Collision Tumor of The Scapula: A Case Report

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Citation

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Abstract

A collision tumor is a mixture of two histologically distinct malignant cell populations. Herein we report a case of collision tumor (chondrosarcoma and epithelial malignant tumor) arising in the scapula of a 60-year-old woman. The patient had mastectomy and radiotherapy for breast cancer 20 years ago. Histopathologic examination of a tru-cut bone biopsy suggested a diagnosis of a carcinoma metastasized to the sarcomatous scapula.
To our knowledge, this is the first case of a collision tumor located in the scapula in the literature.

INTRODUCTION

Collision Tumor (CT) is defined as coexistance of two adjacent but histologically different malignant neoplasms. CT is rarely seen and more common in males than females. Peak age of onset is over 65 years. Most frequently it is found in the stomach, liver, uterus, breast, lung and bone ([1,2,3,4]). Diagnosis is mostly difficult because of lack of special clinical features. Even though the scapula is a common site for primary bone malignant lesions, metastatic involvement is rarely seen. If a breast cancer patient presents clinical symptoms and x-ray findings of a bone tumor at the side of prior radiations, it must be considered as a postradiation sarcoma ([5]). According to our best knowledge, CTs within the scapulae are not published in English literature.

In this paper, we report a case of a chondrosarcoma and an epiteloid carcinoma (collision tumor) both located in the scapula together and the literature is reviewed.

CASE REPORT

A 60-year-old female was admitted to our hospital with chief complaint of suffering from left shoulder pain and arm edema. These symptoms continually worsened over a period of eight weeks. Medical history has included mastectomy and radiotherapy in France, for left breast cancer 20 years ago.

On physical examination, the patient appeared to be in good overall health. Clinically the patient presented with left arm lymphedema and pain over the left scapula with palpation. There were no pathologic findings on the mastectomy side and on the other breast.

Laboratory examinations were within normal limits except for an increased sedimentation rate (30 mm/hour). No tumor marker was found increased.

Radiological investigation with x-ray and computerised tomography suggested the presence of an osteolytic lesion of 3x3cm in the left scapula. Following radiographical evaluation, the patient underwent a tru-cut bone biopsy. Histopatologic examination revealed a tumor comprising two distinct parts with an extensive infiltration of the bone tissue, with a malignant chondroid tumor (chondrosarcoma) and an epithelial tumor which, in places, showed pleomorphic cell groups. The sarcomatoid tumor had low cellularity, moderate nuclear growing, vesicular nucleus and binucleation in a few cells (Fig. 1). Bone trabecules revealed extensive infiltration by an epitheloid tumor showing large, pleomorphic cells (Fig 2).

Figure 1

Figure 1: Microscopic examination of the biopsy specimen shows an extensive infiltration of the bone tissue with a malignant chondroid tumor (HEX).

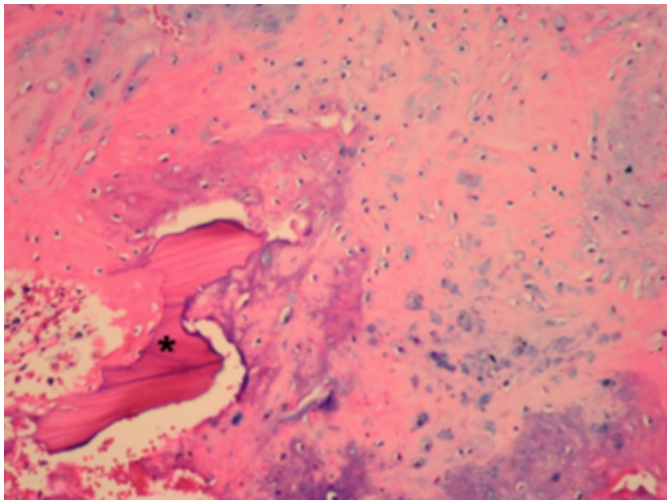
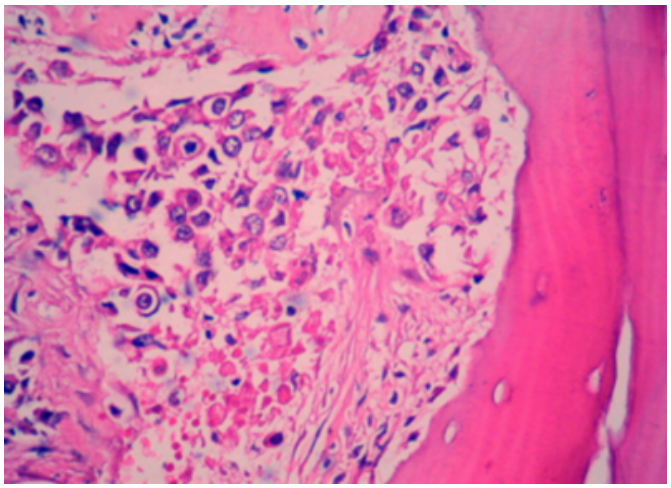


