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Tumor-to-Tumor Metastases from Lung Carcinoma to Soft Tissue Fibrous Histiocytoma

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ABSTRACT

Tumor-to-tumor metastases are uncommon. Lung cancer is the most frequent donor tumor while renal cell carcinoma is the most common malignant, and meningioma the most common benign recipient of metastases. Other reported host benign lesions include thyroid adenoma, adrenocortical adenoma, ovarian cystoma, and hepatic cavernous angioma. A 41-year-old male smoker presented with a mass in the right axillary's fossa, cough and weight loss. Chest x-ray showed left lung collapse. Fiberoptic bronchoscopy showed vegetation in the left main bronchus and biopsy revealed adenocarcinoma. Biopsy of the right axillary mass showed benign fibrous histiocytoma (BFH) with metastasis from adenocarcinoma. To our knowledge, this report represents the first case of tumor-to-tumor metastasis to BFH. (Tanaffos 2008; 7(3): 73-75)

Key words: Tumor-to-tumor, Histiocytoma, Lung cancer, Collision tumor, Cancer-to-cancer

INTRODUCTION

Metastases of systemic cancers to preexisting mass lesions are named tumor-to-tumor metastases (1). Lung cancer (LC) is the most common donor tumor. Renal cell carcinoma (RCC) is the most common malignant (2) and meningioma (3) the most common benign recipient tumors of metastases.

To our knowledge, benign fibrous histiocytoma (BFH) has never been described as a recipient in a tumor-to-tumor metastasis in the literature search (4). We report a case of lung adenocarcinoma which metastasized to BFH.

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CASE SUMMARIES

A 41-year-old man presented with cough and weight loss in January 2007. He had a history of a mass in the right axillary fossa two years ago. Biopsy of the mass reported a benign tumor with fibrous stroma and dilated vessels. He smoked 27 packs/year. On physical examination, he was cachectic with deviation of the trachea to the left and diminished breath sounds in the left hemithorax. A mass was seen in left axillary fossa with red-brown color and hard consistency on palpation (Figure 1). No lymphadenopathy was found elsewhere. Chest x-ray and CT-scan confirmed total left lung collapse. Fiberoptic bronchoscopy revealed a tumor in the left main bronchus and biopsy of the mass confirmed adenocarcinoma. Right axillary mass biopsy showed metastatic adenocarcinoma composed of malignant glands, infiltrated to a BFH that was mainly composed of Touton giant cells and foam cells (Figure 2A, B and C).



Figure 1. Right axillary mass with gray to red-brown color, and scars of previous and recent biopsies.

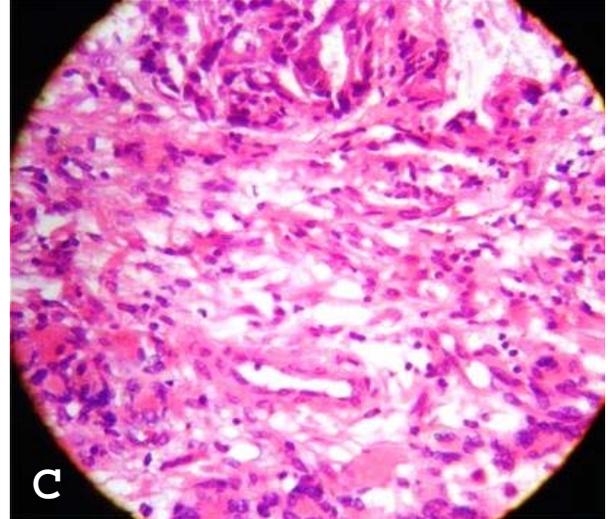
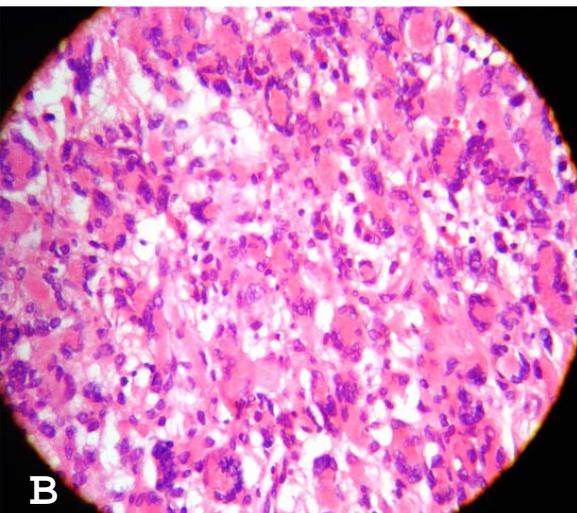
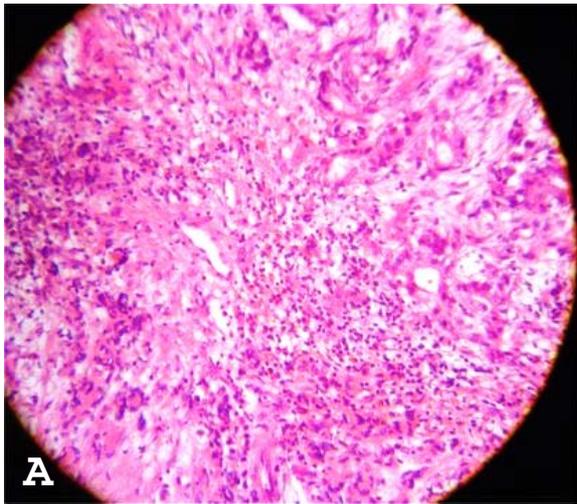


