ACMS American College of Mohs Surgery

Non-melanoma skin cancer is the most common malignancy in the United States. Surgical management continues to be the gold standard treatment for basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), with Mohs micrographic surgery (MMS) serving as the first-line treatment for BCCs and SCCs in cosmetically sensitive areas and for high-risk tumors.

What is superficial radiation therapy (SRT)?

Superficial radiation therapy (SRT) is an X-ray based treatment that requires multiple patient visits for treatment of skin cancers. SRT has recently been highly promoted by companies that sell and profit from SRT devices and equipment. SRT is different from brachytherapy. Brachytherapy uses ionizing radiation for treatment, requiring different treatment planning and different billing codes than SRT. Brachytherapy is used for many types of cancer, including BCC and SCC.

How does SRT compare to Mohs micrographic surgery?

SRT has inferior long-term cure rates compared to Mohs surgery, requires multiple treatment visits, is higher cost, and has limited published literature on its side effects. According to national expert consensus entities, SRT should only be considered as a second-line treatment option under special circumstances for patients who are non-surgical candidates.

	SRT	MMS
Efficacy and Patient Burden		
Number of Visits to Complete Treatment*	5-30	1-2
Published Recurrence Rates for Primary BCC**	4.2 - 15.8%	1.0 - 2.5%
Published Recurrence Rates for cSCC**	5.8 - 10.7%	2.6 - 3.1%
Published Follow-up	Short (1-3 years)	Long (5-10 years)
Pathologic Confirmation of Margin Status	No (disease control determined by clinical exam +/- ultrasound)	Yes (frozen section histology)
Expert Consensus Recommendations		
AAD Position Statement	Second-line option when surgery is contraindicated	Most effective treatment option with the highest cure rates
NCCN Guidelines	Second-line option for non-surgical candidates	First-line treatment for high-risk BCC and low-, high- and very-high risk cSCC risk
Scope of Practice / Level of Training* **		
Residency Curriculum Requirement	No	Yes
Fellowship Training Available/Encouraged	No	Yes
Board Certification***	No	Yes

*Depending on a pre-op evaluation
**5-year relapse free survival rate
***Current board certification for MMS requires a minimum number of cases and/or fellowship training

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Published Cure Rates: Mohs surgery has a higher cure rate, with a higher level of supporting evidence

- Higher local recurrence (LR) rate with SRT
  - *Primary BCC*
    - 5-year LR: MMS 1.0-2.5%[1-4] vs. SRT 4.2-15.8%[5-7]
    - 10-year LR: MMS 4.4% [8] vs. SRT no data
  - *Recurrent BCC*
    - 5-year LR: MMS 2.4-4%[1,2] vs. SRT no data
  - *Primary SCC*
    - 5-year LR: MMS 2.6-3.1%[9,10] vs. SRT 5.8-10.7%[5,6,11]
    - 10-year LR: MMS no data vs. SRT 19.6%[11]
  - *Recurrent SCC*
    - 5-year LR: MMS 5.9%[9] vs. SRT no data
- Lower quality of supporting evidence for SRT
  - Cure rate based on histological confirmation (gold standard) for MMS vs. "disease control" (i.e. clinical exam or ultrasound) for SRT[12]
  - Multiple 5 and 10-year follow up studies for MMS with low local recurrence rates[1-4,8-10]
  - Several SRT papers are written by consultants of SRT companies, and many of these only publish short-term results (1-3 years)[5,12-15]
  - Published results with SRT vary widely, with some longer term studies showing high local recurrence rates[7,11]
  - Secondary cancers have a latency of onset of 10 years or longer after radiation therapy — published literature does not include greater than 10-year follow up after current SRT dosing regimens, therefore, long-term sequelae of SRT are unknown or unpublished

Patient Burden: SRT poses a high time and cost burden to patients and the healthcare system

- SRT requires multiple treatment visits for "disease control" versus one treatment visit for cure with MMS
  - Number of treatment sessions vary widely by SRT provider ranging from 5-30 treatment sessions[5,12]
  - Some providers regularly administer 20-30 treatment sessions for treatment for every skin cancer treated[12]
  - With multiple billing codes used with SRT, SRT can impose a significantly higher cost than MMS

House of Medicine Consequences:

- Concerns of scope of practice: SRT for NMSC purports delivery of radiation by dermatologists with minimal training that lacks endorsement by an accredited educational entity
  - SRT training is not currently included in ACGME Dermatology Residency Curriculum
  - Comparatively, Mohs surgery is a required curriculum component of Dermatology Residency, and the American Board of Dermatology is in the process of ensuring that Mohs surgeons are fellowship trained and/or board certified
  - Dermatology is now the specialty that bills for SRT (Code 77401) with the most frequency, according to 2021 CMS public data — this rate exceeds those of radiation oncologists (Dermatologists 82% of 77401 providers vs Radiation Oncologists 3% of 77401 providers)
- Marketed by device manufacturers with an emphasis on a financial remuneration model (i.e. practice growth and an "attractive economic profile")
  - Marketing materials suggest use of 12 unique CPT codes for treatment of a single skin cancer, including radiation therapy consultation, radiation treatment design and construction, management of radiation therapy, simulation of radiation therapy, calculation of radiation dose, ultrasonic guidance for radiation, and radiation treatment delivery
  - Billing codes recommended by the manufacturers are the same codes historically "owned" by board certified radiation oncologists

Short & Long-term Side Effects:

- SRT devices do not require rigorous efficacy and safety studies for specific skin indications with the FDA's premarket approval pathway
  - Short term side effects can include pigmentary changes, erythema, and ulceration [6]
  - X-ray therapy, especially for acne treatment, has been reported with numerous malignancies, including basal cell carcinoma and breast cancer[16,17]
  - MMS has a well-established safety profile[18]

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