

**Case Report**

# Desmoplastic malignant mesothelioma of the peritoneum

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Malignant mesothelioma is an uncommon neoplasm arising in body cavities lined by the mesothelium. Immunohistochemical stains are useful for making a diagnosis, but the correct combination of antibodies as should be selected in a comprehensive assessment. A peritoneal origin combined with desmoplastic histology is an extremely rare disease entity. Here, we report a case of the primary peritoneal malignant mesothelioma. A 53-year-old man admitted to the hospital with abdominal distension and pelvic pain. In laparotomy, peritonitis carcinomatosa situation was exposed. Multiple biopsies were taken from omentum, peritoneum and fascia. Calretinin, WT-1, D2-40, keratin 5/6, mesothelin, keratin 7, keratin 20, CD99, CEA, smooth muscle actin, desmin, CD34 and S-100 were negative. With these findings tumor was evaluated as desmoplastic malignant mesothelioma of the peritoneum. Currently, no established standard treatments for malignant peritoneal mesothelioma, but early diagnosis by exploratory laparotomy followed by chemotherapy may have contributed to longer survival for patients.

## INTRODUCTION

Malignant mesothelioma is an uncommon neoplasm arising in body cavities lined by the mesothelium. The most common site of involvement is the pleura [1]. Primary malignant peritoneal mesothelioma makes up 20–30% of all mesotheliomas [2]. Asbestos exposure is the best-known risk factor and plays an important role in environmental exposure in Turkey. However, the association of peritoneal mesothelioma with asbestos exposure is controversial.

There are many diseases to be differentiated when the diagnosis of mesothelioma is based on histological analyses. Immunohistochemical stains are useful for making a diagnosis, but the correct combination of antibodies as positive and negative markers should be selected in a comprehensive assessment. The accuracy of the pathological diagnosis is very important to the treatment.

Mesothelioma can be categorized histologically as epithelioid, sarcomatoid and biphasic [1, 3]. Desmoplastic mesothelioma is a specific subtype of sarcomatoid mesothelioma is very rare (Table 1) [4]. Almost all cases of desmoplastic mesotheliomas were reported in the pleura. A peritoneal

origin combined with desmoplastic histology is an extremely rare disease entity. To the best of our knowledge, there were only two cases of primary peritoneal desmoplastic mesothelioma [2, 5]. Here, we report another case of the primary peritoneal malignant mesothelioma.

**Table 1:** Histological classification of mesothelioma

Epithelioid mesothelioma
Sarcomatoid mesothelioma
Desmoplastic mesothelioma
Biphasic mesothelioma
Variants
Lymphohistiocytoid mesothelioma
Deciduoid mesothelioma
Anaplastic mesothelioma
Well-differentiated papillary mesothelioma
Others



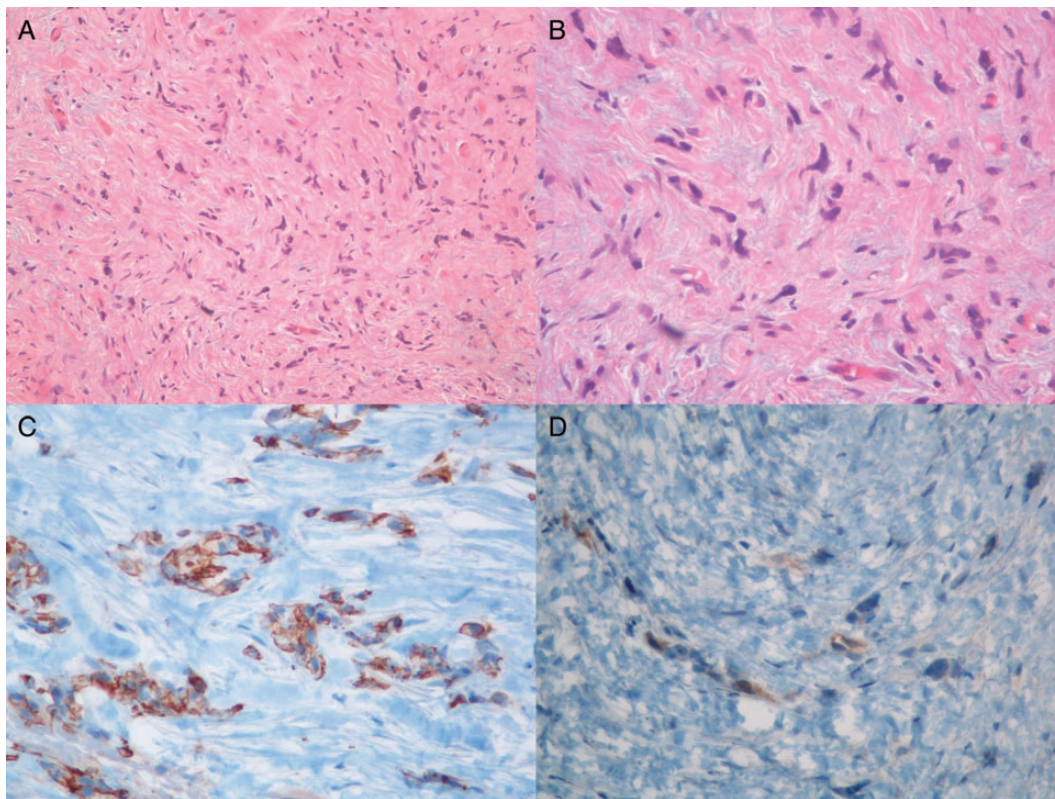
**Figure 1:** Abdominal CT (computed tomography) revealed 127 × 13 × 19 cm fluid collection with septation inside.

