

# Late recurrence of malignant melanoma mimicking primary peritoneal cancer

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## Summary

**Background:** Malignant melanoma is an extremely malignant tumor with an unpredictable metastatic profile with variable periods of remission. **Case:** A 41-year-old woman presented with recurrent malignant melanoma which had clinical features of an acute state mimicking primary peritoneal cancer. The case was an unusual recurrence of malignant melanoma occurring seven years after diagnosis and treatment of malignant melanoma in the patient's arm. The diagnosis was established postoperatively by immunohistochemistry. **Conclusion:** A variety of imaging methods and pathological methods, including an exploratory laparotomy, may be necessary in cases of patients suspecting primary peritoneal cancer with a previous history of melanoma with possible metastatic dissemination. Urgent diagnosis and treatment of these patients seems to be critical.

**Key words:** Malignant melanoma; Late recurrence; Primary peritoneal cancer.

## Introduction

Malignant melanoma is a malignant tumor of melanocytes, which are the cells that produce the pigment melanin and are derived from the neural crest. Although most malignant melanomas originate in the skin, they may also arise from mucosal surfaces or at other sites to which neural crest cells migrate [1].

Malignant melanoma is an extremely malignant tumor with an unpredictable metastatic profile with variable periods of remission. Late recurrence of malignant melanoma after diagnosis and treatment is also rare [2]. When late recurrence of malignant melanoma occurs, the most common sites of metastasis are the skin, subcutaneous tissue, and lymph nodes. However, late recurrent cases of malignant melanoma to other organs such as lung, liver, brain, bone, heart, ovary, and adrenal gland have been reported [2-4]. The late recurrence of malignant melanoma to the peritoneum is very rare. To the authors' knowledge, there is only one report of late recurrence of malignant melanoma presenting with diffuse peritoneal carcinomatosis [5].

The authors present a rare case of a late recurrence of malignant melanoma exhibiting clinical features of an acute state mimicking primary peritoneal cancer.

## Case Report

A 41-year-old woman was initially diagnosed in January 2005 with malignant melanoma on the skin of her right forearm. The tumor was excised with a five-mm margin, and the diagnosis of the excisional biopsy was malignant melanoma. At the time of excision of the primary tumor, no evidence of regional lymph node or distant metastasis was observed. She was diagnosed with

malignant melanoma Stage IIB (pT3bN0M0). Postoperatively, the patient received three courses of DAV-feron chemotherapy using dacarbazine, nimustine, vincristine, and interferon-beta. In the following seven years, the patient underwent regular physical examinations with no evidence of recurrence or metastasis.

Seven years after excision of the primary tumor, in October 2011, the patient noticed diffuse abdominal distention. The patient underwent computed tomography (CT) examination of the abdomen and chest, which demonstrated extensive nodularity of the peritoneal surfaces, soft tissue thickening of the omentum, and large amount of ascites (Figure 1). The patient also underwent magnetic resonance imaging (MRI) examination of the pelvis, which demonstrated extensive nodularity and thickening of the peritoneum (Figure 1). The colon fiberoptic and photogastroscope examination was negative. Laboratory investigations showed a normal lactate dehydrogenase (LDH) level at 128 IU/l. Tumor markers showed an elevated CA125 at 884 U/ml and a slightly elevated but almost normal 5-S-CD (5-S-cysteinyldopa) at 8.4 nmol/l. Other tumor markers were within the normal ranges (CEA: 0.7 ng/ml; CA19-9: 19 U/ml). The cytological examination of the ascites showed a few atypical cells. The cytological examination of cervix and endometrium showed no abnormality. A careful dermatologic investigation did not find a second primary melanoma or skin metastases. The ovaries and uterus were unremarkable, confirmed by both CT examination of the abdomen and MRI examination of the pelvis. Therefore, primary peritoneal cancer was initially considered the most likely diagnosis.

