

A uterine leiomyoma in which a leiomyosarcoma with osteoclast-like giant cells and a metastasis of a ductal breast carcinoma are present

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Abstract

Leiomyosarcoma of the uterus is a rare tumor, and the presence of osteoclast-like giant cells in this tumor is even rarer. A leiomyosarcoma arising in a leiomyoma is also quite unique. Breast cancer metastasizing to the uterus is seldom seen as well. A 70-year-old woman presented with metastasized breast cancer to the bones. An evaluation of the computed tomographic scan was made, which showed an enlarged uterus with a tumor. The tumor was a leiomyoma in which a leiomyosarcoma with osteoclast-like giant cells as well as a metastasis of a ductal breast carcinoma was present. To our knowledge, this is the first report of a leiomyosarcoma containing osteoclast-like giant cells, present in a leiomyoma, in a uterus also containing a ductal breast cancer metastasis present in the leiomyoma and myometrium.

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Leiomyosarcoma; Leiomyoma; Osteoclast-Like Giant Cells; Breast Cancer Metastasis

1. Introduction

Uterine sarcomas are rare tumors that account for only 3% to 7% of all uterine cancers [1]. Leiomyosarcomas remain the most common uterine sarcomas [2]. Only 6 leiomyosarcomas of the uterus containing osteoclast-like giant cells were published previously [3–8]. The development of leiomyosarcoma in a leiomyoma is considered to be an extremely rare event, with an incidence of 0.13% and 0.29% [9]. Still, the malignant transformation of a uterine leiomyoma is debated and very rare [10]. Seldom do malignant tumors metastasize to the uterus. The most common primary tumor that metastasizes to the uterus is cancer of the breast [11]. Here, we present a case in which follow-up for metastasized breast carcinoma revealed a uterine leiomyoma in which a leiomyosarcoma containing osteoclast-like giant cells as well as microscopic foci of metastatic breast cancer was present, a previously unreported combination.

2. Case report

In December 2009, a 70-year-old female patient presented to our clinic. Her medical history was significant for chronic obstructive lung disease and ductal breast carcinoma T1N1M0 in 1996, which was treated with a mastectomy, radiation, and adjuvant tamoxifen chemotherapy until July 2002. Her disease had progressed, and she had developed multiple metastases to the bones. To evaluate whether this was progressive, a computed tomographic scan was made of the abdomen and pelvis in January 2010. This showed an incidental finding of an enlarged uterus in which a tumor with a diameter of 96 mm was present. A total abdominal hysterectomy and bilateral salpingo-oophorectomy were performed without complications.

2.1. Pathology

The hysterectomy specimen weighed 480 g. In the myometrium, a circumscribed tumor was present with a diameter of 10 cm. The tumor was not only partly white and firm as a leiomyoma but also contained several large brown softer areas (Fig. 1). The cervix, endometrium, ovaries, and fallopian tubes were unremarkable. Multiple sections of the large myometrial tumor revealed that the white firm areas

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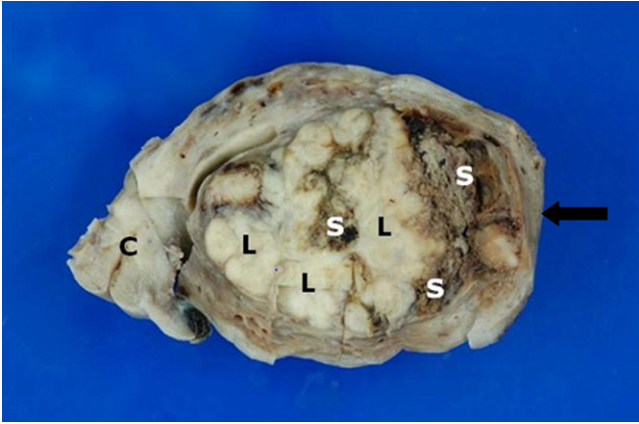


Fig. 1. Sagittal section of hysterectomy specimen showing a relatively well-demarcated tumor in the fundus of the uterus (arrow). Part of the tumor is white (histology, leiomyoma [L]); part of the tumor is brown (histology, leiomyosarcoma [S]). Cervix (C) and endometrium are unremarkable.

were indeed composed of whorled bundles of smooth muscle cells without atypia and without mitotic figures consistent with a benign leiomyoma. The brown areas were composed of highly atypical and mitotically active, malignant-appearing cells between many benign-appearing, multinucleated, osteoclast-like giant cells (Fig. 2). Necrotic areas were present in this part of the tumor. The atypical cells, in contrast to the osteoclast-like giant cells, were strongly desmin and p53 positive, consistent with a diagnosis of a high-grade leiomyosarcoma with osteoclast-like giant cells (Fig. 3). Areas of benign leiomyoma were sharply alternating with this leiomyosarcoma. The leiomyosarcoma was situated within the leiomyoma, but the leiomyoma did not completely surround the leiomyosarcoma. The leiomyosarcomatous component showed vasoinvasive tumor growth and was metastasized to the mesentrium (biopsy proven). In the benign leiomyoma as well as in the surrounding myome-

