

Enhancing Patient Care and Practice Revenues Through Office-Based Radiation Therapy



A White Paper for Dermatologists

IntraOp Medical Corporation

I. INTRODUCTION

Radiation therapy, traditionally used to successfully treat many internal cancers, can also provide highly effective—and often superior—therapy for skin cancers. Electron radiation therapy, which uses high-energy rays, is the choice for safe, effective skin cancer treatment without the risks of surgery. Yet, today, few dermatologists routinely consider electrons as an alternative or complement to surgical treatment. In large part, this is because the logistics of electron radiation therapy delivery have been problematic due to linear accelerator equipment size and shielding requirements. Moreover, with therapy historically provided at free-standing oncology centers, dermatologists no longer remain part of the continuum of care, compromising both patient relationships and revenues.

Today, technology is changing that. New innovations—including an affordable, self-shielded, electron linear accelerator that does not require lead or concrete bunkers—are providing dermatology practices with cost-effective and practical options for delivering electron therapy for a wide variety of skin cancers.

As a standalone treatment or a complement to surgery, targeted electron radiation therapy provides an elegant alternative for difficult-to-treat skin cancer cases, from cosmetically challenging tumors to diabetic patients.

Most electron therapy applications have long enjoyed strong Medicare and private payer reimbursements. When implemented appropriately from a business and administrative standpoint, dermatology office-based electron radiation therapy requires a relatively low patient volume to break even and need not involve significant capital expense to dramatically enhance practice revenues.

With the advances in electron radiation therapy and recent cuts in Mohs surgery reimbursement, dermatologists would be well served to investigate the feasibility and benefits of incorporating office-based electrons into their practice and offering a multi-disciplinary skin cancer treatment solution.

This white paper explores the benefits of electron radiation therapy, available electron technologies and logistics of incorporating them into a dermatology practice for enhanced patient care and satisfaction as well as practice revenues.

II. BENEFITS TO PATIENTS

Studies have shown that electron radiation therapy is as effective as surgical treatment for any non-melanoma skin cancer, including all basal and squamous cell carcinomas, with five-year cure rates at more than 95%. For certain of these cancers, such as peri-neural

involvement and PD lesions, electrons radiation therapy, combined with surgery, increases cure rates from 38% to over 90%.

In particular, electron therapy provides significantly enhanced cosmesis with little scarring or other visible tissue damage, compared to surgical treatments, and virtually no risk of infection since no incision is required. This makes it of particular value for patients with cancers in highly visible and cosmetically sensitive areas, such as the nose, ears and eyelids. Given that the majority of skin cancers occur on the face, this population often represents an extremely high percentage of a practice's patient load.

Improved cosmesis also benefits patients with large regions of tissue tumor involvement and recurrent skin cancers who would sustain significant tissue damage with the multiple surgeries required for treatment. For these and other patients, electron therapy eliminates the need for painful and costly skin grafts.

Also, because treatment involves no loss of blood, electrons also deliver benefits over surgical intervention for patients with large tumors on extremities or in other areas with compromised blood supply. Typically, electron radiation therapy is preferable for diabetics and others with blood-clotting impairments. Finally, it is the choice for patients who are poor candidates for surgery due to a variety of factors, such as age and fragility.

Benefiting every patient, electron radiation therapy treatment does not require anesthesia and is significantly less painful than surgery, with less trauma and faster recovery.

Also important, in certain cases, including Mohs surgery, electron radiation therapy is a complement to surgery and will help safeguard against cancer recurrence.

III. BENEFITS TO DERMATOLOGY PRACTICES

For dermatologists delivering electron radiation therapy in-house, patient benefits come hand-in-hand with a range of benefits for the dermatology practice itself.

These include enhanced patient satisfaction due to a greater choice of treatment options, including options that may better meet a specific patient's needs. In today's competitive medical marketplace, a multi-disciplinary offering provides a dermatology practice with a strong competitive advantage. Estimates are that as many as 25 % of skin cancer patients will choose electron radiotherapy over surgery for skin cancer treatment.

When office-based electron radiation therapy is delivered in-house by a qualified radiation therapy caregiver, physicians can offer these benefits while continuing to capture significant revenues for the cancer treatment process without devoting time to lengthy cancer surgeries. Instead, dermatologists can leverage the practice hours to expand patient volume and boost revenues.

And naturally, electron radiation therapy delivered as a complement to surgery provides an additional stream of revenue not currently available to that practice.