Figure 2 A, B, C. Histopathology of axillary mass (H&E) shows BFH with Touton giant cells and hemosiderin deposition infiltrated by metastatic adenocarcinoma.

DISCUSSION

Although the coexistence of two or more primary neoplasms in a patient is fairly common, tumor-to-tumor metastasis is a rare phenomenon. This phenomenon may become more frequent due to improving prognosis and survival of patients with malignancies.

In reviews of reported cases by Sella et al. (2) and Petraki et al. (1), LC was the primary tumor most frequently metastasizing to other neoplasms (40-50% of all cases). It is explained by the generally high incidence of LC in the population and by its marked tendency towards metastatic spread. RCC is the most frequent recipient (40-70%); it is attributable to the rich vascular supply of the tumor, in addition to the high lipid and glycogen content of RCC which acts as a rich “fertile” medium for acceptance of donor tumor cells.

Meningioma is the most common benign host tumor. Other reported host benign tumors include thyroid adenoma, adrenocortical adenoma, ovarian cystoma, and brain cavernous angioma (5). To our knowledge, BFH has never been reported as a

participant in tumor-to-tumor metastasis. It is a benign tumor with fewer than 5% of cutaneous BFH recurring following local excision. Cutaneous BFH is a solitary, slowly growing nodule that appears during early or mid-adult life. They show a red-brown color in the overlying skin but occasionally appear blue or black as a result of hemosiderin deposition. Microscopically, they are composed of a mixture of fibroblasts, histiocytes, multinucleated giant cells of the foreign body or Touton type that are typical of BFH and often contain phagocytosed lipid and hemosiderin (6). In our case, the patient was middle-aged, with a solitary tumor that recurred after local excision. The overlying skin (Figure 1) was brown to black in color, and histopathology of mass biopsy showed many Touton giant cells (Figure 2).

There are reports of metastasis from LC to RCC, meningioma, thyroid neoplasms, adrenocortical adenoma, prostate cancer, renal oncocytoma, hamartochondroma of the lung, testicular seminoma, and malignant melanoma (1). The authors suspect that the indolent growth of BFH provides prolonged exposure to the primary tumor, and low metabolic rate of BFH may act as noncompetitive metabolic environment conducive to the growth of metastatic tumor cells.

Tumor-to-tumor metastases must be distinguished from collision tumors with two different malignancies involving the same organ simultaneously. When a primary tumor metastasizes to an organ involved with another neoplasm, without invading the substance of this neoplasm, the best term is “collision tumor” rather than “tumor-to-tumor” metastases (1,7).

The following criteria should be met for documentation of tumor-to-tumor metastasis: 1) more than one primary tumor must exist; 2) the recipient tumor must be a true benign or malignant neoplasm; 3) the metastatic neoplasm must be a true metastasis with established growth in the host tumor,

and not the result of contiguous growth, “collision tumor” or embolization of tumor cells; and 4) should not pertain to tumors that have metastasized to the lymphatic system, where lymphoreticular malignant tumors already exist (1).

In summary, BFH as a recipient of tumor-to-tumor metastasis has not been described previously. We described a case of right axillary BFH as a host of LC. Although tumor-to-tumor metastasis occurs infrequently, this possibility should always be considered when an unusual dimorphic pattern appears in a tumor.

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