

Pulmonary metastasis from uterine leiomyosarcoma in a patient with limited cutaneous systemic sclerosis

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Abstract

A 51-year-old woman, who was diagnosed as having limited cutaneous systemic sclerosis, presented with pulmonary nodules incidentally detected in a chest radiograph. The patient had surgical biopsy of the nodules. In microscopic examination of the specimens, proliferation, mitotic activity, and cellular anaplasia of spindle cells were present. Fluorodeoxyglucose-positron emission tomography showed tumors in lungs as well as uterus. The diagnosis of the tumor was pulmonary metastases from uterine leiomyosarcoma. We should be on alert the possibility of developing malignant disease in patient with this autoimmune disease. If it is certain that there is metastasis, we believe that therapy for the primary lesion will be preceded by biopsy and surgery for the metastatic lesions.

KEYWORDS

limited cutaneous systemic sclerosis, pulmonary metastasis, uterine leiomyosarcoma

1 | INTRODUCTION

Systemic sclerosis (SSc) is associated with an increased risk of malignant disease.¹⁻³ Although very rare, development of various kinds of sarcoma has also been reported in patients with SSc.⁴⁻⁸ Uterine leiomyosarcoma is an uncommon aggressive gynecological neoplasm characterized by a poor prognosis.⁹ It develops distant metastases both alone or in association within pelvis. Uterine leiomyosarcoma usually metastasizes to the lungs, peritoneal cavity, followed by the retroperitoneum, liver, and bone.⁹⁻¹⁴ Pulmonary metastases from uterine leiomyosarcoma are sometimes detected incidentally, and almost of them are found by chest radiograph and chest CT scan.¹⁵ We herein a case, who was diagnosed as having limited cutaneous systemic sclerosis (lcSSc), presented with incidentally detected pulmonary metastasis of uterine leiomyosarcoma.

2 | CASE DESCRIPTION

A 51-year-old female was referred to our respiratory division for evaluation of suspicious multiple nodules in both lungs. The lung lesions were incidentally detected in a chest radiograph during a routine medical inspection for lcSSc. She had diagnosed as having uterine leiomyoma 6 years earlier, which was followed up by a gynecologist at other hospital. One year after the diagnosis of the gynecological disease, she was diagnosed as having lcSSc. Her bilateral fingers were sclerotic, and scar tissue in the finger skin was also observed (Figure 1). She had Raynaud's phenomenon. Laboratory findings were positive for antinuclear antibody (ANA; 1:1280) with a discrete speckled pattern. Serum centromere antibody level was 27.4 index (ELISA, MESACUP DNA-2, CENP-B, Medical and



FIGURE 1 Scar tissue in the second finger

Biological Laboratories, Co Ltd, Nagano, Japan)(normal range: up to 10.0 index).¹⁶ A chest and abdominal computed tomography (CT) scan detected a nodule measuring 10 mm in diameter in both lungs (Figure 2). The patient strongly hoped to follow-up with radiological evaluation and refused to receive any further evaluation including biopsy at that time. Chest CT scan taken 2 years after the initial radiological evaluation, enlargement of each nodule up to 15 mm in diameter was observed in the follow-up CT scan. Therefore, the patient underwent video-assisted thoracic surgery (VATS) and had surgical biopsy of the nodules. In microscopic examination of the resected specimens, proliferation, mitotic activity, and cellular anaplasia of spindle cells were present (Figure 3). The MIB-1 labeling index was 30%. Immunohistochemical staining demonstrated that the tumor cells expressed desmin, alpha-SMA, and h-caldesmon, but not expressed pancytokeratin, CD5/6, CD34, EMA, and bcl-2. In positron emission tomography-CT scan, pulmonary lesions and pelvic mass expressed hypermetabolism typical of malignancy (Figure 4). Based on these clinicopathological findings, the diagnosis was pulmonary metastasis of leiomyosarcoma of the uterus. The patient was transferred to a university hospital for further evaluation and treatment.

