Consultant360 Multidisciplinary Medical Information Network

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Malignant Peritoneal Mesothelioma With Refractory Ascites

Volume 59 - Issue 7 - July 2019

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Citation:

Rizvi SAA, Qureshi Z, Alonso M, Walker D, Sikandar S, Waseem J. Malignant peritoneal mesothelioma with refractory ascites. *Consultant.* 2019;59(7):223-224.

A 71-year-old woman with a history of vestibular schwannoma, meningioma, asthma, ascites, and hypertension came to the clinic with concern for worsening abdominal distention, shortness of breath when walking, and swelling of her legs. She denied recent travel, recent sick contacts, chest pain, nausea, vomiting, fever, diarrhea, hematuria, dysuria, and substance abuse. She had clinical signs of recurrent ascites and was referred to the emergency department for paracentesis.

Physical examination. The patient's vital signs were as follows: blood pressure, 130/67 mm Hg; pulse, 102 beats/min; respiratory rate, 14 breaths/min; temperature, 37°C; height 145 cm; and weight, 76.4 kg; and body mass index, 35.6 kg/m^2. On general examination, abdominal distention was noted, but the patient was not in acute distress.

Neurological examination findings showed cranial nerves to be intact, although the patient was deaf in the right ear and wears a hearing aid on the left ear. Cardiac examination revealed regular heart rate and rhythm with no murmurs, rubs, or gallops. On abdominal examination, bowel sounds were present; other findings were ascites, epigastric tenderness, right and left upper quadrant tenderness, and abdominal distention. The extremities featured 2+ pitting edema.

Laboratory tests. Laboratory test results were within normal reference ranges, including the following: white blood cell count, 6900/μL; hemoglobin, 14.2 g/dL; sodium, 134 mEq/L; potassium, 4.6 mEq/L; calcium, 9.4 mg/dL; creatinine, 0.57 mg/dL; blood urea nitrogen, 8 mg/dL; and fasting glucose, 106 mg/dL.

A computed tomography (CT) scan of the abdomen with intravenous contrast showed a significant amount of ascites fluid, calcified liver nodules, induration and nodularity of the omentum, and a nodule measuring 16 × 10 mm in the anterior mid abdomen (**Figure**) suggestive of peritoneal carcinomatosis.

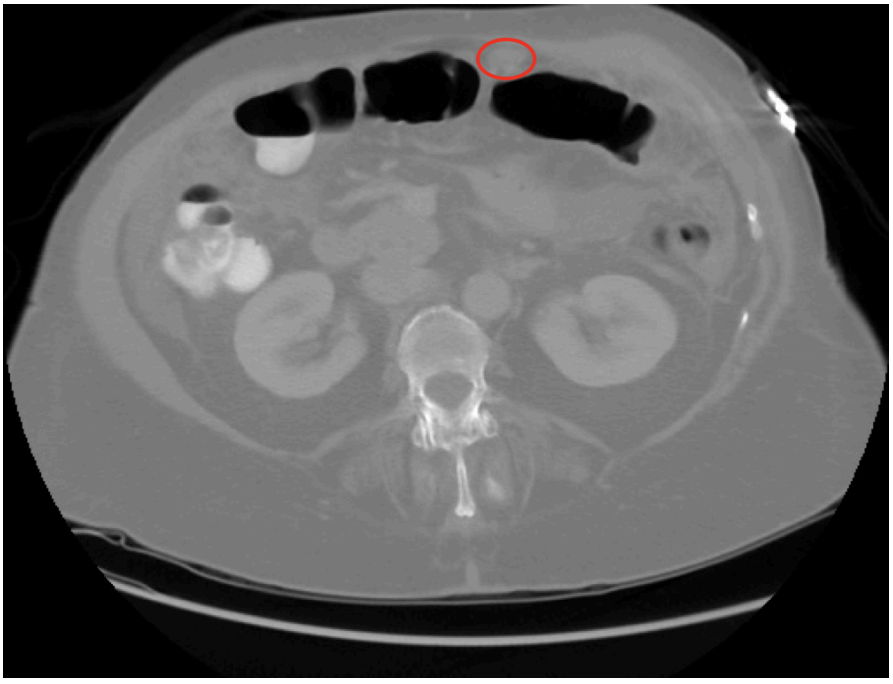

Figure. *Abdominal CT scan showing a nodule in the anterior mid abdomen.*

An ultrasound-guided biopsy of the lower abdominal mass in the periumbilical area was performed. Pathology results confirmed malignant mesothelioma with epithelioid-type tumor cells, positive for calretinin, monoclonal antibody D2-40, cytokeratin 5/6, and Wilms tumor protein (WT1), but negative for *BRCA1*-associated protein 1 (BAP-1) expression. The possibility

protein (WT1), but negative for *BRCA1* associated protein 1 (BAP-1) expression. The possibility of carcinoma was further excluded by negative test results for PAX8, epithelial membrane antigen (EMA), endoplasmic reticulum (ER) marker, Ber-EP4, CD15, monoclonal carcinoembryonic antigen (CEA), B72.3, thyroid transcription factor 1 (TTF-1), and CDX2.

Discussion. Malignant pleural mesothelioma (MPM), first described in 1908, is a very rare type of cancer originating in the mesothelial surface lining cells of the peritoneum.[1] The prognosis is poor, with a median survival range of 2 to 5 years after diagnosis, with incidence rates of 1.94 per 100,000 men and 0.41 per 100,000 women.[2,3] Histologically, MPM is classified into 3 subtypes: epithelioid, sarcomatoid, and biphasic (mixed).[4] Recently however, epithelioid MPM has been further differentiated into 2 subgroups.[5]

Both pleural and peritoneal mesothelioma are associated with asbestos exposure; however, peritoneal mesothelioma has a much weaker association.[6] Our patient reported no history of asbestos exposure. Clinical symptoms of MPM include, abdominal distention, pain, and refractory ascites of unknown origin.[7,8] Abdominal CT scan is often the first indictor of nodularity of the omentum, followed by confirmation via ultrasound- or CT-guided biopsy and histological and immunohistochemical assessments.[9,10]

Due to the rarity of MPM, no standard treatment protocols are available, and various options are used either alone or in combination. Current treatment strategies include cytoreductive surgery, hyperthermic intraoperative perfusion of intraperitoneal chemotherapy (HIPEC) alone or in combination with early postoperative intraperitoneal chemotherapy (EPIC), and whole abdominal radiation.[11-13]

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