RADIATION ONCOLOGY CASE

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Palliative radiation therapy for metastatic squamous cell carcinoma to the parotid gland

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CASE SUMMARY

A 90-year-old woman underwent surgical resection of skin lesions of the face and fine-needle aspiration of a left parotid mass, with pathology of squamous cell carcinoma. Approximately 2 weeks after surgery, the patient presented to the emergency department with increasing pain and odynophagia due to the increasing left parotid mass (Figure 1A). CT showed an 8-cm left parotid nodal conglomerate encasing the internal carotid artery. An ear, nose and throat (ENT) evaluation found her tumor burden to be unresectable. Radiation was given to 20 Gy in 2 fractions delivered 7 days apart. Prior to the second dose of radiation, she had a 50% tumor response and no toxicity. At 1 month, she had complete clinical tumor response with no complications, including no acute toxicity (Figure 1B). She was eating a normal diet, and her Dobhoff tube was removed. Approximately 1 month later, she developed right neck recurrence treated with radiation to 25 Gy at 5 Gy/fraction. She then enrolled in hospice and died at home 2 months later.She had no acute toxicity from the second course of radiation.

FIGURE 1. *Patient facial appearance. (A) Prior to radiation therapy, showing left parotid mass and facial incisions, and (B) one month after radiation therapy showing resolution of parotid mass.*

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IMAGING FINDINGS, DIFFERENTIAL DIAGNOSIS

Postoperative CT of the head and neck demonstrated a large conglomerate necrotic lymph node mass in the left upper neck with obvious extracapsular extension, invading the sternocleidomastoid muscle, left parotid and submandibular glands, and focal areas of skin (Figure 2). There was also bony erosion of the posterior margin of the left mandible. Other necrotic metastatic lymph nodes were seen in the neck bilaterally. A possible left tonsil primary cancer was also seen. CT of the chest showed no evidence of metastatic disease. The differential diagnosis included a skin cancer metastatic to parotid and a second primary head and neck neoplasm including a mucosal primary lesion.

CT of the head and neck at 1 month post-RT showed soft tissue swelling and fat stranding surrounding the left parotid gland, reflecting post-radiation

FIGURE 2. *CT of the neck prior to radiation therapy, showing left cervical nodal conglomerate involving parotid gland and encasing the internal carotid artery.*

change. There was also extensive bilateral necrotic lymphadenopathy involving levels 2 and 3. Enlargement was seen in the right necrotic lymph node posterior to the mandible.

DIAGNOSIS

Metastatic squamous cell carcinoma to the left parotid gland and cervical lymph nodes

DISCUSSION

Advanced cancer of the head and neck may cause symptoms including fungating wounds, bleeding and infection. For advanced cancers of the head and neck, curative treatment often requires surgical resection of the gross tumor followed by radiation. Radiation therapy is the main treatment for patients who are inoperable due to unresectable disease or medical comorbidities. It can result in excellent palliative control and even cure. Chemotherapy may be used concurrently with radiation therapy if the toxicity is not too overwhelming.

Hypofractionated radiation treatment courses have been shown to treat advanced cancers of the head and neck effectively with little toxicity. Options have included treatment to a total dose of 30 Gy in 10 fractions daily, 20 Gy in 2 fractions 1 week apart, 30 Gy in 5 fractions 2 days/week, and the so-called "Quad shot" of 14 Gy in 4 fractions twice daily at least 6 hours apart on 2 consecutive days. The Quad shot was designed for up to 3 4-week cycles if the patient tolerates it and the tumor does not progress.

Patients treated with these dose schedules had excellent symptom improvement. In a study of 40 patients with advanced squamous cell carcinoma from mucosal sites, 12 of 22 patients treated to 30 Gy had a symptomatic response at 1 year post-treatment, whereas 7 of 18 patients treated to 20 Gy had a symptomatic response at 1 year.[1] The 20 Gy schedule was typically used for patients with poor life expectancy or poor performance status.

Studies of the Quad shot regimen have found that 60%-85% of patients had improved symptoms.[2-5] In the initial study of the Quad shot regimen, of 30 patients with incurable head and neck cancer, 85% had stable or improved dysphagia, 56% had stable or improved pain, and 67% had stable or improved performance status after treatment.[2] Sixteen patients had an objective response including 2 with a complete response. Median overall survival was 5.7 months, with a median progression-free survival of 3.1 months. Other studies have had similarly good findings for the Quad shot[3-5] or another regimen.[6]

Despite the rapid dose schedules used for advanced cancers of the head and neck, treatment toxicity is usually minor,[2] and the low total doses used generally ensure that long-term complications are very rarely seen. Patients may develop a skin reaction including erythema or skin desquamation in the treatment area, especially if orthovoltage or electron therapy is used. They may experience fatigue for 1-2 weeks following radiation therapy. For tumors involving or near the parotid gland or mucosal sites, patients may develop mild xerostomia or mucositis that usually resolves shortly after treatment.[2] Patients with scalp tumors may develop minor alopecia. Long-term complications may include nonhealing wounds, osteoradionecrosis of any radiated bones, brain necrosis if the treatment area is directly over the brain, blindness or cataract formation if the optic structures were radiated, or chronic xerostomia.

CONCLUSION

Patients with advanced cancers of the head and neck can be treated with rapid courses of radiation therapy with minimal or no toxicity and with good palliative effect. Although these courses should not be used with curative intent, a fraction of patients will have a complete response with surprising durability. Response to radiation may be rapid, so radiation therapy should be considered a viable option for patients with advanced cancers of the head and neck with significant symptoms, even if they have a short life expectancy.

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