Malignant pleural mesothelioma with orbital metastasis

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ABSTRACT
Malignant mesothelioma is known as locally aggressive tumor that rarely metastasizes to distant sites. We report here a very rare case of orbital metastasis from malignant mesothelioma in addition to multiple systemic metastases. The patient with an epithelial subtype of malignant pleural mesothelioma presented himself 16 months after chemoinmunotherapy with decreased visual acuity and increased chest pain. The patient had local progression, and also liver, adrenal, bone and orbital metastases. Palliative systemic chemotherapy was administered for four cycles. He died 22 months after diagnosis of pleural malignant mesothelioma due to progressive disease. [Turk J Cancer 2005;35(1):35-37].

INTRODUCTION
Malignant mesothelioma (MM) is rarely seen and a challenging disease in all of its aspects, from presentation and diagnosis to treatment and clinical outcome. MM is a relatively common cancer in Turkey especially in Cappadocia region (1). Although MM usually causes death rapidly by local and regional spread, distant metastases may be seen more frequently as more effective therapy controls local disease and prolongs life, however multiple metastases especially orbital metastases are very rare (2,3).

We presented a malignant mesothelioma patient who had liver, adrenal, bone and orbital metastases 16 months after diagnosis of local disease and reviewed the literature.

CASE REPORT
A 50 years old man applied to our clinic with symptoms of dyspnea and chest pain at right side of thorax in July 2000. He had alcohol and smoking history (40 packs of cigarette/year). He had suspicious environmental exposure to erionite but no industrial exposure to asbestos. Physical examination was remarkable for dullness at base of right lung. Chest radiography and computed tomography (CT) revealed right pleural multifocal nodular thickening, ipsilateral mediastinal lymphadenomegaly (LAM), and right pleural effusion. Pleural biopsy revealed atypical mesothelial cells with eosinophilic cytoplasm and large hyperchromatic...
nucleus forming papillary structure in desmoplastic stroma (Figure 1), immunohistochemical staining revealed positive for vimentin and cytokeratin, and diagnosed as malignant pleural mesothelioma of epithelial type. Hematological and biochemical parameters and abdominopelvic ultrasonography (USG) did not show any abnormal findings. He had locally advanced inoperable disease with these findings. We performed thoracentesis and administered systemic chemotherapy consisting Ifosfamide 3g/m² 1-3 days, uroprotective agent Mesna 3g/m² 1-3 days intravenously every 3 weeks for 6 cycles in combination with immunotherapy as Interferon alfa (IFN) 4.5MU subcutaneously 3 days a week for 6 months. He had amelioration of chest pain and dyspnea, and after 6 cycles of chemotherapy objective response assessment with thorax CT revealed stable disease. Physical examination, chest radiography, thorax CT, abdominal USG were repeated every 3 months. His disease was stable in August 2001.

The patient presented with decreased visual acuity which developed 15 days before coming into medical attention in November 2001. There was also increment in chest pain. Physical examination revealed pain in palpation of ribs on right side of hemithorax, decreased breath sounds and crepitant rales at base of right lung in auscultation. Detailed ophthalmologic examination showed bilateral visual loss specifically near total loss for right eye and 7/10 vision in left eye, ocular tension measured 14 mmHg in both sides, and bilateral serous retinal detachment. Orbital USG, cranial and orbital magnetic resonance (MR) imaging demonstrated retinal detachment and mass lesion at posterior of right ocular bulb and posterolateral side of left ocular bulb suggesting metastases (Figure 2). Chest radiography and thorax CT revealed significant thickening and nodularity of pleural surface continuing from base to apex of right hemithorax. Abdominal USG, CT and adrenal MR imaging showed multiple hypodense mass lesions located at segment 7 and 5 of liver, retrocrural LAM, 3x1.5 cm and 2x1.5 cm nodular mass at location of right and left adrenal gland region respectively, suggesting metastases. Liver biopsy was identified as having the similar histopathology with the previous pleural biopsy showing atypical cells forming papillary structure. Technetium-99m-methylene-diphosphonate (MDP) bone scintigraphy demonstrated focal increased uptake on left parietal region of skull, and diffuse rib involvement on right side. Technetium-99m-(V)-dimercaptosuccinicacid (Tc-99m-(V)-DMSA) scintigraphy showed irregularly increased uptake in right hemithorax and liver region, and also same regions were detected in bone scintigraphy.

Orbital, liver, adrenal gland and bone metastases of malignant pleural mesothelioma were detected in this patient. Performance status was ECOG 1, electrocardiographic and echocardiographical findings were normal. Doxorubicin 50mg/m² intravenous administration every 3 weeks was planned and 4 cycles of chemotherapy were administered. In evaluation of the patient, primary pleural lesion and metastatic lesions in liver and adrenal gland were clinically...
and radiologically progressive, and ophtalmologic examination revealed absolute visual loss, ocular tension 28 mmHg in both sides, shallow anterior chamber, edematous cornea, light reflex(-/-), dilated pupils, bilateral total retinal detachment at lower quadrant biomicroscopically. Chemotherapy was discontinued due to progressive disease.

He died 22 months after diagnosis of pleural malignant mesothelioma.

**DISCUSSION**

Malignant mesothelioma in Central Anatolia frequently results from environmental exposure to asbestos and erionite. Household or neighbourhood exposure during childhood result in early development of this disease (1). Our patient was born and lived in this region and environmental exposure was probable. Patients typically present with chest pain or shortness of breath, and the diagnosis is usually first suggested by imaging studies and based on pathologic findings. There is still no standard therapy for MM at any stage of disease (4). Single and combination chemotherapy regimens consisting of anthracyclines, platinum analogs, antifolate methotrexate and ifosfamide have some degree of efficacy (5). Our patient had locally advanced right sided MM and chemoimmunotherapy consisting of ifosfamide, mesna and interferon was administered depending on literature data and our experience in this group of patients (4-6). He had stable disease after completion of chemotherapy, however 16 months after diagnosis of disease he presented with visual loss. In detailed radiologic and clinical examination of the patient orbital, liver, adrenal gland, and bone metastases were detected. Liver biopsy revealed similar findings with previous pleura biopsy confirming the metastasis. Also radiologic imaging plays an essential role in the diagnosis, staging, and follow up of patients with MM.

Although MM is a locally aggressive tumor, it rarely metastasizes to distant sites and this is mostly seen in sarcomatous type of MM. Hematogenous dissemination of the tumor is reported to occur to the following sites: liver, spleen, adrenals, bone, pancreas, kidney and brain (7,8). There have been few reports of orbital metastasis from MM in review of literature (3). Metastases to the orbit are not common in adults in other malignancies. Most metastatic orbital tumors are from the lung, breast, liver, melanoma, prostate, lymphoma, leukemia, adrenal gland and stomach, very rarely from patients with carcinoma of the uterus, ovaries, bladder, pancreas, colon or rectum (9,10).

This epithelial type MM case with widespread disease involving, liver, adrenal glands, bone and orbit which was an unusual presentation did not respond to palliative chemotherapy and died 22 months after initial diagnosis.

**References**