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**Cihan Akgul Ozmen, Yekta Tuzun, Hatice Ozturkmen Akay,
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Case Report: A 54-year-old male presented with weight loss and abdominal swelling. Computed tomography scans revealed calcified plaques in the pleura and extensive thickening of the omentum. A laparoscopic biopsy of the omentum revealed malignant epithelial mesothelioma.

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CASE REPORT

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Keywords: Peritoneal mesothelioma, Asbestosis, Omental mass

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INTRODUCTION

Peritoneal mesothelioma is one of the very rare tumors of the abdominal cavity and represents 10% of all mesothelioma cases. It has been associated with chronic exposure to asbestos [1]. Omental mesothelioma is an extremely rare condition reported in only a few cases in the medical literature and presents both diagnostic and therapeutic challenges (Table 1) [2–5]. In this report, we present the clinical and radiological findings of a patient who had malignant mesothelioma originating from the omentum.

CASE REPORT

A 54-year-old male patient with no previous complaints presented to our hospital with a 7–8 kg weight loss within a month. The patient described the onset of extensive bone pain in whole body and abdominal swelling within the last month. The patient was cachectic and ascites and tenderness on the right lower quadrant was detected on physical examination. Computed tomography (CT) scans revealed calcified plaques in the pleura on the thoracic sections included in the investigative field (Figure 1). Extensive thickening of the omentum was observed with the thickest part reaching 4 cm, and thickening was more marked on the right side (Figure 2). The omental thickening extended to the anterior of the sigmoid colon (Figure 3). Furthermore, free fluid was observed in the perihepatic and pelvic regions. The presence of pleural calcified plaques on CT in an endemic asbestos region was considered to result from malignant mesothelioma, as no another primary malignancy was diagnosed. Malignant epithelial mesothelioma was found on laparoscopic biopsies. Medical supportive therapy involving diuretics (Lasix), analgesics, and anti-emetic was applied. The patient was not operated. Intermittent paracentesis were performed in case of need. The patient died 2 years after the diagnosis at his home and the family did not consent to an autopsy (Table 1).

Figure 1: Calcifications are observed bilaterally at the level of diaphragmatic pleural surfaces on computed tomography scan (arrows).

Figure 3: On the lower abdominal sections, omental thickening is observed to extend to the anterior of the sigmoid colon (arrows). In addition, ascites is observed around the intestinal loops.

Figure 2: Computed tomography scan of abdominal reveals omental thickening at the midline and at left at lower sections (arrows).

DISCUSSION

Mesothelioma originates from the mesothelial cells lining the surface of the serous body cavities. Typically, tumors originate from the pleura and, to a lesser extent, from the peritoneum and, rarely, from the pericardium and tunica vaginalis testis [6]. Malignant peritoneal mesothelioma is characterized by neoplastic changes in the cells lining the peritoneal cavity surface and is very rare compared to pleural mesothelioma, representing approximately 10% of all mesothelioma cases [1]. Peritoneal involvement usually manifests as abdominal distention, anorexia, weight loss, and symptomatic

malignant ascites. However, ascites was not reported in a previous case with omental mesothelioma [4]. Ascites was present in three out of four cases with primary omental mesothelioma. Cytological analysis of the fluid may help, however, diagnosis is usually established by laparotomy or laparoscopy. At the time of diagnosis, the mean age is 60 years, and the female male ratio is 1:3 [7]. Most of the patients have a history of asbestos exposure [1, 4]. However, this correlation is weaker in females [1]. Epidemiological trials have demonstrated an association between the occurrence of mesothelioma and environmental factors and carcinogens. The association between mesothelioma and asbestos was first demonstrated in 1960 by Wagner et al. In most of the cases presented in literature, there is a history of apparent asbestos exposure and of living close to regions where asbestos is intensively used [4, 8]. Asbestos exposure was present in our patient and a previous case [4] but not in another case [3]. We also detected pleural thickening in our case, which may be a radiological clue to the diagnosis of mesothelioma in patients with a concomitant omental mass or thickening.