**CASE PRESENTATION**

A 53-year-old man from a rural area of Eskisehir admitted to the hospital with abdominal distension, abdominopelvic pain. His medical history, including chest symptoms and asbestosis was unremarkable. At physical examination ascites was

determined on patient. A serum ascites-albumin gradient was 1,1 and cytology was benign that analyzed on ascites. Scopy of the gastrointestinal tract showed no malignancy. Chest X-ray revealed that there is no suspect of pleural mesothelioma. Magnetic resonance imaging (MRI) and computed tomography (CT) with oral contrast material was performed which revealed craniocaudal 27 cm, mediolateral 13 cm, anteroposterior 19 cm collection with enhancing wall structure and septation inside, which begins from livers anterolateral to bladders anterosuperior and that occurs mass effect on the liver (Fig. 1). CT and MRI also showed two nodules 9 mm sized on the liver that had been on segment 5 liver. Thoracic CT was unremarkable. Blood analysis showed normal range, while the tumor markers and hemoglobin (12.2 g/dl) examined. White blood cell count was 15 600/dl. In exploratory laparotomy peritonitis, carcinomatosa situation was exposed. Multiple biopsies were taken from omentum, peritoneum and fascia.

In histopathological examination of the peritoneal biopsy specimens, in large areas of hyalinized collagenous tissue, there were few infiltrating, atypical tumoral cells with spindle, triangular or polygonal shaped and hyperchromatic nuclei. In the differential diagnosis, sarcomas including monophasic synovial sarcoma, sarcomatoid carcinomas and mesenteric panniculitis were considered. Immunohistochemically, these infiltrating cells were positive for cytokeratin, vimentin and



**Figure 2:** Histopathological examination results (A) Infiltrating tumoral cells in hyalinized collagenous stroma (H&E × 100) (B) Tumoral cells with spindle, triangular or polygonal shaped and hyperchromatic nuclei (H&E × 400) (C) Diffuse positivity with cytokeratin (Clone AE1-AE3 × 200) (D) Scant cytoplasmic positivity with thrombomodulin (Clone 1009 × 200).

thrombomodulin. Calretinin, WT-1, D2-40, keratin 5/6, mesothelin, keratin 7, keratin 20, CD99, CEA, smooth muscle actin, desmin, CD34 and S-100 were negative. There was no mucin with Alcian blue. With these findings tumor was evaluated as desmoplastic malignant mesothelioma of the peritoneum (Fig. 2).

## DISCUSSION

Desmoplastic mesothelioma is a subtype of malignant sarcomatoid mesothelioma and a rare clinical case. Mesothelioma is seen frequently in the pleura, abdominal localization is uncommon. The first subtype of malignant peritoneal mesothelioma is epithelioid mesothelioma. Sarcomatoid desmoplastic mesothelioma is second subtype and the most aggressive diseases. Desmoplastic mesothelioma is the most uncommon histological subtype. Last subtype is biphasic subtype. This case is interesting because of the abdominal localization and rare histological subtype. Malignant mesothelial tumors have a low success ratio for treatment. In differential diagnosis of malignant peritoneal mesothelioma diffuse peritoneal adenocarcinoma, metastatic adenocarcinoma of gastrointestinal tract, primary peritoneal adenocarcinoma must be remembered [6]. Histopathological findings are commonly sarcomatoid component, large cellular vacuolization, infrequent psammoma bodies, existence of hyaluronic acid [7]. Additional to histopathological findings by the clinical finding malignant peritoneal mesothelioma can be distinguished. According to reported cases, there is a male dominance and an asbestos history [8]. In this case, the patient does not live in an exposed area of asbestos. Currently, there is not any standard methods for treatments of malignant peritoneal mesothelioma, but early diagnosis by exploratory laparotomy could help to determine tumor and treatment can follow by chemotherapy

may contribute to longer survival for patients. Expectancy to the survival for malignant peritoneal mesothelioma will increase with the development of cytoreductive surgery [2]. Also, increased usage of systemic chemotherapy combined with intraperitoneal chemotherapy will contribute the success of treatment. The median overall survival time reported as 20, 1–26, 8 months in previous publications [9].

## CONFLICT OF INTEREST

None declared.

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