

Radiation Therapy Offering Hope and Excellent Cosmesis for Treatment of Nonmelanoma Skin Cancer of the Eyelid: A Retrospective Review

Gary L. Marder, DO; Megan Bock, DHSc, MPH, PA-C

Skin cancer has become an epidemic. Skin cancers of the eyelid are common and can be difficult to treat. Many nonmelanoma skin cancers (NMSCs) are surgically excised. Radiation therapy is a treatment method that should be included in the dermatologist's armamentarium of therapeutic modalities. This study retrospectively examined 11 patients who were treated with radiation therapy for NMSCs of the eyelids and were cured with excellent cosmetic outcome as well as minimal side effects.

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Skin cancer has become an epidemic. There currently are 13 million Americans living with a history of nonmelanoma skin cancer (NMSC).¹ It is estimated that 1 in 5 Americans will develop at least one cancerous lesion in their lifetime. Each year, more than 3.5 million cases of skin cancer are diagnosed in more than 2 million people in the United States, making it by far the most common form of cancer. In fact, there are more people diagnosed with skin cancer each year than all other cancers combined. Basal cell carcinoma

is the most common form of NMSC, with more than 2.8 million cases being diagnosed each year. Basal cell carcinoma rarely is fatal but can be extremely disfiguring. Squamous cell carcinoma is the second most common type of skin cancer with nearly 700,000 cases diagnosed each year, resulting in approximately 2500 deaths.¹ Squamous cell skin cancers most commonly present in sun-exposed areas but can present on the genitals and mucous membranes. One of the most delicate locations for NMSC to present is the eyelid. It is estimated that up to 10% of all skin cancers occur on the eyelid,² with 70% of these cases occurring on the lower lid where more sun damage occurs.³ As more skin cancers arise, it is imperative to provide patients with the best treatment outcomes and options, both therapeutically and cosmetically. Mohs micrographic surgery and standard excision commonly are used to treat skin cancers of the eyelid, often leading to trepidation, scarring, ectropion, and pain. Dermatologists now must consider including radiation therapy in their armamentarium of skin cancer treatment options.

Both from Marder Dermatology and Skin Cancer Center, Port St. Lucie and Okeechobee, Florida. Dr. Marder also is from Nova Southeastern University, Fort Lauderdale, Florida; Lake Erie College of Osteopathic Medicine, Bradenton, Florida; and Des Moines University, Iowa.

The authors report no conflicts of interest in relation to this article. Correspondence: Megan Bock, DHSc, MPH, PA-C, 9580 S Federal Hwy, Port St. Lucie, FL 34952 (megana70@hotmail.com).

Radiation was discovered in 1895 by William Roentgen and was first used therapeutically by Emil Grubbe in 1896.⁴ Radiation therapy is a reliable, trusted, and ideal method for treating NMSCs, especially those covering a large surface area, tumors that are difficult to excise, and lesions in locations where the patient does not want scarring. Radiation therapy may be the treatment of choice for patients who cannot tolerate surgical excision because of the location of the lesion, use blood thinners, have a compromised immune system, are older, or are at risk for increased morbidity.⁵ The success and 5-year cure rates are similar to surgical excision at greater than 96%.⁶ Even though many NMSCs can be excised, radiation therapy is an important alternative modality, especially when the outcome will involve improved cosmetic and/or functional results.⁷ Radiation therapy does not affect the patient's lifestyle, allows the patient to continue taking prescribed medications, and poses minimal side effects. There are certain instances in which radiation therapy is the preferred treatment method. For example, radiation therapy is a great option for treating NMSCs that reoccur after already having been surgically excised. It also is effective when the patient has a large-field cancerization or a large lesion in an area in which surgical excision would not produce optimal cosmetic results (ie, legs, ears, nose, digits). It also is a good option for elderly patients who take a variety of medications, especially blood thinners.⁴ Radiation therapy can eliminate the need for skin grafts or skin flaps.⁸ It allows full active range of motion, which is important for elderly patients in their daily activities. Radiation therapy does not decrease mobility, which often can lead to excessive joint pain in patients with arthritis or other bone/joint abnormalities. Radiation is a sensible treatment option for patients who otherwise would need to undergo an intricate and/or difficult surgical course.⁹

When undergoing treatment of skin cancers, patients receive a prescribed dose of radiation. Multiple NMSCs on different body locations can be treated simultaneously with radiation. The radiation is emitted precisely to target the skin lesion, and the energy released specifically kills the malignant and peripheral premalignant cells. Many squamous cell carcinomas present with adjacent large fields of cancerization that can be effortlessly treated with radiation therapy. Precautions always should be taken and lead shields should be used to minimize the amount of radiation delivered to healthy tissue.

Despite the many proposed benefits of radiation therapy for the treatment of basal cell and squamous cell carcinomas, there are some disadvantages. Radiation therapy requires a substantial time commitment, with treatments occurring 3 to 5 times per week and lasting 4 to 6 weeks.¹⁰ Adverse effects from radiation are minimal

but should be discussed with the patient prior to initiating treatment. Early side effects of treatment include erythema at the treatment site as well as minor swelling and pruritus.⁶ As treatment progresses, patients may experience localized alopecia and slight tenderness at the treatment site.¹⁰ Taking into consideration the pain, scarring, and increased morbidity with surgery, radiation therapy is an invaluable treatment option, especially when dealing with large areas of skin cancer that are difficult to treat.