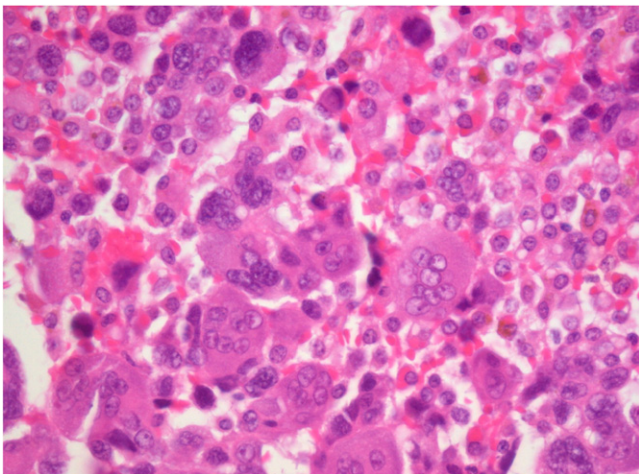


Fig. 2. High-grade leiomyosarcoma tumor cells with numerous multinucleated giant cells.

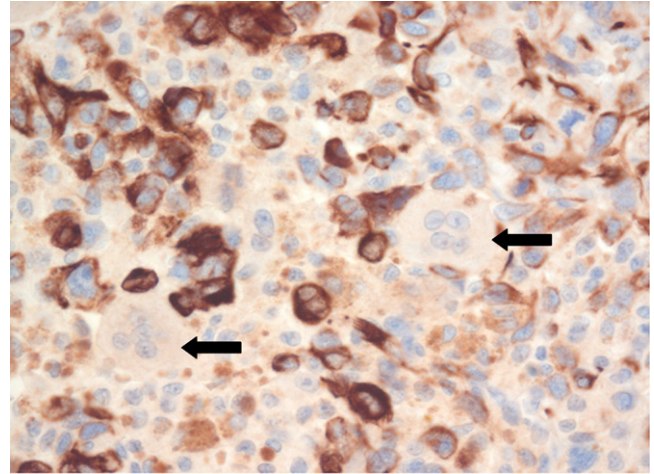


Fig. 3. Strong desmin staining of tumor cells with no staining of the osteoclast-like giant cells (arrows).

trium, several microscopic metastatic foci of ductal breast carcinoma were present (Fig. 3). Breast tumor cells were present in the leiomyoma, next to the leiomyosarcoma, but not in the leiomyosarcoma itself (Fig. 4). At this moment, the patient is alive and still under therapy for her metastasized breast cancer.

3. Discussion

Osteoclast-like giant cells have been observed in a wide range of mesenchymal and epithelial neoplasms [12]. Their significance is unknown [6]. Osteoclast-like giant cells have been described in the uterus in endometrial stromal tumors and leiomyosarcomas, as in our case. These uterine leiomyosarcomas with osteoclast-like giant cells are only seen rarely (only 6 cases have been published) and appear to

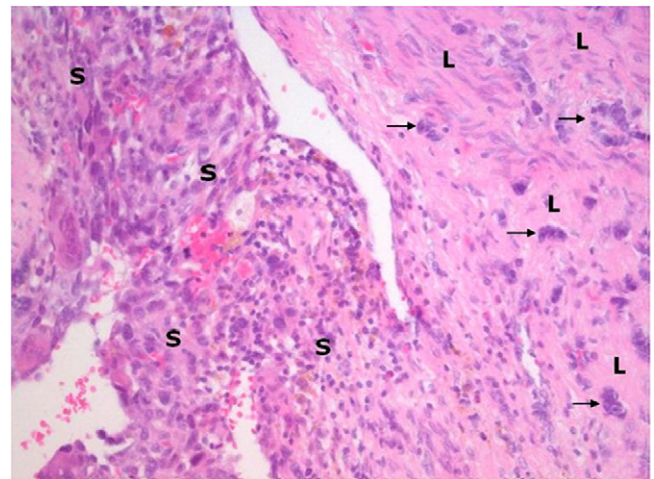


Fig. 4. Area with leiomyosarcoma (S), leiomyoma (L), and metastasis of ductal breast cancer tumor cells in leiomyoma (arrows) but not in leiomyosarcoma.

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