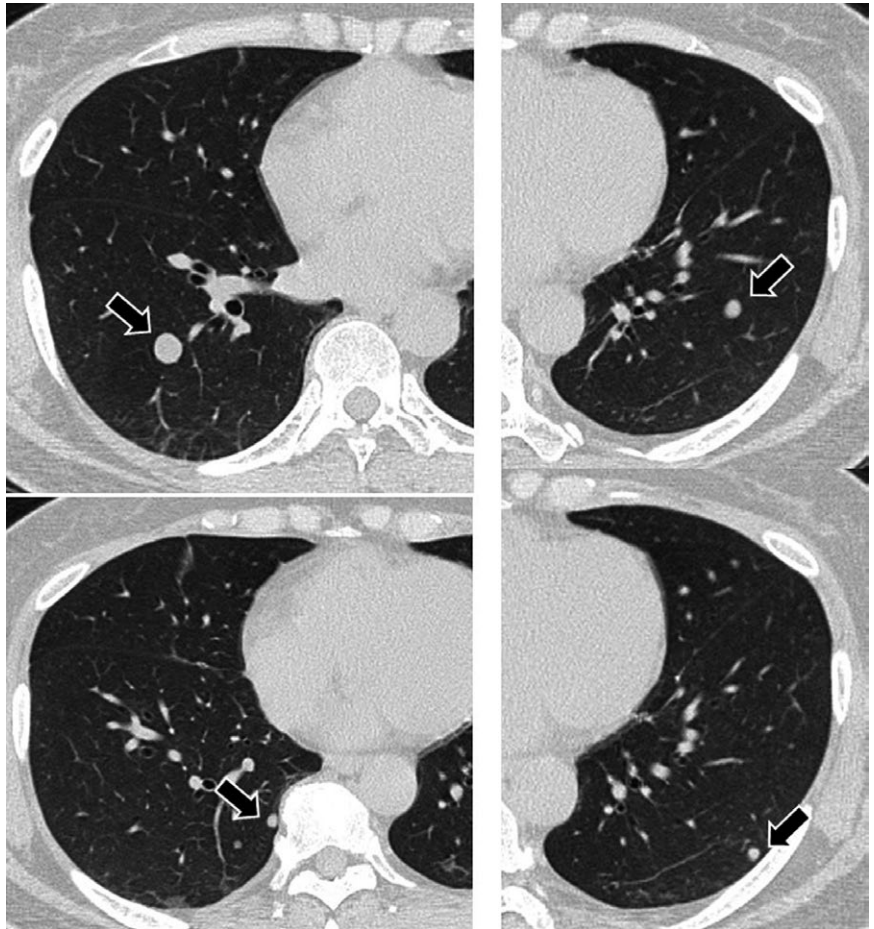


FIGURE 2 A chest and abdominal computed tomography (CT) scan detected a nodule measuring 10 mm in diameter in both lungs

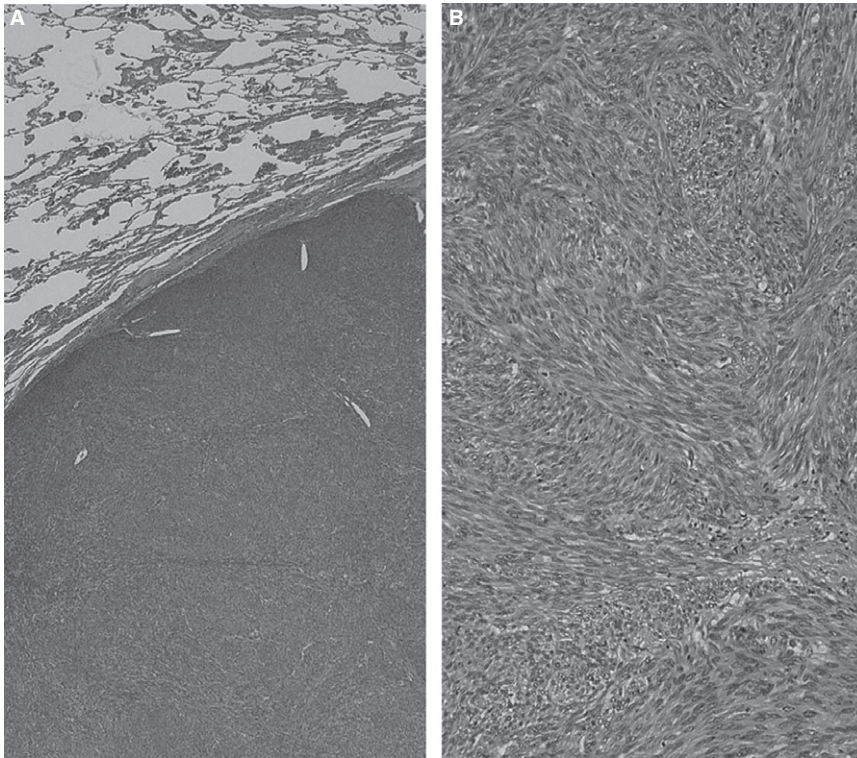


FIGURE 3 Pathological examination of the resected nodule: (A) Low-power field ($\times 100$) and (B) high-power field ($\times 200$), stained with hematoxylin-eosin

