Abstract. There are only a few cases of primary ovarian melanoma described in the literature. Here, we report a rare case of ovarian mixed neoplasm with parts of malignant melanoma and fibrothecoma in a 76-year-old female who was hospitalized for a cataract operation. To our knowledge, cases of a combination of malignant melanoma and fibrothecoma in the ovary have not been described. In this study, new markers for malignant melanoma (S-100, tyrosinase mRNA) were also tested.

Malignant melanoma – derived from melanin-producing cells – have a tendency towards an early and distant hematogenous spread, which accounts for their poor prognosis. In stage IV, the 5-year survival rate is less than 5%. Sun exposure seems to be a triggering factor since there is a higher incidence of skin cancer in people of light complexion. Moreover, woman have a two times higher risk than men (4).

Early lymphogen or hematogen metastases of malignant melanoma can be found in the lung, liver and gastrointestinal tract (2). There are only a few reports of ovarian metastases in the literature. Blaustein’s Pathology of the female genital tract mentions 36 case reports of metastases to the ovaries (3). Some author’s have reported solitary metastases into the ovary without, however, finding a primary tumor.

At present, there are only few useful diagnostic/prognostic tumor markers that are also potential targets for therapy in patients with malignant melanoma. The calcium-binding protein S-100 is an established marker in tumor diagnosis.

Case Report

A 76-year-old female patient was admitted to the University Eye Hospital in Rostock, Germany, for a cataract operation. A routine chest X-ray showed two pulmonary lesions. Ultrasound examination revealed findings of the right adnex and the patient was admitted to the University Hospital Department of Gynaecology in Rostock. The general history was inconspicuous. There were no symptoms of any malignant disease during physical examination. The family history revealed a stomach carcinoma and a bronchial carcinoma of the patient’s parents. The gynecological examination showed a palpable mass of 8 cm in the right adnex. Again the ultrasound corroborated the palpable result. A 6 x 8 cm large structure with cystic parts inside was detected sonographically. On the basis of these results, an abdominal extrafascial hysterectomy with adnexectomy, appendectomy and extirpation of omentum majus were performed. Intraoperatively we could see a large white-yellow tumor of the right adnex showing a 4-cm-wide area with dark colored pigmentation (Figure 1). The pathological examination of the extirpated tumor revealed a malignant melanoma and a fibroma. The patient was sent for consultation to the Department of Dermatology at the University of Rostock. No signs of any skin lesions or malignant melanoma were found. Further, an ophthalmological consultation did not reveal a primary tumor. Preoperative measurement of ovary tumor marker...
Figure 1. Malignant melanoma and fibrothecoma of the left ovary.

Figure 2. Melanin pigment inside large tumor cells, H.E.
Figure 3. *HMB 45*-positive tumor cells.

Figure 4. *Immunohistological staining of tumor cells with S-100.*
levels (CA 125, CA 72-4, CA 19-9) showed that only CA 125 was grossly elevated (129.53 U/ml) and all other markers were within normal limits. A transthoracical function confirmed the mentioned pulmonary lesions as metastases.

**Histology.** The large white-yellow tumor was characterized by fibrocytes and fat story theca cells surrounded by fibers. Staining with Sudan III and Sudan-black revealed a positive reaction of the lipid content of theca cells. The macroscopically smaller brown-red tumor of the ovary (growing on top of the large one) consisted solely of atypical epithelioid cell formations enriched in melanin, which stained positive for fontana (Figure 2). Single epithelioid cells showed a light cytoplasm.

**Immunohistochemical findings.** The atypical epithelioid melanocytes stained positively for vimentin, S-100 and especially for HMB 45 (specific marker for melanocytes) (Figures 3 and 4). The tissue segments were negative for neuroendocrine markers (chromogranin, synaptophysin, NSE). Fibrocytes of the large tumor of the left ovary were positive for vimentin, but negative for S-100 and HMB 45. The results described here led to the diagnosis of a mixed tumor consisting of malignant melanoma and benign fibrothecoma of the left ovary.

**Discussion**

The evidence of pulmonary lesions in connection with a malignant melanoma of the ovary led to a first diagnosis of primary cutaneous malignant melanoma. Dermatological examination did not reveal any correlates of a primary cutaneous tumor. There is the possibility that these results are indicative of a malignant dermoid, developing from melanocytes of a germ cell tumor. Alternatively, tumor regression might have occurred in which a small primary tumor, already metastasized, dissociated through mechanical or other influences.

New diagnostic methods, such as expression of tyrosinase and S-100 protein, are available for the detection of a tumor mass and occult metastases (1, 6, 7). The interpretation of the results, however, may need further investigation.

Chemotherapy is the primary treatment strategy for metastasized melanoma. However, 70-80 percent of patients fail to respond to various regimens.

**References**


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