The patient underwent an exploratory laparotomy. Macroscopically, there was a large amount of yellowish serous ascites in the peritoneal cavity. A numerous number of white-yellow rubbery nodules of tumor were present diffusely in the ovaries and omentum and on the uterine serosal surface. The ovaries and uterus were unremarkable (Figure 2). The frozen pathological examination of the resected specimen showed poorly-differentiated adenocarcinoma of peritoneum, including a dense proliferation of cellular oval cells with vesicular nuclei. The cytological examination of the ascites showed poorly-differentiated adenocarcinoma. At this time, the authors diagnosed the patient as primary peritoneal cancer and performed hys-

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Fig. 1  
(left)Fig. 1  
(right)

Figure 1. — Left. CT examination of the abdomen demonstrating extensive nodularity of the peritoneal surfaces, soft tissue thickening of the omentum, and large amount of ascites.

Figure 1. — Right. MRI examination of the pelvis demonstrating extensive nodularity and thickening of the peritoneum.

terectomy, bilateral salpingo-oophorectomy, partial omentectomy, and debulking of the peritoneal tumor.

Finally, the pathological examination showed poorly-differentiated adenocarcinoma of peritoneum, including a dense proliferation of cellular oval cells with vesicular nuclei. The tumor cells showed strong positivity by immunohistochemistry for S-100, melan A, and vimentin, although HMB-45 was negative (Figure 3). The authors confirmed the diagnosis of metastatic malignant melanoma.

The patient received a course of chemotherapy consisting of dacarbazine and tamoxifen. To date, seven months after detection of recurrent malignant melanoma, the patient is alive with disease.

## Discussion

Malignant melanoma is a malignant tumor of melanocytes, which are the cells that produce the pigment melanin and are derived from the neural crest. Although most malignant melanomas originate in the skin, they may also arise from mucosal surfaces or at other sites to which neural crest cells migrate [1]. The incidence of malignant melanoma has been increasing over the last several decades. Malignant melanoma is the sixth most common malignancy in the United States; there were an estimated 68,120 new cases of invasive melanoma in 2010 with 8,700 deaths due to the disease [6].

Malignant melanoma is an extremely malignant tumor with an unpredictable profile of spread and variable periods of remission. Late recurrence of malignant melanoma after diagnosis and treatment is also rare [2]. Several reports have proposed possible factors that might predispose a patient to late recurrence of malignant melanoma.

Koh *et al.* suggested that changes in the immune system of the host might be a possible reason for the occurrence of late metastasis and emphasized the importance of host defense mechanisms [7]. Some reports suggested the importance of female gonadal hormones, which may have an inhibitory effect on malignant melanoma, contributing to a more favorable prognosis in women than in men [8, 9]. However, Filizel *et al.* disagreed about the importance of the influence of female gonadal hormones based on their studies indicating no advantage for premenopausal women in avoiding the late recurrence of malignant melanoma [3].

When late recurrence of malignant melanoma occurs, the most common sites of metastasis are the skin, subcutaneous tissue, and lymph nodes. However, late recurrent cases of malignant melanoma to other organs such as lung, liver, brain, bone, heart, ovary, and adrenal gland have been reported [2-4]. The late recurrence of malignant melanoma to the peritoneum is very rare. To the authors' knowledge, there is only one report of late recurrence of malignant melanoma presenting with diffuse peritoneal carcinomatosis [5].

The authors present a rare case of a late recurrence of malignant melanoma exhibiting clinical features of an acute state mimicking primary peritoneal cancer. It was very difficult to diagnose the present case, which was established postoperatively by immunohistochemistry. As conventional imaging test for preoperative screening, the patient underwent CT examination of the abdomen and chest, which demonstrated extensive nodularity of the peritoneal surfaces, soft tissue thickening of the omentum, and large amount of ascites. The patient also under-