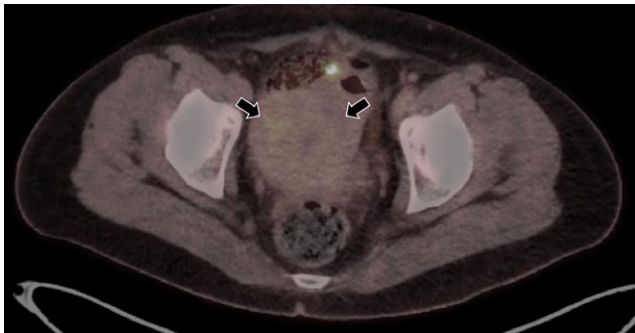


FIGURE 4 A positron emission tomography-CT scan shows pulmonary lesions and pelvic mass expressed hypermetabolism typical of malignancy

3 | DISCUSSION

Metastatic pulmonary diseases are sometimes detected incidentally during the workup for other diseases.¹⁷ In such cases, almost of them are found by plain radiograph or CT scan.¹⁷ Pulmonary metastasis of uterine leiomyosarcoma may present as pulmonary masses on chest radiograph and can be seen as an incidental radiograph finding.¹⁴ In the present case, we first speculated the bilateral lung nodules to be metastatic tumors, benign pulmonary tumor, or infectious diseases such as cryptococcosis. The common symptoms of pulmonary metastasis of uterine leiomyosarcoma are cough, chest pain, and dyspnea.¹⁸ But some of them with the metastasis are asymptomatic as observed in our case.

In our patient, lcSSc was diagnosed 1 year after the diagnosis of the uterine disease, which was followed up by a gynecologist in other

hospital. Interestingly, there might be a coincidence between the time of onset of lcSSc and that of diagnosis of the uterine disease. This fact suggested a certain relationship between them. Previous researchers reported various kinds of sarcomas in patients with lcSSc.⁴⁻⁸ To our best knowledge, however, this is the first report of uterine leiomyosarcoma in a patient with lcSSc. It is of note that patients with this autoimmune disease may develop malignant disease.¹⁻³ SSc is associated with an increased risk of cancer of the lung, liver, hematologic system, and bladder, as well as of non-Hodgkin's lymphoma and leukemia.¹⁻³ However, it is controversial whether there are differences in the risk between lcSSc and diffuse cutaneous SSc (dcSSc).¹⁻³ Onishi et al. reported that there were no differences between the patients with lcSSc and those with dcSSc.³ On the other hand, Siau et al. described that this risk is statistically significant in patients with lcSSc.² We do believe that both patients with lcSSc and those with dcSSc should be closely scrutinized at follow-up appointments. Among the malignant diseases, there is also the possibility of this rare uterine leiomyosarcoma as we observed. We recommend gynecological examination as well in female patients with lcSSc.

For metastatic pulmonary parenchymal tumors, transthoracic needle aspiration is now as a well-established diagnostic procedure with very high yield, although its usefulness hinges on whether tumor size is large or the needle reaches the target lesion.¹⁹ In the present case, the small size of the masses up to 15 mm left a doubt that aspirated material was not adequate procedure to obtain pathological specimens to establish correct diagnosis. Therefore, our patient had VATS and surgical biopsy of the nodules. This procedure seems to be the way to obtain pathological specimens enough to examine histopathological and various immunochemical staining. We should be on alert the

possibility of metastatic pulmonary tumors including this rare gynecological disease when mass lesions in both lungs are detected on chest radiograph or chest CT scan. The search for the primary tumor and other infectious diseases will be preceded, and if it is certain that there is metastasis, we believe that therapy for the primary lesion will be preceded by biopsy and surgery for the metastatic lesions.

AUTHOR CONTRIBUTION

All authors participated sufficiently in the work to take responsibility for appropriate portions of the content.

CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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