A young merchant navy officer with night sweats, fever, and weight loss

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Cite this article as: Pesce A, Magro G, Puleo S. A young merchant navy officer with night sweats, fever, and weight loss. Turk J Gastroenterol 2019; 30(11): 988-90.

QUESTION

A 31-year-old man presented with severe fatigue, unintentional weight loss (approximately 20 kg) over the last 6 months, and profuse night sweats with fever. He worked as a merchant navy officer and was also involved in the family company dedicated to the production of fruits and vegetables. His medical history was unremarkable. Physical examination no revealed cervical, axillary, or inguinal lymphadenopathy. Laboratory evaluation demonstrated a hemoglobin level of 10.3 g/dL and a platelet count of 1,000,000/μL. Infectious tests (Salmonella paratyphi, Brucella, Leishmania) and Quantiferon were negative. Computed tomography scan of the chest, abdomen, and pelvis documented the presence of mild ascites and mesenteric lymph node enlargement, without any significant abdominal mass. The appendix was not visible. Magnetic resonance imaging of the abdomen revealed a solid tissue with a pseudonodular aspect in all peritoneal spaces, more evident in the peri-hepatic and peri-splenic regions and among the intestinal loops. Explorative laparoscopy showed that the small bowel was packaged in adhesions and covered by fibrin. The parietal peritoneum presented some nodularities as friable bulges, which were sent for histological examination, as shown in Figure 1. The presence of hemorrhagic ascites was discovered, and the ascitic fluid was sent for cytological and bacteriological examination.

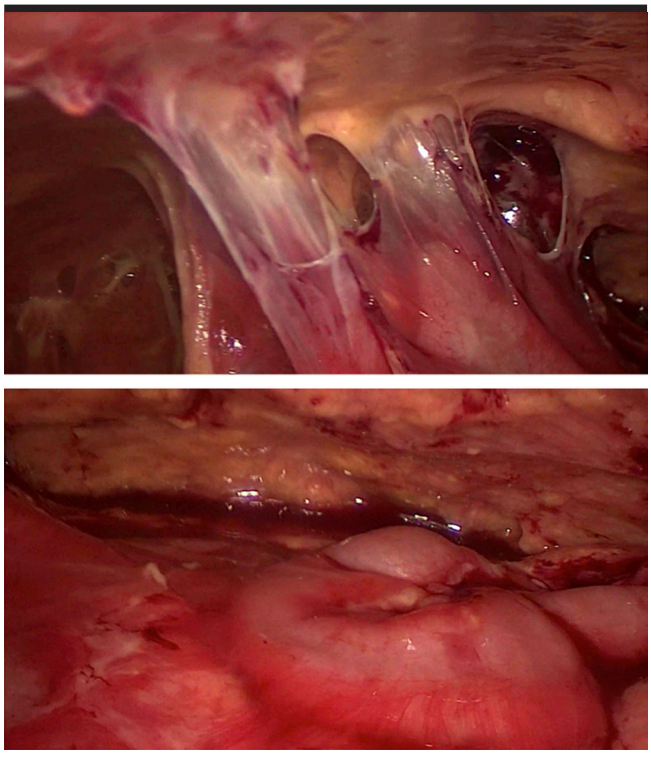

Figure 1. *Explorative laparoscopy showed diffuse peritoneal disease*

What's your diagnosis?

A. Peritoneal lymphomatosis
B. Peritoneal diffuse hyperplasia
C. Malignant mesothelioma
D. Pseudomixoma peritonei

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Received: ***December 22, 2018*** *Accepted:* ***January 4, 2019***

DOI: ***10.5152/tjg.2019.18975***

ANSWER

C. Malignant mesothelioma

Histologic examination revealed diffuse proliferation of solid papillary and papillary mesothelial cells with mild to moderate focal atypia, multiple foci of necrosis, and a mitotic index of 13/50 high-power field. Immunohistochemical staining of peritoneal samples showed positive results for Wilms tumor 1 antigen (WT1), cytokeratine-7 (CK7), epithelial membrane antigen (EMA), calretinin, and p53 and negative results for Desmin and Claudin-4 expression, consistent with the diagnosis of malignant peritoneal mesothelioma (MPM), epithelioid subtype with a solid-papillary pattern, as shown in Figures 2-3.

