

Long-standing invasive squamous cell carcinoma in a 55-year-old man

Lori Felker, MPAS, PA-C; Eric Felker, PA-C; Donnita Scott, MD, FACEP

ABSTRACT

If detected early, squamous cell carcinoma can be cured. This type of cancer accounts for 90% of head and neck malignancies and can be highly metastatic. Radiation and chemotherapy are recommended for advanced lesions such as described in this case.

Keywords: squamous cell carcinoma, invasive skin cancer, dysplastic changes, keratin pearls

CASE

A 55-year-old man presented to the ED wearing sunglasses, a hat, and a hooded sweatshirt that partially covered his face. The patient complained of a lesion to the right temporal region that had gradually spread to the extending and underlying tissues over the past 5 years. The patient said he decided to come to the ED due to his inability to control the bleeding with each dressing change and progressive vision loss in the right eye over the past 2 months.

The review of systems was positive for right eye redness with swelling and a headache. The patient denied difficulty speaking or swallowing, fever or chills, recent illness, nasal pain, or nasal drainage. The patient denied a past medical history of diabetes, hypertension, heart disease, allergies, skin cancer, HIV, mental disorders, and past surgeries or procedures. He denied a history of smoking, drinking alcohol, illicit drug use, or taking medications. The family history was negative for diabetes, cancer, and HIV. When asked if he had a primary care provider the patient explained that he did not have time to go to the doctor because he was the sole caregiver for his aging parents.

Physical examination The patient appeared his stated age, well-nourished but unkempt, and in no acute distress. Removing the bandage on his right eye revealed a large,



Key points

- Early detection and evaluation of skin lesions is crucial to the survival of patients with squamous cell carcinoma.
- In early stages, squamous cell carcinoma may appear as a small erythematous plaque or nodule with indistinct margins.
- Sun exposure, especially to ultraviolet B, is a common risk factor for squamous cell carcinoma.
- Treatment of advanced squamous cell carcinoma often is multidisciplinary and involves extensive surgical excision and chemotherapy.

red, non-malodorous cavitory lesion measuring about 10 cm x 10 cm (3.9 inches) (Figure 1). The lesion extended into the subcutaneous tissue and bone of the temporal region and the orbit of the right eye. A small amount of clotted blood was noted, but no purulent discharge, swelling, induration, pain, or tenderness were present. The structures of the right eye were completely obscured by overriding tissue and swelling (Figure 2). Inspection of the left eye revealed normal tissue and eye structures. The rest of the physical examination was unremarkable.

Laboratory findings The initial laboratory workup revealed a white blood cell (WBC) count of 9,200 cells/mm³; hemoglobin of 12.4 g/dL; hematocrit of 38.1%; and platelet count of 272,000 cells/mm³. Serum electrolytes and blood glucose were all within normal range.

Lori Felker is an assistant professor and clinical coordinator of the PA program at Arcadia University in Glenside, Pennsylvania, and Newark, Delaware, and practices at DelMar Emergency Specialists in the ED at Union Hospital in Newark. **Eric Felker** and **Donnita Scott** practice with Doctors for Emergency Services in the ED at Christiana Care Health Systems in Newark. The authors have indicated no relationships to disclose relating to the content of this article.

DOI: 10.1097/01.JAA.0000437821.53655.38

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CASE REPORT

Radiologic studies CT scans of the head with and without contrast were obtained and revealed a destructive lesion of neoplastic nature within the right orbit, sinus, and temporal region with intracranial extension (Figure 3). A CT of the orbits and facial bones without contrast revealed a soft tissue mass with direct extension into the right maxillary sinus, supralateral right orbit, and anterior middle cranial fossa. The CT also showed protrusion of the right globe and possible involvement of the intraocular musculature. The radiology report noted that these findings were consistent with an aggressive neoplastic process. A CT scan of the chest, abdomen, and pelvis was obtained and was negative for metastatic disease.

Hospital course The patient was admitted to the hospital and consultations were made, including plastic surgery, neurosurgery, otolaryngology, oral surgery, ophthalmology, oncology, and psychiatry. The patient was taken to surgery for wound debridement and biopsy. Fine-needle aspirate biopsy of the right temporal bone showed moderately differentiated squamous cell carcinoma. The patient was started on IV hydromorphone and oral duloxetine, and began a course of inductive chemotherapy. The plan was to initiate chemotherapy while the patient was admitted and initiate wound care at home with follow-up in 3 to 5 days. The patient was monitored for pain management and surgical consultation was reinitiated when the first course of chemotherapy was finished.

