

Primary squamous cell carcinoma in the chest wall mimicking abscess

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Abstract: We report a case of squamous cell carcinoma (SCC) presenting a painful cystic mass which originated from the chest wall with bony destructions. The patient underwent complete excision with chest wall reconstruction. Although the imaging characteristics of chest wall tumor can be variable, SCC should be considered in differential diagnosis in the case of symptomatic cystic mass in elderly patients.

Keywords: Chest wall tumor; squamous cell carcinoma (SCC); primary tumor; computed tomography (CT); ultrasonography

Submitted Mar 16, 2015. Accepted for publication Jun 01, 2015.

doi: 10.3978/j.issn.2072-1439.2015.06.05

View this article at: <http://dx.doi.org/10.3978/j.issn.2072-1439.2015.06.05>

Introduction

Diagnosis of chest wall tumors is challenging because their imaging features can be nonspecific. Their accurate diagnosis provides opportunities for complete resection and collaboration reconstruction. We report a case of primary squamous cell carcinoma (SCC) arising from chest wall.

Case report

A 53-year-old female had an asymptomatic small uptake on her right chest wall on PET-computed tomography (CT) (*Figure 1A*) by a medical-checkup. She had a 5-year history of type 2 diabetes that had been treated with metformin 500 mg. Ultrasonography revealed a 0.8-cm indistinct hypoechoic mass in the pectoralis muscle abutting the manubrium. Ultrasonography-guided fine-needle aspiration was performed. The pathology revealed a reactive lymphoid hyperplasia. Eight months later, the mass did not show any change and there was no mammographic abnormality. She was not followed for two years. However, at a later date, she was suddenly admitted due to pain. Ultrasonography demonstrated a large cystic mass arising from her chest wall (*Figure 1B*). We initially diagnosed it as an abscess but pathology result was carcinoma by fine-needle aspiration.

To evaluate the tumor, CT scans was performed,

which revealed a 7.5 cm × 5.4 cm × 8.5 cm, infiltrative heterogeneous enhancing mass with bony destructions of the sternum and the 1st to 3rd ribs (*Figure 1C*). Histopathology revealed a moderately differentiated SCC through an excisional biopsy (*Figure 1D*). An immunohistochemical evaluation was negative for ER, PR, and HER 2 and positive for EGFR and Ki-67 (60%).

Neither inspection of the skin nor whole-body CT scan could detect any primary lesions. She received adjuvant chemotherapy with cisplatin 93 mg/m² plus 5-fluorouracil 1,860 mg/m² which is commonly used in combination for SCC of other organs such as the head and neck, the breasts, and the anus. Afterwards, she underwent a complete wide excision including a sternotomy and had a reconstruction with bone cement and prolene mesh performed by a plastic surgeon. The surgical specimen was proved pathologically as a SCC of the chest wall with invasion of the ribs and sternum. She also underwent external beam radiation therapy consisting of five consecutive daily fractions per week with a fraction size of 1.8-2.0 Gy. Total dose was 64.8 Gy. She has been followed up for 1 year with no clinical or radiological evidence of recurrence.

Discussion

Differential diagnosis between metastatic carcinoma and primary soft-tissue tumor is critical because treatment and