Dermatologic electron radiation therapy treatments are reimbursable under codes that include CPT 77413 for Radiation Treatment Delivery. The current average global Medicare reimbursement for skin cancer radiation therapy is about \$7,200 per patient. This compares extremely favorably to reimbursements for surgical treatments, such as the Mohs surgery, which averages less than \$2000. Based on this, a dermatology practice can break even on its investment in an electron linear accelerator such as the self-shielded IntraOp Mobetron by treating as few as five patients per month. (See section V., below.)

IV. SKIN CANCER RADIATION THERAPY BASICS

Most dermatologists will be somewhat familiar with the various radiotherapy treatment technologies and delivery options available today.

External beam radiation therapy (EBRT) delivered using a linear accelerator is the most common radiation therapy treatment for cancers overall. However, while high-energy x-ray therapy is most effective for deep-seated, internal tumors, electron radiation therapy is most effective for skin cancers, which are generally less than 4cm deep. This is because high-energy electrons have maximum impact near the surface and can be fine-tuned to penetrate depths between 1 and 3cm in 1/2cm increments to optimize dose for a specific patient. Because external skin lesions are often small and visible, they will benefit from extremely precise targeting of the power of high-energy electron treatments.

Therefore, electron radiation therapy is by far the most effective, versatile and cost-efficient technology for a dermatology practice.

Also available today are portable low-energy x-ray therapy machines marketed specifically for dermatology applications. These low-voltage rays, often orthovoltage, generally penetrate no deeper than 1cm, making them ineffective for treating 95% of the cancers seen in a typical dermatology practice. Furthermore, low-energy x-rays can damage bone and are unsuitable for treating certain extremity lesions. Because of their limited usefulness, a dermatology practice should conduct a thorough cost analysis before considering purchase of such a device suitable to treat about 5% of its caseload.

V. THE HISTORY OF RADIATION THERAPY IN DERMATOLOGY

Radiation therapy for skin cancer has a significant history that dates back to the 1950s. Treatments have generally provided a high rate of cure and low recurrence for non-melanoma cancers. However, the inferior technology used in the 50s and 60s led to a significant amount of misuse and inaccurate dosage, resulting in uneven cosmetic results

and occasional radiation-induced malignancies. Since the late 70s, however, improved electron radiation therapy technology has enabled more predictable and precise radiation therapy for skin cancers. Today, the long-term radiation-induced malignancy risk is less than 0.03%, or less than 3 in 10,000 patients.

These advances, however, were slow to enter the skin cancer market. As costly cancer centers were built during the past several decades, they catered to mainstream radiation therapy with little attention to the unique needs of skin cancer patients and their treatment demands. As a result, advancing surgical techniques, not radiation therapy, have provided a more effective and practical answer for skin cancer treatment.

Now fast forward to today. During the past few years, new linear accelerators have become available that support ultra-efficient and effective electron skin cancer therapy. They reflect the current state of the art in the radiation field, eliminating the problems of the past. Unlike yesterday's technology, modern devices provide carefully controlled radiation dose delivery and enable precise targeting of desired anatomic areas, with minimal risk to nearby healthy tissue. They specifically are optimized for the needs of skin cancer treatment.

One of these devices, the Mobetron from IntraOp Medical Corporation (Sunnyvale, Ca.), has also been optimized through its DermaBeam treatment skin cancer treatment paradigm to meet the specific demands of deployment in an office-based dermatology practice.

VI. DERMABEAM AND MOBETRON TECHNOLOGY

DermaBeam electron beam radiotherapy delivered by the Mobetron represents a significant technological breakthrough, ushering in an exciting new multi-disciplinary paradigm for the treatment of dermatologic cancers. Fine-tuned to meet the needs of free-standing dermatology practices, it is a uniquely compact, affordable, self-shielded device that delivers high-power electron radiation therapy without the need for excessive room modifications.

Now, for the first time, in their offices, dermatologists can provide electron radiation therapy that is as powerful and effective as the therapy provided in specialized cancer centers, but fine-tuned to the needs of skin cancer patients.

DermaBeam takes advantage of the proven performance of IntraOp's advanced Mobetron technology, which successfully delivers powerful electron radiation therapy using a relatively small, lightweight device that is less than one-sixth the weight of a conventional linear accelerator. The patented mobility and built-in shielding of the Mobetron represent a significant technological breakthrough.

For more than 10 years, the technology has been used around the world to deliver

radiation directly into the tumor bed during surgical procedures to treat a wide range of internal cancers.

Unlike conventional accelerators, DermaBeam is specially designed to target small anatomic areas with a high degree of precision to minimize damage to healthy tissue. Typically, patients receive one to two minutes of radiation five days a week during the course of five or six weeks.

Breakthrough DermaBeam technology provides dermatologists and their patients with an important new treatment option. Initial physician and patient reaction to the procedure at existing installations has been enthusiastic.