A retrospective study was performed to quantify the results and cosmetic benefits that radiation therapy offers to many patients with NMSC of the eyelid.

METHODS

Retrospectively, a list was compiled of patients who received radiation therapy for NMSCs of the eyelid in the last 3 years. There were no discriminating factors such as age, gender, or size of lesions. Eleven patients were identified. All patients had been given the option of either radiation therapy or surgical excision for treatment of NMSC of the eyelid.

Radiation therapy of the eyelid is highly indicated when there is a large cancerous lesion and/or large-field cancerization (Figure 1). In these patients who received radiation therapy, untreated skin was protected with a lead shield, and an ocular lead shield was inserted beneath the eyelid prior to radiation therapy to protect the eye (Figure 2). Some patients required topical anesthetic drops to tolerate the placement of the ocular lead shield. Every patient was given ophthalmic antibiotic drops to apply

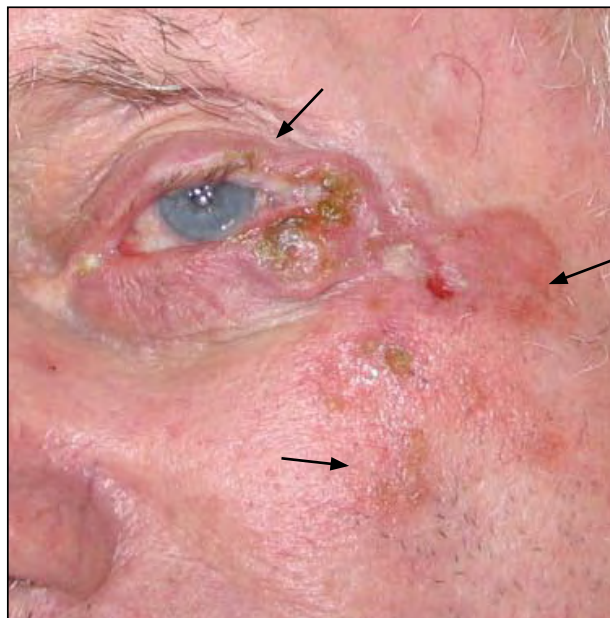


Figure 1. Squamous cell carcinoma (arrows) with large-field cancerization.



Figure 2. A lead shield was inserted beneath the eyelid prior to radiation therapy (A). The wax-covered lead shield protected the patient's eye during radiation therapy for the eyelid (B).

prophylactically twice daily during the treatment period. All patients received hyperfractionation treatment consisting of 2 fractions (treatments) a day for 20 days; over the course of treatment, each patient received a total of 40 fractions. Each fraction was 130 rads and patients received a total dose of 5200 rads.

Upon completion of the therapeutic radiation therapy course of treatment, all patients were assessed for residual or reoccurring tumors. Patients also were surveyed as to whether they would still choose radiation therapy or if they would opt for surgery if given the choice to make again. On completion of radiation therapy, all patients were seen on follow-up and were asked if they were satisfied with the cosmetic outcome of the radiation therapy.

RESULTS

All 11 patients were extremely satisfied with the exceptional cosmetic outcome of the radiation therapy as well as the pain-free treatment course. The most common side effects were temporary loss of eyelashes for the treated lid, though not all patients lost their lashes, and mild radiation dermatitis up to 3 to 4 weeks following radiation therapy (Figure 3).

Some patients presented with skin cancer of both the upper and lower lids. Figure 3A shows a patient with a squamous cell carcinoma of the upper and lower eyelids before treatment; Figure 3B shows the same patient 2 weeks after completing his course of radiation therapy. Patients with basal cell carcinoma of the eyelid also were treated with radiation therapy. Figure 4A shows a patient with a nodular basal cell carcinoma of the lower eyelid before treatment, and Figure 4B shows results 1 month after completing radiation therapy. The patient had no

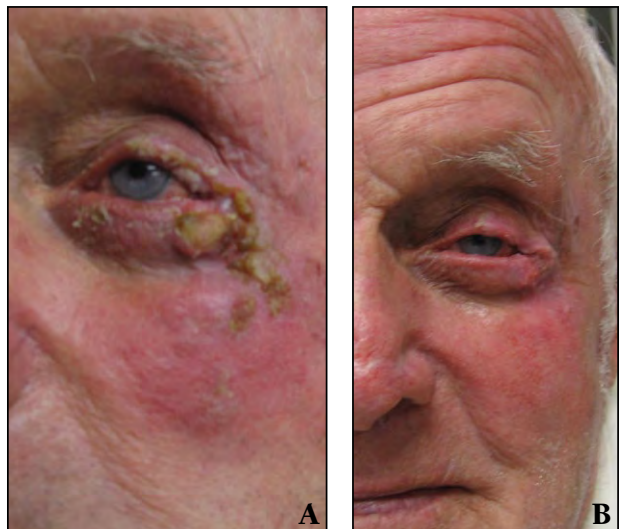


Figure 3. Squamous cell carcinoma of the upper and lower eyelids in a 75-year-old man (A). The patient previously was seen by 5 different dermatologists and was frustrated and disappointed with the care he received. He was offered the option of radiation therapy or surgical excision with an oculoplastic physician. The patient opted for radiation therapy and is shown here 2 weeks posttreatment (B).

scarring, residual dermatitis, or ectropion, and all the eyelashes remained intact. Over the last 3 years, all 11 patients included in this study had unremarkable radiation courses with no residual tumors present.

