamin C deficiency in our modern adult population.”

This was quite a statement in 1954, at a time when physicians were literally endorsing their favorite cigarette in magazines and on television commercials.

### Conclusion

No doubt it is purely coincidental that calculi, cigarettes, cancer, cardiovascular disease, connective tissue, and collagen all have the letter “C” in common. William J. McCormick’s lifetime of work helped establish that these words also have a vitamin in common. McCormick fought vitamin C deficiency wherever his clinical experience found it. His early use of gram-sized doses to combat what were then and are now usually regarded as non-deficiency-related illnesses set the stage for today’s 100,000 mg/day antiviral/anticancer vitamin C IV’s. For such a good idea, the spread of this knowledge to date has been exceptionally slow. Without McCormick’s published work, it might never have spread at all.

Locating William J. McCormick’s papers is now somewhat easier than it used to be because a number of them have been

posted on the Internet. at <http://www.seanet.com/~alexs/ascorbate/> and at <http://www.doctoryourself.com>.

### References

1. Chan D, Lamande SR, Cole WG, Bateman JF: Regulation of procollagen synthesis and processing during ascorbate-induced extracellular matrix accumulation in vitro. *Biochem J* 1990; 1/269: 175-81.
2. Franceschi RT, Iyer BS, Cui Y: Effects of ascorbic acid on collagen matrix formation and osteoblast differentiation in murine MC3T3-E1 cells. *J Bone Miner Res* 1994; Jun; 9(6):843-54.
3. McCormick WJ: The striae of pregnancy: A new etiological concept. *Med Record*. 1948; August.
4. Stone, I: The genetic disease, hypoascorbemia: A fresh approach to an ancient disease and some of its medical Implications. *Acta Geneticae Medicae et Gemellologiae*, 1967; 16/1: 52-60.
5. McCormick, W J (1962) Have we forgotten the lesson of scurvy? *J Appl Nutr*: 15(1,2) p 4-12.
6. McCormick, W J (1954a) Cancer: The preconditioning factor in pathogenesis. *Arch Pediatr* New York. 71:313.
7. McCormick, W J (1959). Cancer: A collagen disease, secondary to a nutritional deficiency? *Arch. Pediatr*, 76: 166.
8. Pincus F: Acute lymphatic leukemia. In: *Nothnagel's Encyclopedia of Practical Medicine*, American Edition. Philadelphia: WB Saunders & Co., 1905; 552-574.
9. McCormick WJ: Coronary thrombosis: a new concept of mechanism and etiology. *Clin Med*, 1957; 4/7.
10. Paterson JC: Some factors in the causation of intimal hemorrhage and in the precipitation of coronary thrombosis, *Can Med Assoc J*, 1941; 44: 114.
11. Enstrom JE et al: Vitamin C intake and mortality among a sample of the United States population. *Epidemiology*, 1992; 3/3, May: 194-202
12. McCormick WJ: The changing incidence and mortality of infectious disease in relation to changed trends in nutrition. *Med Record*. 1947; Sept.
13. McCormick WJ: Ascorbic acid as a chemotherapeutic agent. *Arch Pediatr NY*. 1952; 69: 151-155.
14. Curhan, GC, Willett WC, Speizer FE, Stampfer, MJ: Intake of vitamins B<sub>6</sub> and C and the risk of kidney stones in women. *J Am Soc Nephrol*, 1999; 10: 4: 840-845, Apr.
15. McCormick WJ: Lithogenesis and hypovitaminosis. *Med Record*, 1946; 159/July: 410-413.
16. The Case of the Invisible Toothbrush: Why Some People Can Brush Less by E. Cheraskin, M.D., D.M.D. *J Orthomol Med*, 1993; 8/3.
17. McCormick, WJ: Intervertebral disc lesions: a new etiological concept. *Arch Pediatr NY*. 1954; 71/Jan: 29-33 .