VII. THE INTRAOP BUSINESS PLAN

Recognizing that multi-disciplinary medical treatments can be complex, IntraOp has partnered with national radiation oncology specialist, 21st Century Oncology (21C), to create a turnkey electron radiation therapy program for dermatology practices that minimizes management time and capital expenses.

21C will fund half of the cost of the Mobetron device sited in a dermatology office, either as an outright purchase or a monthly lease. It also will manage set up of the radiation therapy program, from start to finish. This includes obtaining permits, ensuring compliance with the local regulatory agency and establishing best practices in coding and billing, along with the technology installation and testing.

Following Mobetron installation, 21C will provide an onsite dosimetrist, radiation therapist, and radiation oncologist if a practice does not already have such a relationship. Dermatologists continue to see patients as before but refer potential radiation therapy cases for a consultation in-house by the radiation oncologist, who functions as part of the practice team. For patients who go on to have radiation therapy, the radiation oncologist prescribes and delivers the course of treatment using the Mobetron in the dermatology office.

The dermatology practice will bill for the radiation therapy technical fee component, which averages about \$6,000, and will split that revenue with 21C. 21C will bill and receive all professional fees for the radiation therapy delivery. Through this program, a dermatology practice enjoys significant added revenue, while the radiation oncologist delivers the actual services and dermatologists are free to see other patients.

Using this model, estimates are that dermatology practices will offset their complete radiation therapy set-up and operating costs by treating as few as five patients each month and will recoup their entire initial investment by treating 150 total patients overall. The latter easily can be achieved during the first year of Mobetron use.

VIII. CASE STUDY

One of the first implementations of the DermaBeam technology has been at Riverchase Dermatology in Ft. Myers, FL. “By using DermaBeam, we are now able to offer a safe, effective, non-surgical alternative for skin cancer treatment,” explains Andrew Jaffe, MD, a longtime Florida-based dermatologist and Riverchase founder.

According to Albert DeNittis MD, a partner in the practice, “In addition to the patient benefits, DermaBeam offers an impressive economic benefit to the dermatology practice. We think as many as 25 % of skin cancer patients will choose the DermaBeam™ treatment because of its cosmetic benefits.”

Because Riverchase partnered with 21C, its doctors and administrators are not required to spend additional time to offer and maintain a radiation therapy program.

At Riverchase, the DermaBeam treatment is integrated into a spa-like setting and administered in a comfortable, pampering environment. Commenting on the service, one man who had received surgical skin cancer treatments in the past said, “It was really a wonderful experience. I am very satisfied.”

“I look fine, much better than with surgery,” said another.

Perhaps most important, one patient commented, “Everyone on staff was nice. Great patient care.”

After an initial trial period treating 12 patients per month, Riverchase is optimistic about increasing patient volume to more than 30 cases monthly, as a growing number of patients choose radiation treatment over surgery. Given this, Riverchase will cover its Mobetron investment during the first year of operation, while creating an enormous competitive advantage in the local market through its comprehensive approach to skin cancer treatment.

IX. INTRAOP MEDICAL CORPORATION BACKGROUND

IntraOp Medical Corporation was founded in 1993 to provide innovative technology for the treatment and eradication of cancer. IntraOp is committed to providing the tools doctors need to administer radiation therapy safely, effectively and efficiently to all cancer patients. Today, the company’s innovative portable, self-shielded Mobetron electron linear accelerator is used by medical facilities worldwide to deliver intraoperative radiation to treat a wide range of internal cancers.

Currently, IntraOp's Mobetron/DermaBeam technology is forging a new paradigm in the effective, efficient treatment of skin cancers in dermatology offices nationwide. For more information about IntraOp Medical and the Mobetron, visit: www.intraopmedical.com

X. CONCLUSION

As radiation therapy technologies have matured, electrons provide an effective, cost-efficient and relatively easy-to-implement treatment for skin cancer, benefiting both patients and dermatology practices. Electrons are the choice for skin cancer therapy because these high-energy rays are appropriate to effectively treat 95% of all skin cancers seen in a typical dermatology practice.

IntraOp's self-shielded, mobile Mobetron electron therapy device, with its specialized DermaBeam system for dermatology applications, is optimized for use in the dermatology office. When implemented through IntraOp's turnkey program, the device can pay for itself after treatment of as few as three patients per month. Given this, for many dermatology practices, the Mobetron can provide an important new source of revenue during these challenging economic times.

XI. ILLUSTRATIONS



Top row: IntraOp's Mobetron

Bottom row: A patient's hand before and after treatment with DermaBeam electron beam radiotherapy