Mesothelioma is a very uncommon tumor arising from the serosal layer of pleura, peritoneum, pericardium, and tunica vaginalis testis, and it has been linked to toxic exposure to industrial pollutants, especially asbestos (1,2). However, only up to 50% of patients with MPM report prior exposure to asbestos (3). In this patient, we hypothesized a probable exposure to asbestos aboard the navy, as there are some studies regarding the incidence of malignant mesothelioma in the maritime profession (4,5). The clinical diagnosis of MPM is challenging due to its vague and nonspecific symptoms. Patient presentation is quite variable due to the extent of tumor spread within the abdominal cavity. This patient did not present the most common initial complaints, such as abdominal distension and pain. He complained of two other rare clinical presentations: fever of unknown origin and night sweats. There is no specific radiologic imaging considered to be "gold standard" for MPM, so the definitive diagnosis is made by pathologic examination. The diagnostic accuracy increases with solid tumor samples during explorative laparoscopy. According to the World Health Organization, MPM is classified into three histologic subtypes: epithelioid, sarcomatoid, and biphasic/mixed (6,7). The epithelioid subtype is the most common, encountering approximately 75% of MPM. No single immunohistochemical marker is specific for MPM. Instead, a panel of markers is generally used to differentiate MPM from other more common tumors that can present similar histologic features, as in the case described herein. The diffuse positivity for EMA and p53, associated with necrosis and papillary pattern were highly suggestive of MPM. The differential diagnosis included papillary serous peritoneal carcinoma and diffuse peritoneal hyperplasia. Diffuse peritoneal disease not amenable of macroscopically complete cytoreduction is usually the exclusion criteria for cytoreductive surgery (CRS) and hyperthermic intraoperative peritoneal chemotherapy (HIPEC) (1,8). In this patient, systemic chemotherapy regimen with pemetrexed, an antimetabolite and cisplatin was started, as he was not considered eligible for CRS and HIPEC at this stage-specific disease (8). Based on data from the US Expanded Access Program in which over 1,000 patients with pleural or peritoneal mesothelioma were treated with pemetrexed and cisplatin, the overall response rate was 26%, and the stable disease rate was 45% (9). This case illustrates the difficulty in clinical diagnosis of MPM due to the challenging symptoms and the importance of a careful histologic evaluation for a correct diagnosis.

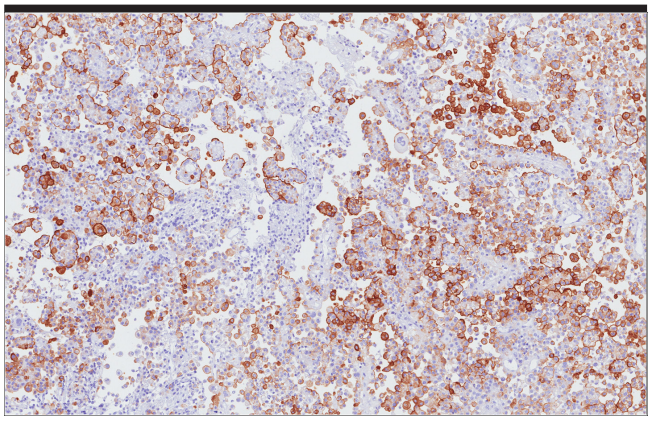

Figure 2. *Immunohistochemical staining of peritoneal samples showed diffuse positive results for epithelial membrane antigen (EMA)*

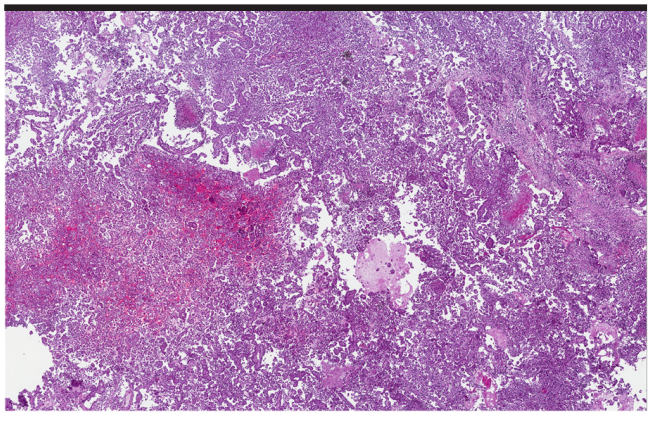

Figure 3. *Hematoxylin and eosin (H&E) staining of peritoneal samples showing the papillary pattern with necrosis areas, highly suggestive of malignant peritoneal mesothelioma*

Informed Consent: Written informed consent was obtained from the patient who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - A.P.; Design - A.P., G.M.; Supervision - S.P.; Resources - A.P., G.M.; Materials - A.P., G.M., S.P.; Data Collection and/or Processing - A.P., G.M.; Analysis and/or Interpretation - G.M.; Literature Search - A.P.; Writing Manuscript - A.P.; Critical Review - G.M., S.P.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

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