COMMENT

As demonstrated in our study, most patients who have received prior radiation therapy opt for it again when given the option of surgery or radiation. Although this review only evaluated patients over the last 3 years, we have been administering radiation therapy to the eyelids

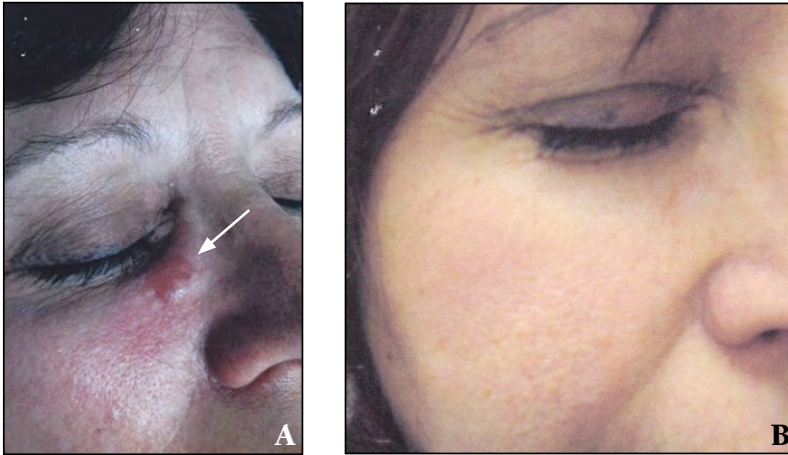


Figure 4. Nodular basal cell carcinoma of the eyelid (arrow) in a 44-year-old woman before (A) and 1 month after radiation therapy (B).

for the last 23 years. Following our protocol, we have not observed any scarring of the eyelids at 1 year or 20 years following treatment.

CONCLUSION

Radiation therapy for NMSCs of the eyelid should be a first-line treatment option. According to the American Osteopathic College of Dermatology,¹¹ radiation therapy probably is used less often than it should be. Radiation therapy is a valuable and necessary treatment method that should be added to our armamentarium of dermatologic modality therapeutics in the fight against the epidemic of NMSCs.

REFERENCES

1. Skin cancer facts. The Skin Cancer Foundation Web site. <http://www.skincancer.org/skin-cancer-information/skin-cancer-facts>. Accessed December 16, 2011.
2. Tierney E, Hanke CW. The eyelids: highly susceptible to skin cancer. The Skin Cancer Foundation Web site. <http://www.skincancer.org/the-eyelids-highly-susceptible-to-skin-cancer.html>. Accessed December 16, 2011.
3. Cancers of the eyelid. The University of Texas MD Anderson Cancer Center Web Site. <http://www2.mdanderson.org/app/pe/index.cfm?pageName=opendoc&docid=1917>. Updated August 8, 2007. Accessed December 16, 2011.
4. History of radiation therapy. University of California, San Diego Department of Radiation Oncology Web site. <http://radonc.ucsd.edu/PatientInformation/history.asp>. Accessed March 31, 2010.
5. Lukas VanderSpek LA, Pond GR, Wells W, et al. Radiation therapy for Bowen's disease of the skin. *Int J Radiat Oncol Biol Phys*. 2005;63:505-510.
6. Ludgate M. Radiotherapy for malignant skin diseases. New Zealand Dermatological Society Incorporated Website. <http://dermnetnz.org/procedures/radiotherapy.html>. Updated July 4, 2011. Accessed December 16, 2011.
7. Veness MJ. The important role of radiotherapy in patients with non-melanoma skin cancer and other cutaneous entities. *J Med Imaging Radiat Oncol*. 2008;52:278-286.
8. Lovett RD, Perez CA, Shapiro SJ, et al. External irradiation of epithelial skin cancer. *Int J Radiat Oncol Biol Phys*. 1990;19:235-242.
9. Caccialanza M, Piccinno R, Moretti D, et al. Radiotherapy of carcinomas of the skin overlying the cartilage of the nose: results in 405 lesions [published correction appears in *Eur J Dermatol*. 2003;13:523]. *Eur J Dermatol*. 2003;13:462-465.
10. Locke J, Karimpour S, Young G, et al. Radiotherapy for epithelial skin cancer. *Int J Radiat Oncol Biol Phys*. 2001;51:748-755.
11. Squamous cell carcinoma. American Osteopathic College of Dermatology Web site. http://www.aocd.org/skin/dermatologic_diseases/squamous_cell_carc.html. Accessed April 16, 2012. ■