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A Case Report of Diffuse Malignant Peritoneal Mesothelioma

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LEARNING OBJECTIVES

1. Mesotheliomas are aggressive and fatal tumors, most commonly occurring in the pleural space after asbestos exposure.
2. Rarely, mesothelioma can invade the peritoneum as the primary tumor.
3. Peritoneal mesothelioma is less common after asbestos exposure and more common in females.
4. Very little literature regarding the prognosis and treatment of multi-focal mesothelioma, such as those with pleural and peritoneal tumors exist.
5. Our patient was an 81 year-old-male with peritoneal mesothelioma who was exposed to asbestos approximately 20 years prior to diagnosis.

ABSTRACT

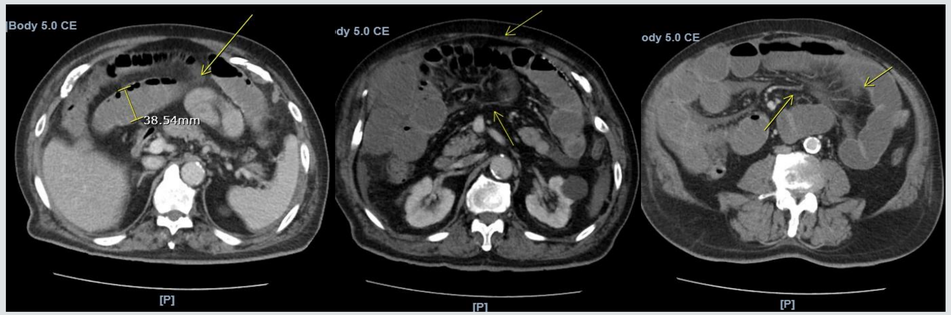
Mesotheliomas are aggressive malignant tumors which can occur most commonly in the pleural space, however can occur in the peritoneum in those with an extensive history of asbestos exposure. Peritoneal mesothelioma is relatively rare and is a fatal diagnosis. The prognosis of peritoneal mesothelioma is very poor and individuals are at high risk of developing mesothelioma in another cavity within the first year after initial diagnosis. Herein we present a case of peritoneal mesothelioma in a male who previously worked in a wire hanger factory.

INTRODUCTION

Mesotheliomas are comprised of mesothelial cells from the pleura, peritoneum, tunica vaginalis, testes and pericardium. It is more prevalent in men, with a 20–50-year latency following exposure to asbestos. Most commonly, the thoracic pleura is affected; however, the most lethal anatomical location is the peritoneum due to the ability for locoregional progression. Only 15-30% of cases account for peritoneal mesothelioma (MPeM). It was first described in 1908 in a patient with ascites and weight loss, and since 1972 only 169 cases have been reported worldwide. Most patients are asymptomatic until advanced stages, but will present with abdominal pain, increased abdominal girth, weight loss, fevers, nausea and vomiting, anorexia and early satiety. It is difficult to distinguish between malignant mesothelioma in situ and invasive disease due to atypical morphology, however as no specific imaging or symptom criteria is used for diagnosis, tumor immunohistochemistry is imperative.

CASE PRESENTATION

An 81-year-old Arabic male presented with nausea, vomiting, abdominal distention and diarrhea lasting three weeks. His vitals were remarkable for hypertension (192/102 mmHg), and he had diffuse abdominal tenderness without peritonitis on physical exam. CT A/P with contrast showed fluid distending the small and large bowel and mild fat stranding and wall thickness of the ascending and descending colon. Ascites was also noted. Laboratory studies revealed elevated ALT (54 unit/L) with otherwise normal AST, ALP and bilirubin. CRP (87 mg/L), ESR (30 mm/hr) and WBC's (12.9 x10^3/mm3) were all elevated. A repeat CT A/P was suggestive of small bowel obstruction and he underwent a diagnostic laparoscopy with right hemicolectomy with ileocolonic anastomosis and omentectomy. The resected obstructing mass was diffuse MPeM, epithelioid type extensively involving the small bowel muscularis propria and submucosa and focally involving the lower mucosa of the ileocecal region (T0N0). Immunohistochemical analysis showed strong positive reactions with calretinin, CK 5/6, WT-1 and D2-40. Negative reaction was present with CK20, synaptophysin, chromogranin, and prostatic markers. He received 12 cycles of nivolumab, 7 cycles of ipilibumab and palliative radiation due to increasing tumor burden but was ultimately transferred to hospice approximately 2 years after initial diagnosis.



A. CT of Abdomen and Pelvis with IV contrast. Sagittal view demonstrating small bowel obstruction. Arrows indicate transition point at terminal ileum and dilated bowel measuring approximately 4 cm.

B. CT Abdomen and Pelvis with IV contrast. Sagittal view demonstrating diffuse mesenteric edema and air-filled bowel loops.

C. CT Abdomen and Pelvis with IV contrast. Sagittal view demonstrating diffuse mesenteric edema.

DISCUSSION

Chronic peritonitis can cause MPeM, such as recurrent diverticulitis or patients with Crohn's disease. Additional germline mutations/deletions of BRCA1-associated protein-1 can cause mesothelioma. MPeM as the primary source of mesothelioma is uncommon. MPeM is more common in females without asbestos exposure. They also carry a better prognosis than males with MPeM due to less aggressive histological subtypes, such as epithelial. The 3- year survival rate for MPeM after treatment is 39% for males. Moreover, those with MPeM have a shorter median survival (<1 year without treatment) than those with pleural involvement. The 5- year survival rate in those who do undergo radical treatment is 29-63%, which is still less than those with pleural disease. Patients are with single cavity disease are most likely to have a second cavity disease within the first year after diagnosis, however there are no current recommendations for MPeM surveillance. Additionally, there are no guidelines or literature on the treatment or prognosis of multi-focal disease, such as those with both pleural and peritoneal mesothelioma.

CONCLUSIONS

Our patient was 81 years-old at time of diagnosis and was a male who was likely exposed to asbestos for over 20 years. He outlived his life expectancy given his age, gender, location of mesothelioma, etiology and histological subtype.

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