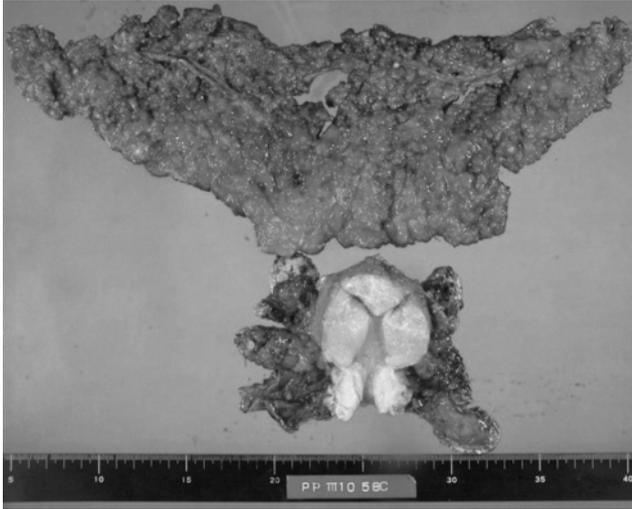


Figure 2. — The macroscopic image of resected specimen. A diffuse numerous number of white-yellow rubbery nodules of tumor are present in the ovaries and omentum and on the uterine serosal surface.

went MRI examination of the pelvis, which demonstrated extensive nodularity and thickening of the peritoneum. The ovaries and uterus were unremarkable on CT and MRI examinations. Therefore, primary peritoneal cancer was initially considered the most likely diagnosis. Several reports showed that positron emission tomography (PET) was a useful imaging test for evaluating recurrence of malignant melanoma [10]. The patient did not undergo PET in this case, but it did not seem to be diagnosed as recurrence of malignant melanoma.

Laboratory investigations showed that a normal LDH level at 128 IU/l. LDH seems to be a predictor of survival in patients with metastatic malignant melanoma [11]. In the present case, LDH was not a predictor of recurrence of malignant melanoma. Tumor markers showed an elevated CA125 at 884 U/ml and a slightly elevated but almost normal 5-S-CD (5-S-cysteinyl-dopa) at 8.4 nmol/l. Other tumor markers were within the normal ranges (CEA: 0.7 ng/ml; CA19-9: 19 U/ml). The elevated 5-S-CD was reported as a useful tumor marker in some recurrent cases of malignant melanoma [12]. In the present case, 5-S-CD was not a predictor of recurrence of malign-

