Consequences of Using Escharotic Agents as Primary Treatment for Nonmelanoma Skin Cancer

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Background: The use of escharotic or caustic pastes to treat skin cancer is based on the centuries-old observation that selected minerals and plant extracts may be used to destroy certain skin lesions. Zinc chloride and Sanguinaria canadensis (bloodroot) are 2 agents that are used as part of the Mohs chemosurgery fixed-tissue technique. The use of escharotics without surgery has been discredited by allopathic medicine but persists and is promoted among alternative practitioners. Patients may now purchase “herbal supplements” for the primary self-treatment of skin cancer, and physicians will see patients who elect this therapy for their skin cancers.

Observations: We reviewed the history of escharotic use for skin disease and performed an Internet search for the availability and current use of escharotics. Our search located numerous agents for purchase via the Internet that are advertised as highly successful treatments for skin cancer. We report 4 cases from our practice in which escharotic agents were used by patients to treat basal cell carcinomas in lieu of the recommended conventional treatment. One patient had a complete clinical response, but had a residual tumor on follow-up biopsy. A second patient successfully eradicated all tumors, but severe scarring ensued. A third patient disagreed with us regarding his care and was lost to follow-up. One patient presented with a nasal basal cell carcinoma that “healed” for several years following treatment elsewhere with an escharotic agent but recurred deeply and required an extensive resection. The lesion has since metastasized.

Conclusions: Escharotic agents are available as herbal supplements and are being used by patients for the treatment of skin cancer. The efficacy of these agents is unproven and their content is unregulated. Serious consequences may result from their use. Conventional medicine has an excellent track record in treating skin cancer. Physicians should recommend against the use of escharotic agents for skin cancer, and the Food and Drug Administration should be given the authority to regulate their production and distribution.

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sultation for Mohs surgery. On the advice of a friend, he opted to treat his tumor with *Sanguinaria canadensis* (bloodroot). He found the treatment to cause marked irritation, leaving a large triangular keloidal scar when completely healed. He became concerned that the area had not healed well and opted to undergo surgical removal and repair. The entire large scar was excised with Mohs surgery in a single stage, and no residual tumor was identified. The area was reconstructed with a flap and has healed with minor scarring.

**CASE 3**

A 64-year-old man had undergone standard excision and Mohs excision of several BCCs. He was routinely dissatisfied with the seemingly invisible surgical scars and was bitter about the cost of his procedures. He arrived in our office, irate, because we had not previously discussed with him the use of escharotics. On examination he had 2 fungating tumorous swellings covered with a thick central eschar, one on each side of the neck. He noted that he was under the care of an herbalist, who had provided him with an alternative therapy for his skin cancers. After discussing his care, he left the office and has been lost to follow-up. Unfortunately, photographs were not obtained.

**CASE 4**

A 52-year-old man was seen with an enormous recurrent BCC of the left nose, lip, and cheek. Several years earlier, he had undergone biopsy of a lesion on the left side of his nose, and Mohs surgery was recommended. On the advice of a friend, he eschewed surgery in favor of topical treatment with *S canadensis*. The treatment led to the clinical resolution of the lesion. Gradually, the patient noted a fullness of the left side of his nose. On presentation he had a bulky exophytic/endophytic lesion of the left side of his nose that was nearly fixed to the maxilla (**Figure A**). Two stages of Mohs surgery under general anesthesia were needed to remove the lesion that extended deeply to the maxilla and far into the pyriform aperture. Residual tumor that was adherent to the maxilla was successfully removed by partial maxillectomy (**Figure B**). The dramatic surgical defect was repaired with a septal mucosal flap, cheek advancement, and forehead flap. The lesion subsequently metastasized to the submandibular lymph nodes requiring a modified radical neck dissection and adjuvant radiation therapy. Recently, the patient presented with multiple distant bony metastases and has been referred to oncologists.

**INTERNET SEARCH**

A review of Internet Web sites dedicated to the use, marketing, and experience with escharotic agents is startling. Products such as Cansema (Alpha Omega Labs, Nassau, Bahamas), Curaderm, and HerbVeil8 (Viable Herbal Solutions, Morrisville, Pa) are listed as topical treatments for a diverse array of skin diseases ranging from cutaneous fungal disease to nevus removal to the treatment of skin cancer including melanoma. Many of the Web sites refer to Hoxsey’s and Mohs’ experiences with escharotics as the basis for therapeutic validity, ignoring that Hoxsey’s work has never been accepted as valid and that Mohs always performed surgery following in situ tissue fixation. These Web sites are adorned with graphic pictorial footage and written testimonials. The compounds for sale are readily available to patients both via the Internet and through mail-order companies originating in the United States and abroad.

