

## Thinking Old School to Bring Something New to Skin Cancer Treatment

The versatility and specificity of the SRT-100 make it an excellent addition to the dermatologist's or Mohs surgeon's practice.



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Although superficial radiation techniques have been around since the early 1900s, its use has largely fallen out of favor for treatment of uncomplicated basal and squamous cell carcinomas. Since the 1970s, when Mohs techniques were first described, treatment of these lesions has usually involved a surgical approach. Part of the reason superficial radiation became less preferable is that the machines that were in use three and four decades ago did not have the technological capability to calibrate the energy delivery, and, as a result, there was a high risk for damage to adjacent, non-target tissue.

The SRT-100 is a completely different form of superficial radiation. The platform has been highly engineered to deliver a very specific and highly targeted radiation dose using a proton beam that travels only 5 mm below the surface of the skin. Thus, when appropriate lead shielding is used, adjacent tissue receives no radiation. When used in a reasonable fractionation dosage scheme in multiple sessions over time (ie, in 8 to 10 sessions), SRT causes virtually no damage to non-target tissue—and substantially less than what can be expected from electron beam modalities, which are sometimes used in 15 to 30 sessions.

One important benefit of this specificity is that it makes the SRT-100 an excellent option for treating skin lesions that appear closer to the surface, where use of a more powerful electron beam would be likely to induce collateral damage, or where excision or other surgical techniques might leave an unsightly scar. What that means in practical terms is that the vast majority of presenting skin cancers can be safely and



Courtesy of Sensus Healthcare

**Treatment of a BCC on the nose. Patient is shown at baseline (top, left), mid-treatment (top, right), at final treatment (bottom, left) and approx 14 weeks after final treatment.**

effectively treated in the dermatologist's office without need to refer to a radiation oncologist.

Yet, even as a Mohs surgeon, I find tremendous value in having the SRT-100 in my clinic, because I can offer patients the best option for their particular situation. In some cases, such as when the lesions appear on hair-bearing areas or near the hairline, Mohs might be a better option as radiation might cause permanent hair loss. Surgery or a different radiation protocol might be better for histologically aggressive skin manifestations. However, when surgery is likely to cause morbidity for the patient, then the x-ray treatment is a great potential option. For example, lesions on the leg, on a bald scalp, or around the nose or other areas that are more difficult to reconstruct may not be ideal for surgery.

## COSMETIC OUTCOMES

Using SRT does come with some important caveats. For instance, while not contraindicated in younger patients, there is also not a lot of long-term data on younger patients treated with SRT versus surgery. Published studies do indicate a very high overall success rate with SRT of about 95%. Further, recurrence rates at the same site are exceedingly rare in the short term, and understanding the full histopathology in addition to the clinical interpretation of the skin lesion to avoid missing any deep manifestations can further reduce the risk.

Another thing to note is that while there is good reason to believe that SRT can achieve equal if not better cosmetic outcomes as surgery, there is only really one study that I am aware of that compared cosmetic outcomes of the two approaches in a head-to-head trial.<sup>1</sup> Unfortunately, that particular study may have bred some misconceptions about cosmetic outcomes of radiation techniques. Although the findings were highly relevant when it was conducted in the 1990s, this study used a completely different form of radiation than SRT in which relatively high doses were delivered in small fractions—treatment variables that lend themselves to less-than-ideal long-term cosmetic outcomes. Given how the study was conducted, it really should be no surprise that the investigators judged cosmesis following surgery to be superior, and yet, these data are not at all applicable to SRT.

Speaking personally, I have been using SRT since 2012, and in that time, I have been very satisfied with the cosmetic out-

comes I have seen. While this is not data from a randomized, double-blind study, my impression is that I have not seen a lot of hyperpigmentation except in instances where there may have been a latent reaction, which is rare. For the vast majority of lesions that I treat, I have seen very durable high-quality outcomes that patients are very satisfied with.

## THOUGHTS ON ONBOARDING THE SRT-100

When any new modality is considered, the potential learning curve should be considered. From my view, the SRT-100 treatment is not at all difficult to deliver and the company provides very good training to physicians and their staff. The treatment tables that have been published outlining fractionation schedules are very straightforward and intuitive. The most important aspect that new operators need to focus on is patient selection, as matching the treatment to the correct patient will assure more consistent and successful outcomes.

I mentioned above that the SRT-100 is a versatile enough platform for both the general dermatologist and the Mohs surgeon. It should be noted that use of superficial radiation has applications beyond skin cancers. Namely, the SRT-100 is an excellent option for keloid scars. When I excise a keloid, I tell patients there is about a 50% chance that it will come back; when I use excision and adjunctive SRT, the success rate is much higher and the odds of recurrence are lowered significantly.

The idea of using radiation in conjunction with excision for treatment of keloids is actually not new. However, the SRT-100 does answer one of the major logistical challenges inherent to this approach, namely that there is no need to coordinate with a radiation oncologist to deliver the treatment immediately at the time of excision.

## CONCLUSION

The SRT-100 offers many advantages for dermatologists thinking about expanding their options for patients with nonmelanoma skin cancers, and it is an excellent treatment for keloid scars as well. It is also an excellent addition to the Mohs surgeon's practice offerings to allow patients greater choice. There are many scenarios in which a surgical approach may result in morbidity and where the use of superficial radiation may be appropriate as it offers comparable success and recurrence risk. There are also many patients who simply do not want to ensure a surgical procedure, and so having the ability to offer superficial radiation is a truly patient friendly option. ■

1. Avril MF, Auperin A, Margulis A, Gerbaulet A, Duveillard P, Benhamou E, Guillaume JC, Chalou R, Petit JY, Sancho-Garnier H, Prade M, Bouzy J, Chassagne D. Basal cell carcinoma of the face: surgery or radiotherapy? Results of a randomized study. *Br J Cancer*. 1997;76(1): 100–106.

