CORRESPONDENCE

Good therapeutic outcome of radiotherapy in large facial skin cancers

Introduction

Reports of treating large facial skin cancers by radiotherapy are scant.\textsuperscript{1–3} Complete resolution of a huge exophytic angiosarcoma of the central face could be achieved by radiotherapy with relapse-free survival of 5 years.\textsuperscript{3} In this report, we describe two cases of large squamous cell carcinoma (SCC) and basal cell carcinoma (BCC) treated by radiotherapy with good clinical and cosmetic results. Although these tumors might be amenable to conventional surgery or Mohs micrographic surgery followed by reconstruction surgery, the cosmetic and functional outcomes may not be satisfactory.

Case reports

Case 1

An 88-year-old woman was referred from a local hospital for a 4.5 cm × 3.0 cm dehiscent wound after wide excision of a moderately differentiated squamous cell carcinoma 2 weeks earlier (\textbf{Figure 1A}). Examination revealed intense inflammation of the right cheek with multiple keratotic tumors near or contiguous to the ulcer. Considering the extent of tumor involvement, the size of dehiscent wound and old age of the patient, radiotherapy was suggested. A computed tomography scan for tumor staging revealed residual tumor mass up to 2.0 cm in diameter with focal skin thickening without invasion of deeper tissues or metastasis. The radiation field included the gross tumor, the neighboring area of skin thickening and a 1.5-cm free margin. Using intensity-modulated radiation therapy, a total dose of 7000 cGy (in 200 cGy daily fraction) by 6 MV photons was initiated. Substantial clinical improvement was noted after eight fractions (1600 cGy administered) (\textbf{Figure 1B}), and a complete healing of the ulcer with resolution of the tumors and inflammation was noted 6 weeks post-radiotherapy (\textbf{Figure 1C}). There was no tumor recurrence at a 15-month follow-up.

Case 2

A 42-year-old woman presented with a 10-year history of a slowly enlarging keloid-like tumor with a shiny, nodular surface and telangiectasia (\textbf{Figure 2A}). The tumor was 2.5 cm × 3.0 cm × 0.4 cm in size, and occupied the entire left nasolabial area, including the

\textbf{Figure 1} An elderly woman presented with a large dehiscent wound on the right cheek after incomplete excision of a squamous cell carcinoma. Note the severe background inflammation and atrophy of the skin and multiple keratotic tumors around the ulcer. (A) Before radiotherapy. (B) Rapid healing of the wound and tumor reduction after eight fractions of radiotherapy (1600 cGy). (C) Complete wound healing and resolution of the skin tumors and the background inflammation 6 weeks after irradiation of 7000 cGy in 35 fractions.
A middle-aged woman presented with a large, keloid-like, disfiguring basal cell carcinoma occupying the entire left nasolabial area with partial obstruction of the nostril. (A) Before radiotherapy. (B) 2.5-year follow-up after radiotherapy of 7000 cGy in 35 fractions shows minor scarring without local recurrence.

Discussion

Radiation therapy is an important treatment modality for non-melanoma skin cancers (NMSC), especially in cases where surgery, cryotherapy, electrodesiccation and topical chemotherapy are constrained by the tumor's size, depth or location (such as the lip, ear, nose and periorbital region) or the patient's age, medical co-morbidity or personal preference.

Radiation therapy for cutaneous malignancy has declined in recent decades because of drawbacks (such as radiodermatitis and radiation-induced malignancy), and the advent of other therapeutic modalities. However, the risk of radiodermatitis and radiation-induced malignancy has been much reduced with modern and fractionated radiation therapy. This treatment option is often overlooked by dermatologists nowadays, and radiotherapy is more commonly administered as an adjuvant therapy in high-risk NMSC or when tumor-free margins are inadequate.

For the treatment of BCC, surgery appears to have the lowest recurrence or failure rates, and thus is more effective than radiotherapy according to a Cochrane Review. Nevertheless, radiotherapy is a good option for elderly patients with tumors on the mid-face, including the nose, inner canthus and lower eyelid. In a series of 115 previously untreated or recurrent basal cell carcinomas treated with radiation therapy, the local control rates at 5 years were 95% for the stage I and II tumors and 56% for the stage III and IV tumors. The authors concluded that radiation therapy can achieve high cure rates for stage I and II basal cell carcinomas and is a relatively effective method for treating recurrent basal cell carcinomas, with cure rates surpassed only by Mohs micrographic surgery.

In cases of SCC, radiotherapy can be a definitive treatment option when considering cosmetic appearance and function, but high-risk SCC should ideally be excised with the aim to obtain adequate margins. In the guidelines proposed by the National Comprehensive Cancer Network for treating SCC, wide excision (10-mm margins if achievable) or Mohs micrographic surgery are recommended for high-risk tumors (>4 mm in thickness, Clark level IV to V, moderate to poor differentiation, presence of perineural invasion and recurrent tumors). Radiotherapy is kept as an adjuvant treatment if clinically warranted.

No randomized controlled trials (RCT) have examined the effectiveness of radiotherapy in comparison with other treatments for SCC, and there was only one RCT comparing surgical excision with frozen-section margin control to radiotherapy in primary facial BCC. According to recent statistical data, the 5-year recurrence rates of Mohs surgery and the standard excision were 1% and 5.3% respectively for BCC, and 3% and 8% respectively for SCC. In comparison, radiotherapy alone had higher 5-year recurrence rates of 7 to about 10% for both BCC and SCC. Further clinical follow-up data from 604 cases of BCCs and 104 cases of SCCs treated by office-based radiation therapy showed 5-year cure rates of 92.7% and 94.4%, respectively, and attained 78.6% to about 84% cure rates in 15 years.

In our first patient, the treatment posed a significant challenge because of the large dehiscent wound and the presence of multiple SCCs on the face. Radiotherapy was considered, but there was a concern for poor skin tolerance because of the severe atrophy and inflammation. To our surprise, the wound healed rapidly with resolution of the tumors and inflammation. In our second patient, the large BCC was located in a cosmetically and functionally critical area of the face. Disfiguration would be inevitable even if the tumor were excised by tissue-sparing micrographic surgery followed by reconstructive surgery. The two cases illustrated that modern fractionated radiation therapy can be an effective alternative to surgery with good cosmetic results in treating large, disfiguring facial tumors.
References


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