A 71-year-old white male farmer presented with a five-week history of a mass on his left mandible. He had a 70 pack-year smoking history. He reported a 9.1 kg (20 pound) weight loss and occasional production of blood streaked sputum. There was a nontender, freely mobile and erythematous 5 cm nodule on his left mandible (Fig 1). He also had a fixed, firm, nontender 3 cm mass overlying the tip of his left scapula. There was no associated lymphadenopathy or other skin lesions.

What is the diagnosis?
a) Primary head and neck carcinoma
b) Blastomycosis
c) Ameloblastoma
d) Actinomycosis
e) Tumor metastatic to skin

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Answer: The diagnosis is (e), Tumor metastatic to skin.

Biopsy of the skin showed poorly differentiated large cell carcinoma of bronchogenic origin. The chest roentgenogram demonstrated a 3 x 3 cm mass in the superior segment of the right lower lobe. A faint outline of a soft tissue density was also seen over the left chest wall (Fig 2).

Dermatologic involvement is an uncommon occurrence in internal malignancies occurring in only 5 to 9 percent of cases in two large studies. In general, skin involvement as the sole presenting symptom for all types of internal carcinoma is rare, with an incidence of 0.8 percent. The most common internal malignancies to involve the skin are breast, lung, and GI tract neoplasms. Although breast cancer is the most common internal malignancy to involve the skin, series without female patients suggest that bronchogenic carcinoma is the most likely neoplasm to be associated with skin metastases.

Cutaneous metastases are a relatively uncommon finding in bronchogenic carcinoma with incidences ranging from 5 to 10 percent. Lung cancer which invades veins often presents in skin sites at a distance from the primary tumor. Considering the large number of cases of lung cancer, the frequency of associated skin metastases is actually very low (1.7 percent). Skin involvement as a sole presenting symptom of lung cancer is rare since the patient with skin metastasis usually has involvement of other sites such as brain, liver, bone, or adrenal gland and is unlikely to live six months. Undifferentiated carcinomas predominate in this population. Most skin metastases from bronchogenic carcinoma will be firm and white, but skin discoloration, inflammation, induration, or even ulceration can occur. Of 117 men with primary lung cancer in one series, only 5 percent of skin metastases were located on the face. Another 15 percent were found on the back.

Carcinoma of the oral cavity is also likely to yield cutaneous metastases. As opposed to distant skin metastases, direct invasion of skin by oral cavity cancer is second in incidence to breast cancer. Almost all the cutaneous lesions metastasizing from squamous cell carcinoma of the oral cavity were found on the face or neck of men in whom there was previous histologic documentation of the primary tumor. Most tumors were moderately or well differentiated, but an occasional one was anaplastic. Metastatic lesions were often found in actinically damaged skin of the face and neck of men over 40 years of age. In most cases, however, the tumor affected the deeper dermis and subcutaneous tissue and spared the most superficial cutis. No oral primary was found in this patient.

Cutaneous blastomycosis may appear as small nodules along draining lymphatics, or as long-term, slowly progressive, granulomatous lesions with crusts, warty vegetations, and draining sinuses. The lesions are often multiple and may appear anywhere on the skin, though mainly on exposed areas. The prolonged cutaneous lesions are disseminations from a primary pulmonary focus. The lung lesion often appears as a mass and can be confused with lung cancer. Diagnosis is obtained by finding the dimorphic fungus in smears of exudate or tissue.

Although ameloblastoma represents only 1 percent of tumors and cysts arising in the jaw, it is the most common odontogenic neoplasm. It appears most often in the third to fifth decades and shows no sex or race predilection. It has a benign appearance, with some similarity to basal cell carcinoma. This benign tumor tends to spread by local invasion, and recurrence after initial resection is common. Ameloblastoma rarely metastasizes, though certain clinical situations, including long duration of tumor, extensive local disease, frequent surgical procedures or radiation therapy, and a mandibular focus for the primary ameloblastoma, tend to be associated with metastases.

Actinomycosis is a noncontagious infection produced by an anaerobic organism normally resident in the mouth. The disease is characterized by chronic inflammatory induration and sinus formation. The causative agent is a branching, Gram-positive filamentous organism. The frequency of actinomycosis of the face and neck may be explained by the greater population of Actinomyces israelii on teeth, in carious...
teeth, and in tonsillar crypts and by trauma from eating, dental procedures, or infection with oral bacteria. From foci in the jaw, lung, or intestine, actinomyces may spread by contiguity or through the bloodstream to the liver, spine, brain, kidneys, genitalia, spleen, and subcutaneous tissues. Lymphatic spread is rare.

The inflammatory reaction to A israeli is characterized by the following three features: (1) chronic suppuration; (2) extensive necrosis; and (3) intense fibrosis. The so-called “sulfur granules” in the inflammatory lesion are composed of intertwined mycelial filaments. The essential feature of actinomycosis is a painful, indurated swelling. This lesion may appear over the jaw a week or more after such trauma as tooth extraction or compound fracture of the mandible. As it increases in size, points of suppuration or fistulas appear on the bluish-red surface of the edematous skin. Trismus is prominent early, and cervical lymphadenopathy is a rare finding.

REFERENCES
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