Diffuse peritoneal mesothelioma is often characterized by many small (1–5 mm) bright, whitish nodules on the peritoneal surface at surgery. Larger nodules (2–5 cm) and infiltrative masses are commonly observed. At advanced stages, tumors mostly infiltrate the omentum and pleural cavity via the trans diaphragmatic route and exhibit distant metastasis [6, 7]. To the best of our knowledge, only three cases of malignant mesothelioma originating from the omentum have been reported [2–4]. Although the omentum primarily consists of fatty tissue, tumors of smooth muscle origin occur more commonly than fatty-origin tumors. Tumors originating from

Table 1: Features of cases with primary Omental mesothelioma

Cases	Case 1 [2]	Case 2 [3]	Case 3 [4]	Case 4
Age-Sex	83-Male	61-Female	70-Male	54-Male
Exposure to Asbestos	Non available	Absent	Present	Present
Symptoms and	-abdominal pain -weight loss	-lower back pain -weight loss -abdominal mass	-abdominal pain -weight loss -lethargy, -painful mass	-abdominal pain, -weight loss -extensive bone pain
US Findings	-Ascites -chronic cholecystitis,	-hyperechoic solid mass in the pelvis -minimal ascites in the cul-de-sac.	-normal	-ascites -thickening of the omentum
CT Findings	-ascitic fluid, -thickening of the greater omentum and the root of the mesentery	-Well circumscribed soft tissue mass, with heterogeneous enhancement	-No Ascites -diffuse infiltration of the omentum -edema of the peritoneal fat	-calcify plaques in the pleura thickening of the omentum -ascites
Surgery intervention	or Laparotomy and omentectomy: -diffuse infiltration in greater omentum -thickening of the mesentery of the terminal ileum	-omentectomy -hysterectomy -bilateral salpingo-oophorectomy -a large tumor of greater omentum -invasion of uterus	-US guided biopsy	-laparoscopic biopsy
Histopathology	-malignant mesothelioma-multiple psammoma bodies	-Well differentiated epithelial malignant mesothelioma of the greater omentum	-malignant mesothelioma	-Epithelial malignant mesothelioma
Survival	12 months	No recurrence in two years eight months	three weeks	two years

mesothelial cells are relatively rare. Most patients may present with complaints of abdominal discomfort, nausea, early satiety, weight loss, and a palpable abdominal mass, or patients may be asymptomatic [8]. In our case, the disease occurred with omental involvement, and weight loss was the most marked complaint.

The histology of malignant peritoneal mesothelioma is generally the same as the pleural type, and is classified into epithelial, sarcomatoid, and biphasic subtypes. In various series, the distribution of the types has been published. The most common histopathologic type affecting the pleura and peritoneum is the epithelial type, as it was the case in our patient [1].

The prognosis of mesothelioma is poor. After the diagnosis, the mean survival is 9–18 months for peritoneal tumors and 4–12 months for pleural tumors in cases of untreated patients [7]. Systemic chemotherapy and radiotherapy have little effect on the course of the disease, and complete surgical resection is not that beneficial [1]. However, prolonged survival in selected

patients after intensive multimodality treatment has been reported [5]. These authors used surgical debulking, intraperitoneal chemotherapy, and immunotherapy followed by whole abdominal radiotherapy [5]. Sugarbaker et al. documented marked survival benefits of a multimodality approach that combined cytoreductive surgery with perioperative intraperitoneal chemotherapy [9]. The surgery utilizes a new peritonectomy surgical technique, which strips away the lining of the body cavity using ball-tip electrosurgery. This surgery removes the primary cancer and any dissemination within the cavity, and chemotherapy is used to eradicate microscopic disease. Hyperthermic intraperitoneal chemotherapy is showing some promise for the treatment of peritoneal mesothelioma; the combination of cisplatin plus doxorubicin at a temperature of 42°C was the preferred regimen by experts in hyperthermic intraperitoneal chemotherapy [10]. These new medical and surgical approaches have made previously lethal disease curable in selected patients.

CONCLUSION

Although, the association between pleural mesothelioma and chronic asbestos exposure is well known, primary peritoneal mesothelioma is a rare complication of asbestosis. Typically, it may manifest with ascites and peritoneal nodule-masses or it may be observed as an omental mass, as was the case in our patient. Therefore, primary peritoneal mesothelioma, although very rare, must be present in the differential diagnosis of subjects with an omental mass and a history of asbestos exposure.

Author Contributions

Cihan Akgul Ozmen – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Yekta Tuzun – Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Hatice Ozturkmen Akay – Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Hasan Nazaroglu – Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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