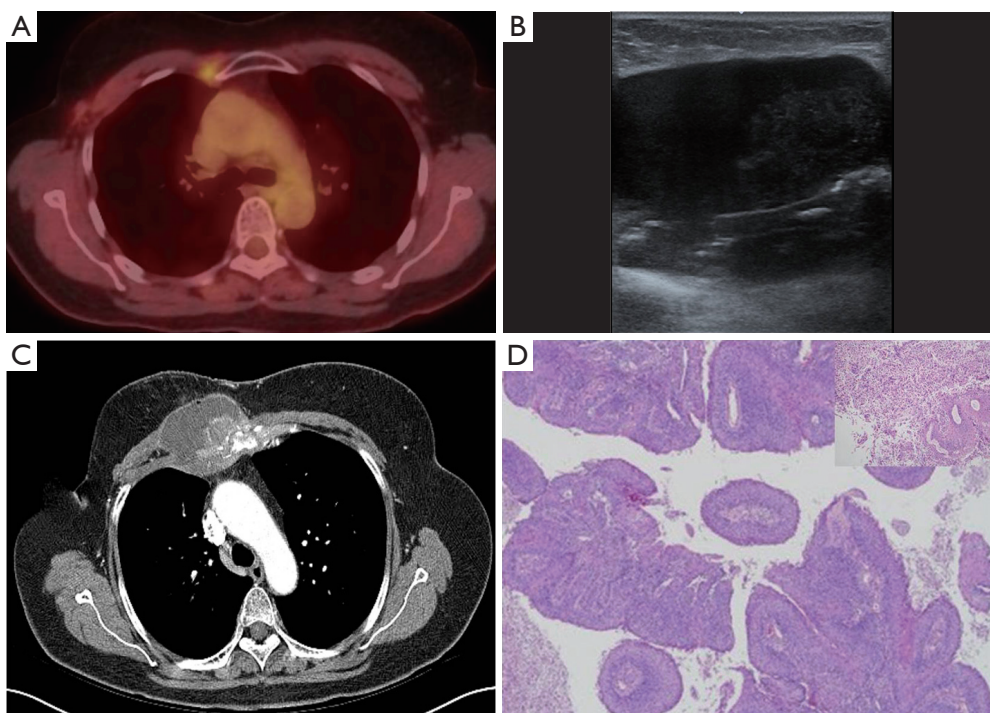


Figure 1 (A) On PET-CT scan, abnormal high FDG uptake is noted in the right chest wall ($SUV_{max}=2.95$); (B) 2 years later, ultrasonography reveals a growing, large cystic and solid mass on the right pectoralis muscle and intercostal space; (C) on a thoracic CT scan, a 7.5 cm × 5.4 cm × 8.5 cm cystic mass was noted in the right anterior chest wall with bone destructions of the manubrium and the right 1st to 3rd ribs at the anterior arc; (D) the tumor shows papillary growth architecture with malignant squamous cells (hematoxylin & eosin staining, ×40) and necrosis (inlet ×200). This pathology depicts a squamous cell carcinoma. CT, computed tomography; FDG, fluorodeoxyglucose.

prognosis are markedly different. Malignant chest wall tumors are a heterogeneous group of tumors including invasion from an adjacent tumor, primary tumor, and metastatic tumors. Invasion from adjacent tumor that occur in the lung or breast are relatively more common than others (1).

Primary chest wall tumor can be classified into bone or soft tissue tumor. A bulky mass invading adjacent structures without mineralization is suspected to be malignant soft tissue tumor. In adults, malignant fibrous histiocytoma (MFH) is the most common. MFH arises in the deep fascia or skeletal muscle in elderly people. It is usually a painless mass regardless of how large it is. CT finding can reveal a heterogeneous enhancing or calcified mass.

In consideration of pain, neurofibrosarcomas are suspected but they are usually associated with neurofibromatosis type I. They grow along the major or medium-sized nerves such as the sciatic nerve, brachial or sacral plexuses.

Squamous cells may arise from luminal epithelial

cells, myoepithelial cells, or ductal metaplasia (2). SCC is characterized by numerous malignant squamous cells with keratinizing eosinophilic glassy cytoplasm, intercellular bridges, keratin debris and background necrosis. To confirm the diagnosis, a surgical biopsy is mandatory.

Abscess present as a painful, cystic lesion with erythema. It is generally accepted that patients with diabetes mellitus are more susceptible to an unusual site infection. Our case was a chest wall lesion mimicking an abscess in a patient who had a history of diabetes. Specific findings and most appropriate chemotherapeutic regimen for an SCC are unclear because of their rarity. Limited literature has reported that SCC occurs in flaps which are used for reconstruction and chest resections (3,4). A case of the published literature reported that a combination of cisplatin and 5-fluorouracil was effective for SCC (5,6). Our patient also responded to combination treatment.

Imaging diagnoses may be difficult because of non-specific findings of chest wall tumors. However, if tumors

are presented as rapidly growing cystic masses without any adenopathy or calcifications in elderly patients, SCC should be considered in differentials diagnoses and adequate treatments must be carried out.

Acknowledgements

This study was supported by the Inha University research grant.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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Cite this article as: Shin YS, Choi CH, Kim YJ, Kim YJ, Lee KH, Kim MY. Primary squamous cell carcinoma in the chest wall mimicking abscess. *J Thorac Dis* 2015;7(7):E179-E181. doi: 10.3978/j.issn.2072-1439.2015.06.05