Three weeks after the initial hospital admission, the patient was readmitted for a second cycle of cisplatin plus 5 days continuous IV infusion of 5-fluorouracil. As a result of chemotherapy, the patient developed intractable vomiting and chemotherapy-induced anemia. The anemia was corrected and a repeat CT scan showed a decrease in the overall amount of abnormal soft tissue compared to the previous study. At this admission, a multidisciplinary surgical team was consulted to create a plan for surgical debridement and facial reconstruction. The patient underwent extensive surgery, including neck dissection, right superficial parotidectomy, and wide craniofacial resection of the right temporal scalp and face with right orbital exenteration and resection of the zygomatic arch. After that, the



FIGURE 1. The patient's lesion



FIGURE 2. Structures of the right eye were obscured by overriding tissue and swelling

patient underwent extensive reconstruction of the complex facial and cranial defects with a right pectoralis myocutaneous flap.

Further pathology reports showed squamous cell carcinoma in the periorbital bone and soft tissue, as well as the inferior and lateral right orbital bones. The report also noted scattered intertrabecular infiltrating squamous cell carcinoma of the right frontal bone with focal abscess formation. The biopsy of the salivary glands, parotid superficial lobe, and 10 lymph nodes were negative for squamous cell carcinoma.

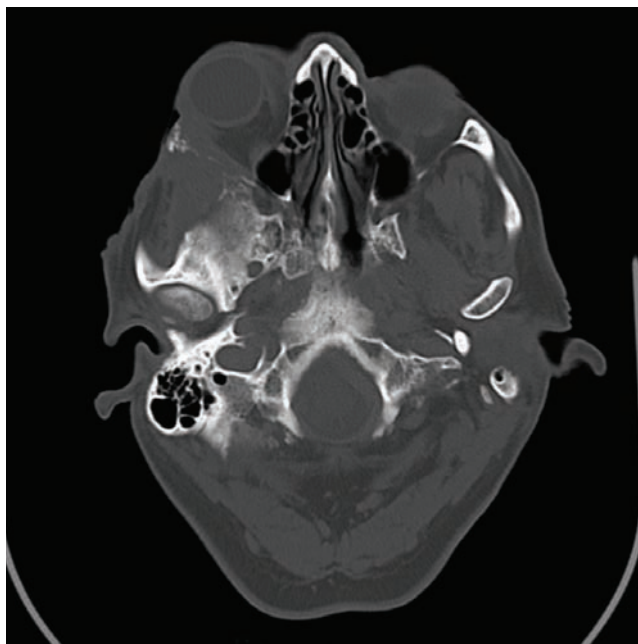


FIGURE 3. Head CT showing the lesion and intracranial extension

After surgery, the patient developed a subdural hematoma that required surgical decompression. Because intracranial involvement of the right frontal lobe was seen on CT, the patient was also given oral phenytoin for seizure prophylaxis. Duloxetine was discontinued and he was prescribed 15 mg of mirtazapine at bedtime, 80 mg of oxycontin twice daily, and 500 mg of cephalexin four times daily. The patient developed a postsurgical wound infection, and a consultation with infectious diseases was ordered. Cephalexin was discontinued with substitution of cefepime for improved central nervous system coverage.

DISCUSSION

Squamous cell carcinoma is second to basal cell carcinoma as the most common cause of non-melanoma skin cancer, and accounts for 90% of head and neck malignancies.¹ Patients with aggressive invasive squamous cell carcinoma are at higher risk for metastatic disease. Most lesions, if detected early, can be excised in the office setting.

Treating squamous cell carcinoma poses challenges because of the field defect phenomenon. Simply put, the field defect phenomenon refers to mild dysplastic changes in a region of the body that may be associated with invasive carcinoma in other areas just millimeters apart.¹

Sun exposure, especially to ultraviolet B rays, has been implicated as the most common risk factor for squamous cell carcinoma. Other risk factors include male gender, tobacco use, alcohol use, age greater than 50 years, exposure to industrial products, fair skin, and immunosuppression. Fifteen percent of cases of squamous cell carcinoma have a viral cause, most commonly Epstein-Barr virus or human papillomavirus (HPV). To date, the International

Agency for Research on Cancer (IARC) has identified HPV types 5 and 8 as carcinogenic. Patients with Plummer-Vinson syndrome and those with conditions that cause chronic inflammation, such as dystrophic epidermolysis bullosa, are at increased risk for squamous cell carcinoma. Dystrophic epidermolysis bullosa is a common cause of death in patients with metastatic squamous cell carcinoma. Patients with xeroderma pigmentosum and polydysplastic epidermolysis bullosa have a familial and genetic predisposition to developing squamous cell carcinoma of the oral mucosa.^{1,2}

In its early stages, the squamous cell carcinoma lesion may appear as a small erythematous plaque or nodule with indistinct margins. The lesion can also appear flat, smooth, and verrucous.^{3,4} Lesions can range from slow-growing and mildly invasive to rapidly growing with extensive invasion of surrounding tissues and metastasis. Because the epithelium is avascular, lesions that do not irritate or damage the epithelium should not bleed. A lesion that bleeds is an ominous sign of advanced disease.

