Radiation therapy for sebaceous carcinoma of the eyelid: a case report

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An 82-year-old woman presented with a 3-month history of a sebaceous carcinoma with swelling of the right upper eyelid. The 17 × 37-mm tumor was growing rapidly. Her visual acuity was light perception. She received irradiation using a 9-MeV electron beam with a total dose of 60 Gy. She has a limitation of eye opening as adverse events; however after 21 months, there has been no recurrence.

Key words: eyelid tumor, radiation therapy, sebaceous carcinoma

Introduction

Sebaceous carcinoma is a rare malignant tumor. It comprises about 0.67% of all orbital adnexal tumors, and 4.7% of malignant eyelid tumors.1 Surgical therapy is considered the primary treatment for this tumor.2 Sebaceous carcinoma is considered a radiation therapy (RT)-resistant tumor for which surgery is the first choice and preferred treatment for local disease.3 However, some studies suggested that RT was also an effective treatment for this tumor.4-7 We report a case of eyelid sebaceous carcinoma that completely disappeared with RT alone.

Case report

An 82-year-old woman presented with a 3-month history of a tumor with swelling of the right upper eyelid. The tumor was growing rapidly and was 17 × 37 mm at the first clinical examination in our hospital. The tumor bled easily. The woman's right eye visual acuity was only light perception. A biopsy specimen of the tumor showed poorly differentiated sebaceous carcinoma. Magnetic resonance imaging (MRI) and computed tomography were done for evaluation of the tumor extension, and showed that the tumor did not invade the intraconal space and cervical lymph nodes were not palpable (Figure 1).

She refused surgery because of her age. Then a limited field RT was administered to the tumor. She received a total dose of 60 Gy in 2.5 Gy daily fractionation using a 9-MeV electron beam (Figure 2).

Just after the completion of RT, the tumor had completely disappeared. She experienced grade 3 dermatitis as an acute adverse event based on the NCI (National Cancer Institute) CTCAE (Common Terminology Criteria for Adverse Events) v4.0 and had a limitation of eye opening as a delayed event; however, after 21 months of follow-up, she was free of recurrence as evidenced in the physical examination and the MRI (Figure 3).

Figure 1. Magnetic resonance imaging (T2-weighted) shows the tumor of the right eyelid, which did not invade the intraconal space.
Discussion

Sebaceous carcinoma is a rare malignant tumor of the Meibomian gland, the Zeis gland, and other sebaceous glands.\(^2,4,5,8-10\) Sebaceous carcinoma comprises approximately 0.67% of all orbital adnexal tumors and 4.7% of malignant eyelid tumors.\(^1\) A correct diagnosis is often delayed because it is frequently misdiagnosed as a chalazion.\(^1,6,8\) The mortality rate of patients diagnosed with a sebaceous carcinoma is about 4% – 30%.\(^1,2,4,9\)

Many prognostic factors were reported among the clinicopathologic features. Rao et al.\(^10\) reported several poor prognostic factors including: vascular, lymphatic, and orbital invasion; involvement of both upper and lower eyelids; poor differentiation; multicentric origin; duration of symptoms greater than 6 months; tumor diameter exceeding 10 mm; a highly infiltrative pattern; and pagetoid invasion of the overlying epithelia of the eyelids.

Surgery is generally considered as the primary therapy.
Dasgupta et al.\(^2\) reported approximately 76% of 1,349 patients who underwent surgery in the United States, 5.3% of those patients received RT, followed by 3.9% of patients who received a combination of RT with surgery, and 0.8% of the patients received radiation alone. Sebaceous carcinoma of the eyelid has been reported as a radio-resistant tumor. However, the reports of good response to radiation therapy have been increasing.\(^4\)\(^-\)\(^7\)

Matsumoto et al.\(^5\) reported that one patient received electron beam irradiation with a total dose of 52 Gy, and the tumor was under control at the 9-month follow-up examination. They suggested that the modern radiation therapy, especially megavoltage electron beam radiotherapy, was effective in the control and cure of the tumor with satisfactory functional and cosmetic results.\(^5\)

Yen et al.\(^6\) reported two cases of eyelid sebaceous cell carcinoma treated with radiation therapy. One patient had received Mohs’ micrographic excision, after 30 months, he noted a local recurrence, then he received radiation therapy with a total dose of 69 Gy. The other patient received 59 Gy irradiation to the eyelid and 50 Gy to the right neck as a prophylactic irradiation. In both cases, the tumor responded well to radiation therapy. One patient died of myocardial infarction without tumor progression 39 months after the treatment. The other patient showed no clinical evidence of tumor recurrence for as long as 46 months after the treatment. Furthermore, they reviewed 20 cases of sebaceous cell carcinoma of the eyelid treated with primary radiation therapy. The result demonstrated that the dose delivered was more important than the type of radiation used. More than 55 Gy of irradiation is advantageous for local control.

Pardo et al.\(^4\) reported 4 patients underwent definitive irradiation, and 6 patients underwent postoperative radiation therapy among 30 patients of all sebaceous cell carcinoma patients. In definitive irradiation they received 45 to 63 Gy. One of the patients who received 53 Gy developed lymph node metastasis but was locally controlled. Six patients received postoperative RT with a total dose of 45 to 61 Gy to ipsilateral cervical lymph nodes. There was no evidence of recurrence among the patients treated with RT.

In the present case, we used megavoltage electron beams delivering a total dose of 60 Gy to the tumor. The tumor located in the anterior part of the orbita. Therefore, we chose electron beam irradiation. The patient could not see anything with the affected eye at the first physical examination. We did not have to limit the dose for preservation of visual acuity. Our treatment was appropriate and effective, however, there were multiple poor prognostic factors. Therefore, we have to follow up this patient especially carefully. The present case will add to the evidence of primary RT for sebaceous carcinoma of the eyelid.

References