

Case study

Intraepidermal carcinoma, scalp

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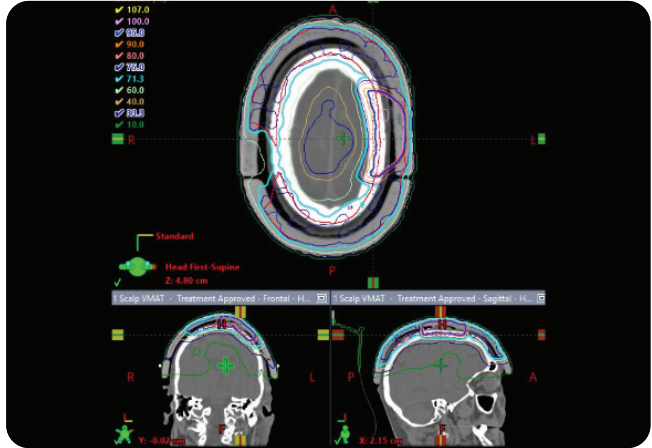
Summary of diagnosis

79-year-old male with a rapidly growing recurrent scalp lesion clinically behaving like an aggressive squamous cell carcinoma on a background of widespread solar damage.

Before treatment



Dosimetry



During treatment



After treatment (six weeks)



Note: scar present is from a previous excision

Patient history

The patient has a history of extensive sun exposure and has had multiple NMSCs including BCCs, IECs and solar keratoses affecting various parts of his body. He reports developing his first skin cancer several years prior to presentation and since then has had multiple lesions excised, a process which has become increasingly more frequent.

Presentation

The patient presented with a rapidly growing recurrent scalp lesion on a background of widespread solar damage to the scalp and forehead. Biopsy revealed an IEC but clinically the 3x2 cm lesion was behaving like an aggressive SCC. The lesion was noted to be bothersome to the patient as it wept and was malodourous. An IEC had been resected from the same area several months prior.

Planning, dose and treatment time

The patients' scalp and forehead were treated using widefield VMAT with customised 3D printed bolus. A treatment dose of 45 Gy in 25 fractions was delivered to the widefield with a simultaneous integrated boost of 60 Gy delivered to the large scalp lesion. Treatment was delivered over a five-week period with no planned mid-treatment break. The plan was presented at the GenesisCare national skin multidisciplinary meeting and in adherence to the GenesisCare widefield skin protocol.

VMAT treatment completely cleared the IEC on the scalp and showed excellent cosmesis with mild side effects

- The patient tolerated treatment well and demonstrated positive clinical outcomes including:
 - complete lesion clearance
 - excellent cosmesis
- Treatment resulted in some expected RT related skin toxicities including:
 - mild erythema and pruritus
 - alopecia
- The patient expressed contentment with his treatment outcome and has undergone further treatment for management of NMSCs on his upper and lower limbs

Background

Australia has the highest rates of skin cancer in the world, both melanoma and non-melanoma skin cancer (NMSC)¹⁻³. The key to reducing skin cancer related morbidity and mortality is early detection and treatment⁴. Intraepidermal carcinoma (IEC), Bowen's disease and squamous cell carcinoma (SCC) *in situ*, are terms that are often used interchangeably and collectively describe a superficial form of SCC⁵. SCCs can appear on any part of the body and can become bothersome as they may bleed, cause pain and pruritus, and are mostly found on sun-exposed areas including the scalp, face, arms and legs. The standard treatment approach for managing IECs is surgical excision, however, this can lead to unnecessary morbidity caused by skin removal and grafting, which can significantly impact a patient's quality of life and lead to complications if not managed appropriately⁶. In cases where conventional therapies like topicals, curettage and desiccation and photodynamic therapy have failed, the patient has experienced a recurrence, or if the goal is to conserve tissue and reduce morbidity, radiation therapy (RT) offers an effective treatment option for these patients⁷. The use of radiation therapy (RT) to focally treat BCCs and SCCs has been used for many years, and has been shown to confer cure rates between 79% and 100%⁸. Widefield volumetric modulated arc therapy (VMAT) is a RT modality that can treat large curved areas of skin with greater accuracy, precision, and a more homogeneous dose than that of other existing RT modalities⁹. This approach ensures that the affected area receives a tumouricidal dose while simultaneously minimising the impact on nearby non-target tissues such as the brain, for example, in patients treated for scalp lesions. The increased accuracy and precision of VMAT reduces treatment time to 10-15 minutes, thereby making it a fitting option for individuals who are elderly, or have difficulty lying flat for long periods of time⁹.

Should you wish to discuss the management of your patients with a radiation oncologist, or for further information, please contact:

skin@genesiscare.com



Scan the QR code to refer a patient

1. Bray F et al. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2018;68:394-424. 2. Perera E et al. Non-melanoma skin cancer incidence. *Australas J Dermatol* 2015;56:258-67. 3. Lomas A et al. A systematic review of worldwide incidence of nonmelanoma skin cancer. *Br J Dermatol* 2012;166:1069-80. 4. Clarke P. Nonmelanoma skin cancers: Treatment options. *Aust Fam Physician* 2012;41(7):478-80. 5. Charifa A et al. Intraepidermal Carcinoma. [Updated 2020 Sep 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK482474/> 6. Shumack SP. Non-surgical treatments for skin cancer. *Aust Prescr* 2011;34:6-7 7. Likhacheva A et al. Definitive and Postoperative Radiation Therapy for Basal and Squamous Cell Cancers of the Skin: Executive Summary of an American Society for Radiation Oncology Clinical Practice Guideline. *Pract Radiat Oncol* 2020;10(1):8-20. 8. Cho M et al. Utility of radiotherapy for treatment of basal cell carcinoma: a review. *Br J Dermatol* 2014;171(5):968-73. 9. Teoh M et al. Volumetric modulated arc therapy: a review of current literature and clinical use in practice. *Br J Radiol* 2011;84(1007):967-96.

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