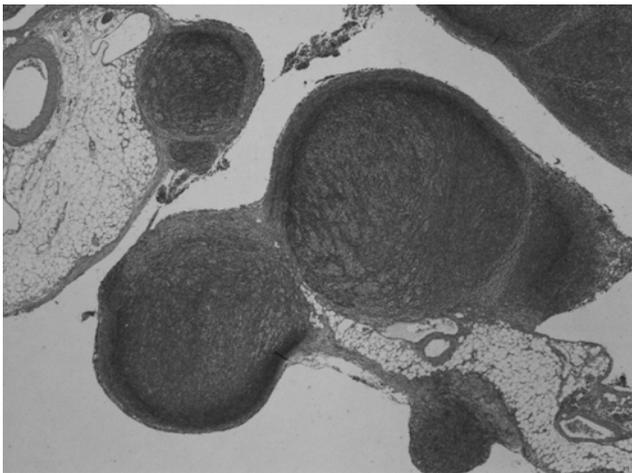


Fig. 3A

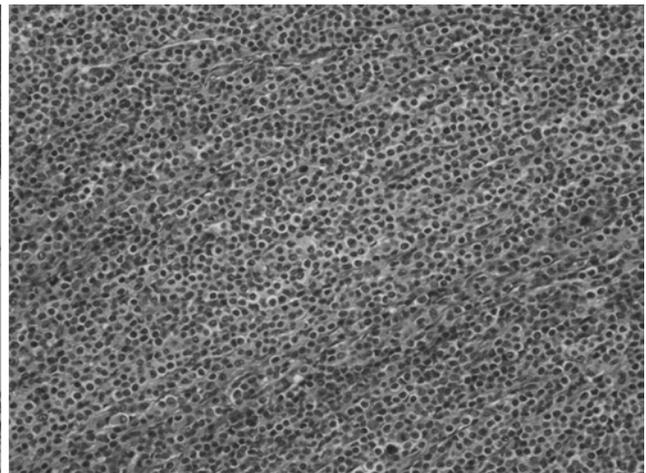


Fig. 3B

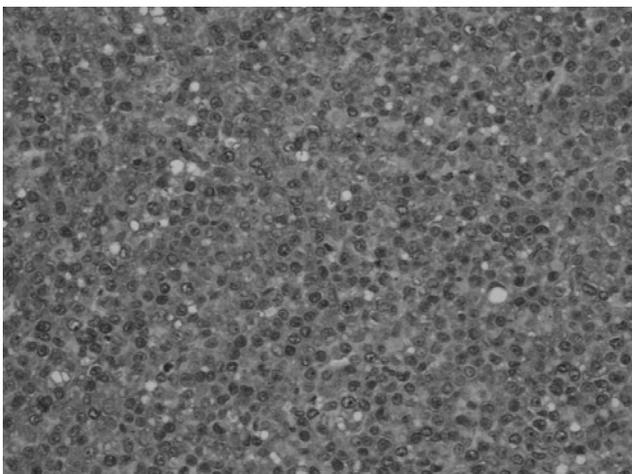


Fig. 3C

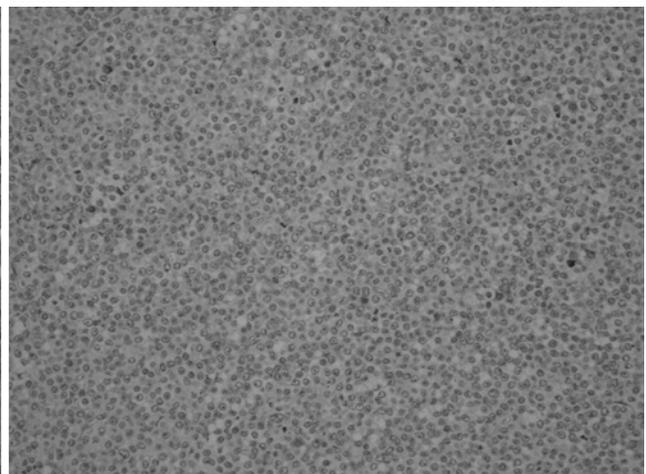


Fig. 3D

Figure 3. — A) Microscopic image of tumor cells (Hematoxylin & Eosin, x2). B) Microscopic image of tumor cells (Hematoxylin & Eosin, x20). C) Image of S-100-positive tumor cells. D) Image of melan A-positive tumor cells.

nant melanoma and elevated CA125 was concordant with considering it as a primary peritoneal cancer.

The cytological examination of the ascites preoperatively showed a few atypical cells. The frozen pathological examination of the resected specimen showed poorly-differentiated adenocarcinoma of peritoneum, including a dense proliferation of cellular oval cells with vesicular nuclei. The cytological examination of the ascites showed poorly-differentiated adenocarcinoma. At this time, the authors diagnosed the patient as primary peritoneal cancer. Finally, the pathological examination showed poorly-differentiated adenocarcinoma of peritoneum, including a dense proliferation of cellular oval cells with vesicular nuclei. The tumor cells showed strong positivity by immunohistochemistry for S-100, melan A, and vimentin, although HMB-45 was negative. The authors confirmed the diagnosis of metastatic malignant melanoma. The diagnosis was established postoperatively by immunohistochemistry.

The incidence of malignant melanoma has been increasing over the last several decades [6]. Late recurrence of malignant melanoma may frequently be seen in the future. A variety of imaging methods and pathological methods including an exploratory laparotomy may be necessary in cases of patients suspecting peritoneal cancer with a previous history of melanoma with possible metastatic dissemination. Urgent diagnosis and treatment of these patients seems to be critical.

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