Topical application of Cansema, which contains bloodroot and zinc chloride, among other unlisted ingredients, is recommended for the removal of BCCs, squamous cell cancers, actinic keratoses, and melanoma. The Web site we identified for Cansema had numerous testimonials and photographs, some demonstrating remarkable inflammatory responses with subsequent scarring, and all lacking substantial follow-up.1

Curaderm, an Australian product, is composed of the following active ingredients: solasodine glycosides from the Sodom apple (*Solanum sodomaeum*), melaleuca oil from the tea tree (*Melaleuca alternifolia*), linoleic acid, urea, and 10% salicylic acid. A Web site pro-
Escharotics, or caustics, have been promoted as treatment for warts, polyps, and moles since the time of European colonization. Native Americans applied plant extract salves and poultices to infected limbs and gums to “burn out” infections such as fungi and gangrene and applied crushed elm bark (Ulmus fulva) to gunshot wounds to cause the skin to become inflamed, thus facilitating bullet extraction. Native Americans also used the caustic properties of goldenseal (Hydrastis canadensis) and bloodroot for the topical destruction of skin lesions. Bloodroot (Sanguinaria candensis) also goes by the names puccoon, Indian paint, red root, and snakebite. It is native to eastern United States and Canada. When the root of the flower is harvested and cut, a red liquid flows from the plant. This alkaloid substance coagulates like blood to form a thick paste. This paste is a strong escharotic. Sanguinaria is reported to have antiinfective properties, and dealers claim that when applied to damaged skin, it will cause abnormal tissue to separate from healthy skin. There are no reliable data to confirm this claim.

Zinc chloride was used widely in the early 19th century as a destructive agent in the treatment of cancer. When applied to the skin, zinc chloride produces a brisk, painful inflammatory response with subsequent eschar formation. Some physicians trained in the Mohs fixed-tissue technique believe that zinc chloride may have some antitumor effect and relative tissue selectivity. However, zinc chloride applied to normal skin treated with a keratolytic will produce profound inflammation and eschar formation.

Escharotics were introduced to Western medicine in the 1930s by Frederic Mohs, who was then a medical student at the University of Wisconsin, Madison, investigating tissue fixation as part of a new surgical treatment for cancer. Mohs chose zinc chloride as a proper tissue fixative based on studies he performed on cancerous and normal rat tissues. Mohs consulted with a pharmacist to create a paste that could be applied to the skin, and the final product, Mohs paste, contained zinc chloride as a fixative, as well as antimony trisulfide for suspension and bloodroot as an organic stabilizer. Mohs proposed that this paste, applied in a carefully calculated manner that accounted for the tumor’s depth and diameter, would fix tumor in tissue over a 24-hour period. This process enabled the surgeon to remove a fixed specimen and, following sectioning and staining, immediately review the histologic findings to assess tumor involvement of the surgical margin. The paste application, fixation, and excision of the tumor was repeated daily until the microscopic examination finding was negative for tumor. It should be clarified that Mohs used zinc chloride only as a fixative and Sanguinaria only as an organic stabilizer for his fixative paste. The primary procedure undertaken by Mohs was surgical excision. He coined his technique “chemosurgery,” and thus began the long-storied history that has culminated in the widespread use of micrographic surgery.

Simultaneously, Harry Hoxsey, the lay cancer specialist responsible for the operation of one of the nation’s largest private cancer treatment clinics, developed an herbal tonic and paste that were designed to treat internal and external cancers. Hoxsey based his internal tonic on a family recipe handed down from his great-grandfather. It was purported to treat an imbalance of body fluids, thus making the body uninhabitable by malignancy. His paste, however, was much like Mohs’, a preparation of antimony sulfide, bloodroot, and zinc chloride. Hoxsey recommended a fingertip application of paste to the affected area with a thin layer of petroleum jelly (Vaseline) to protect the surrounding healthy tissue. Over a period of days to weeks, the affected area would necrose, separate from the surrounding tissue, and fall out.