If a cutaneous malignancy is suspected, perform a comprehensive patient workup. A complete blood cell count may reveal anemia, and a comprehensive metabolic panel may suggest systemic disease associated with metastasis. A comprehensive history and physical examination will help to guide the choice of diagnostic tests and imaging. Testing for HIV, Epstein-Barr virus, and HPV may be prudent in patients who are young and have no discernable risk factors for squamous cell carcinoma.

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Both CT and MRI are helpful in identifying advanced disease, although there is some debate about which is more efficacious. Positive imaging reports correlate with worse outcomes. The 5-year survival rate for patients with positive imaging results is 50%, compared to 86% for patients with negative imaging studies. A positron emission tomography (PET) scan is not standard but can be helpful for staging the disease.¹ A biopsy can be obtained via fine-needle aspiration, punch, or excisional methods. Punch or excisional biopsies are the preferred methods of specimen collection for extensive invasive lesions. The specimen should include the affected tissue and normal tissue for pathologic comparison. The histological hallmark of squamous cell carcinoma is the appearance of “keratin pearls.”³

Staging The American Joint Committee on Cancer (AJCC) identifies a grade T4 lesion as greater than 5 cm (1.97 inches) with involvement of adjacent structures.⁵ Tumor size and involvement of adjacent structures is only one consideration when assigning primary tumor designation; the AJCC also considers tumor thickness, perineural invasion, involvement of the reticular dermis, tumor location (in two or more high-risk anatomic sites), and poorly differentiated lesions. The AJCC has expanded its list of high-risk anatomical sites from the lips and ears to include the forehead, scalp, temple, and dorsum of the hands. The National Comprehensive Cancer Network (NCCN) uses these anatomical sites to classify risk of recurrence as high or low.⁵

Mohs procedure is recommended for small lesions but is not well-suited for advanced disease.

Treatment Options for treating squamous cell carcinoma include chemotherapy, radiation, and surgical excision of lesions. Treatment depends on the tumor size, stage, and the tumor node metastasis. Radiation can be used in early-stage squamous cell carcinoma but is most commonly used in conjunction with chemotherapy in advanced disease. Tumors graded T1 have an 85% to 95% cure rate with the use of radiation alone, however the effects of radiation over the long term are of particular concern in younger patients.¹ Radiation therapy is usually given 3 to 5 times per week for 4 to 8 weeks.¹ Risks of radiation therapy include cutaneous atrophy, telangiectasia, discoloration, and increased risk of developing cutaneous carcinoma or sarcoma later in life.¹

In most cases, radiation and chemotherapy are used concomitantly. The chemotherapy drugs 5-fluorouracil and epidermal growth factor receptor inhibitors (EGFR) are well-tolerated by patients. Cisplatin is the drug of choice and has the highest success rate for treating head and neck cancers. Combination therapy using cisplatin and radiation is considered the standard of care after surgical resection and for cases of advanced disease.¹ For locally advanced disease, chemotherapy is the standard of care after surgical resection and for patients with unresectable disease.¹ Other chemotherapy agents used to treat squamous cell carcinoma include docetaxel, methotrexate, paclitaxel, carboplatin, and bleomycin.

Surgical options for the resection of squamous cell carcinoma include electrodesiccation and curettage, which is preferred for low-risk lesions and not recommended for recurrent or advanced disease. Surgical excision is the

most-commonly recommended procedure for removing large invasive lesions. Mohs procedure is recommended for small lesions but is not well-suited for advanced disease encompassing a large surface area, especially on the face. Orbital exenteration often is necessary when the cancer has invaded the eye.

CONCLUSION

Squamous cell carcinoma is a curable cancer if detected early. Prevention also plays a key role: avoiding excessive sun exposure, using sunscreen, and wearing protective clothing can help prevent the development of cancerous skin lesions.

This case also had important psychosocial issues. The patient admitted he did not seek earlier care because he was busy with his job and the sole support for his aging parents. The patient's brother was interviewed in the ED and said that the patient had access to an excellent community physician, health insurance, and close family support. The patient's brother was appalled at the appearance of the lesion. The patient was seen by a psychiatrist and was diagnosed with depression. A subsequent psychologic evaluation determined that he was not depressed but perhaps had an earlier adjustment disorder that revealed a depressed affect. He had a good support system and was not suicidal, but was adjusting to his new reality. Duloxetine was discontinued at that time. He stated that he felt people were staring at him due to his disfigurement, although this did not stop him from conducting his daily activities and did not cause him to be depressed or suicidal.

The patient's 5-year survival rate for this invasive squamous cell carcinoma is less than 5%. Early detection of the lesion would have increased his 5-year survival rate to 85% to 95%. As of a follow-up in the fall of 2012, the patient is adjusting well and has not needed further treatment.

Clinicians should teach patients the ABCD's of skin lesions (changes in Appearance, Borders, Color, Diameter, and bleeding) and the importance of seeking medical care early to avert advanced disease. **JAAPA**

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