Figure 2

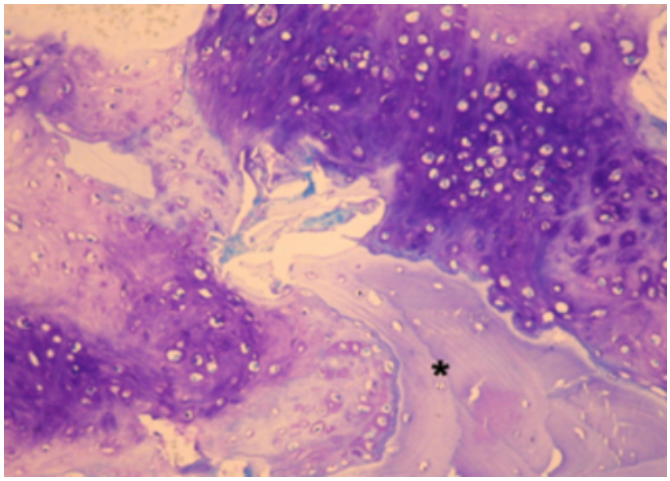
Figure 2: Microscopic examination shows bone trabecula revealing infiltration by epitheloid tumor (HEX).



Immunohistochemical analysis showed these cells to be cytokeratin- and human milk fat globulin I and II (HMFG)-positive but vimentin-, estrogen and progesterone receptor-negative. Overall, the pathology suggested a diagnosis of a carcinoma metastasized to sarcomatous bone (Fig. 3). Finally, the patient consulted an oncologist for advanced therapy. The patient did not want receive any further treatment. So we advised only a general check-up at an interval of 4 to 6 months. Practically, no change was seen in the scapula.

Figure 3

Figure 3: Immunohistochemical analysis showed these cells to be cytokeratin- and human milk fat globulin I and II (HMFG)-positive.



DISCUSSION

Collision tumor is an entity that was described relatively recently. Little is known about the genetic changes. The p53 gene alterations are thought to play a role in the tumorigenesis ([6]). Collision tumors represent a separate genotypic lineage.

Radiation therapy is commonly used to treat malignant tumors but it leads to side effects. One of them is post-radiation sarcoma (PRS) and it is a sarcoma developing in a previously irradiated field ([7]). The scapulae relatively often are exposed to radiation in radiotherapy for breast cancer. PRS is rarely reported after irradiation in breast cancer patients. It may develop after long disease-free intervals. For chondrosarcoma of bone, the common age is adolescence. Usually, chondrosarcoma is visible in x-ray films as a lytic lesion while other primary bone tumors and metastases are visible as calcified lesions in the scapula. Carcinomas, most commonly breast cancer, are the likeliest group of neoplasms metastasizing to bone. Metastatic disease to the scapula is also an uncommon condition primarily.

In this case, further investigation revealed no evidence of a primary tumor on ultrasound and computerised tomography. Overall, it appeared that this patient had an postradiation sarcoma and epiteloid tumor in the absence of an obvious primary site ([8,9]). First of all, controversy remains as to whether the epitheloid component is derived from a breast cancer or lung cancer. The history of breast cancer and immunohistochemical HMFG-positivity make us think the carcinomatous component is probably metastasis from the breast cancer. However, high frequency in lung cancer and

among the other types of tumor and low specificity make HMFG I-II a nonspecific diagnostic tool ([10],[11]). Secondly, the sarcomatous component of the tumor is adjusted with histologically low-grade chondrosarcoma. It is difficult to diagnose.

Pathologic findings are the only way to make a correct diagnosis for CT before operations. The treatment of collision tumor remains unclear. Operation is the major therapy assisted by chemotherapy and radiotherapy when necessary.

Future prognostically directed studies of this variety of collision tumor must recognize that these neoplasms have two components, each of which needs to assessed. Therefore, patients who receive radiation should be monitored closely and a high index of suspicion should be maintained for complaints referable to the irradiated site.

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