In the late 1940s, several prominent physicians raised strenuous objections to Hoxsey’s claims of treatment success, citing a lack of scientific proof. In 1948, Mohs publicly renounced the use of escharotics without accompanying surgery, claiming that it caused excessive mutilation and was an unreliable cure. In 1950, the Food and Drug Administration (FDA) blocked interstate shipments of Hoxsey’s formulas, and in 1956, the agency issued a nationwide public warning condemning Hoxsey’s methods. In 1963, Hoxsey abandoned his American clinics and moved to Tijuana, Mexico, where his clinic still operates today under the directorship of his nurse assistant, Mildred Nelson, RN.

The widespread use of Sanguinaria in conjunction with zinc chloride, such as Mohs’ paste, in combination with surgery, continued into the 1970s and is still used in isolated cases at present when Mohs fixed-tissue technique is deemed valuable. In 1978, Tromovitch and Stegman demonstrated that in situ fixation with Mohs surgery was not essential and that a similar cure rate of BCC could be obtained with fresh frozen tissue sampling. They noted that the fixed-tissue technique was more painful, lengthened surgical time, destroyed healthy tissue, and prevented immediate surgical repair. Tromovitch and Stegman concluded that the modern technique of frozen sectioning gave equal results with less morbidity to patients, and this “fresh tissue” technique persists as the widely disseminated and popular form of Mohs micrographic surgery.

Interest in the use of escharotics as a treatment for skin disease has fallen out of favor with dermatologists owing to the high level of effectiveness of conventional treatment for nonmelanoma skin cancer. There remains an ever-growing interest in alternative medicine circles, however. In his best-selling book, Spontaneous Healing, Andrew Weil, MD, reviews his experience with a bloodroot paste that he used to destroy a tumor on his dog, and he goes on to discuss its use on a patient. On the
Internet, Hoxsey’s methods receive widespread praise as a highly effective alternative therapy and as an antidote to the oppression from the FDA. In November 2001, Brown et al \(^{14}\) reported 2 cases of self-treatment of skin cancer using a product called HerbVeil 8, which contains zinc chloride and bloodroot.

Nearly one third of Americans use alternative medicine each year and spend $12 billion on alternative therapeutic agents. The National Institutes of Health currently spends approximately $20 million per year funding research into alternative therapies. In 1994, legislation was passed prohibiting the FDA from overseeing the manufacturing, marketing, and distribution of herbal supplements. Alternative medications, once essentially banned by this agency, are now widely available as supplements and as such are largely unregulated.

Up to 1 million cases of nonmelanoma skin cancer will be diagnosed and treated in the United States this year. For better or worse, natural and alternative remedies are increasingly used by patients for the treatment of skin cancer either before seeking the advice of a qualified health care provider or after obtaining and rejecting such advice. Many of the natural remedies available both within the United States and from overseas are wholly unregulated and are of unknown strength and purity. With escharotic therapy, there is no scientifically documented proof of efficacy, and there is likewise no proof of tissue selectivity. In fact, as evidenced from photographs on the escharotic Web sites and through prior experience with the Mohs fixed-tissue technique, it is clear that escharotic agents will in many cases damage and destroy normal tissue as well as diseased skin. Many of the lesions referred to in the testimonials published on the escharotic Web sites were not assessed by biopsy and histologic examination. It is therefore likely that many patients are self-treating “tumors” that are not nonmelanoma skin cancers and could be benign lesions or melanomas. The Web sites are particularly insidious because of their seductive nature. They offer an “easy” and “natural” way to treat a disease that otherwise requires destruction and/or surgery. The irony of this movement is that conventional allopathic medicine has an extraordinary proven track record of successful treatment for skin cancer. As demonstrated with our case reports herein, alternative therapy for cutaneous malignancy can lead to a false sense of security and may result in substantial morbidity if not mortality. It would be of great benefit to our populace if the FDA were granted authority to regulate alternative medications and hold their producers and purveyors to the same high standards that our pharmaceutical industry and conventional health care delivery systems must achieve. Until that time, it is incumbent on physicians to reject in no uncertain terms the acceptance of treatment modalities that have no proven benefit and clear-cut risk.

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