A Rare Case Of Peritoneal Mesothelioma

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Abstract: Background: Malignant peritoneal mesothelioma is an uncommon primary tumor of the peritoneal lining and is the second most common type of mesothelioma; it accounts for about 30% of all malignant mesotheliomas, with an overall incidence of 2 to 2.6 cases per million. Aims and objectives: To establish the role of radiological findings in a case of peritoneal malignancy. Result: A 47 years old female patient came to surgery OPD in our hospital with complain of abdominal pain associated with abdominal distension, nausea, significant weight loss, constipation on/off since last two months. Routine blood investigations and Xray abdomen, USG abdomen and contrast CT abdomen were done. Patient was planned for surgery and Exploratory laparotomy + Resection of cysts + ileoileal anastomosis + Paul mikulicz ileostomy was done. A huge cyst was resected and sent for histopathological examination. On histopathological examination, it shows neoplastic acini and micropapillae in serosa and muscularis propria. Lymphovascular invasion is also seen. Sections from the nodule show cyst lined by neoplastic cells forming micropapillae with presence of necrosis in the center, malignant peritoneal mesothelioma was diagnosed. Conclusion: Malignant peritoneal mesothelioma is very rare tumour of peritoneum diagnosed less frequently than the pleural variant. Radiological findings are of paramount importance in cases of peritoneal malignancy – mesothelioma, which enables accurate diagnosis in appropriate settings. Early diagnosis and timely operative interventions must occur in order to provide best outcome for patient. With advances in treatment, the primary treatment includes excision of the tumour followed by intraperitoneal chemotherapy. [Gulabkhan M Natl J Integr Res Med, 2023; 14(4): 32-36 , Published on Dated: 15/03/2023]

Key Words: Abdominal Mass, Peritoneal Mass, Mesothelioma

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Introduction: Malignant peritoneal mesothelioma is an uncommon primary tumor of the peritoneal lining and is the second most common type of mesothelioma; it accounts for about 30% of all malignant mesotheliomas, with an overall incidence of 2 to 2.6 cases per million.

Other significant and well documented types are Well-Differentiated Papillary Mesothelioma, Multicystic Mesothelioma and Desmoplastic Mesothelioma with subtypes, pure sarcomatoid mesothelioma and lymphohistiocytoid mesothelioma.

Cystic mesotheliomas are rare and occur predominantly in young to middle-aged women.This subtype (Multicystic peritoneal mesothelioma), there is no association with asbestos exposure.

Typically patients present with weight loss, anorexia, abdominal pain and/or abdominal distension, pyrexia of unknown origin. Mesothelioma has been connected to exposure to industrial chemicals and minerals. Asbestos has been recognised as the most frequent carcinogen causing pleural mesothelioma, accounting for around 80% of cases.

While asbestos is the best defined risk factor for MPM, the connection is weaker. Only 33-50% of patients with MPM report any previous asbestos exposure.

Time and duration of exposure do not directly correspond with disease development, with some long-term exposures resulting in no disease and others resulting in a large tumour burden.

Gender is also a risk factor, with around 23% of women reporting asbestos exposure as a risk factor, compared to 58% of men.

Other risk factors for pleural mesothelioma include included radiation exposure.

Case Study: A 47 year old female patient came to surgery OPD with complaint of abdominal pain

associated with abdominal distension, nausea, significant weight loss, constipation on/off since 2 month. She denied the history of fever, diarrhea, bleeding per rectum. She had no underlying diseases. He had not undergone any prior surgery. She denied taking any medication, smoking or alcohol consumption. There was no history of exposure to asbestos or other minerals present.

She was normotensive with a blood pressure of 118/84 mmHg, his pulse was 84 per minute, his respiratory rate was 20 per minute and his oral temperature was 35.6 °C. His hemoglobin was 10.8 mg/dl and other investigations under normal limits. Her physical examination was unremarkable except for a firm, non-mobile fullness palpated of the abdomen without any tenderness or abdominal guarding.

The extent of the lesion could not be established. As it covers whole abdomen. The patient underwent for x-ray abdomen, ultrasonography of abdomen. Based on findings of X-ray and USG they suggested contrast study of abdomen.

Results: Figure (1): X-ray abdomen showed large soft tissue opacity covering epigastric, left hypochondriac, left lumbar region, displacing the bowel loops peripherally. Another soft tissue opacity noted in left iliac fossa, hypogastrium and pelvis. Hepatic shadow appears enlarged. Blunting of left CP angle noted.

Figure 1: X-Ray Abdomen

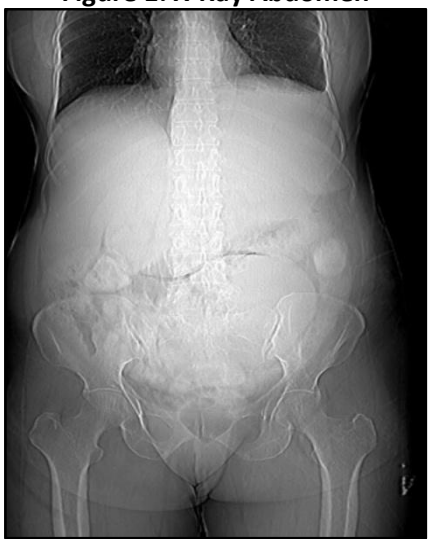
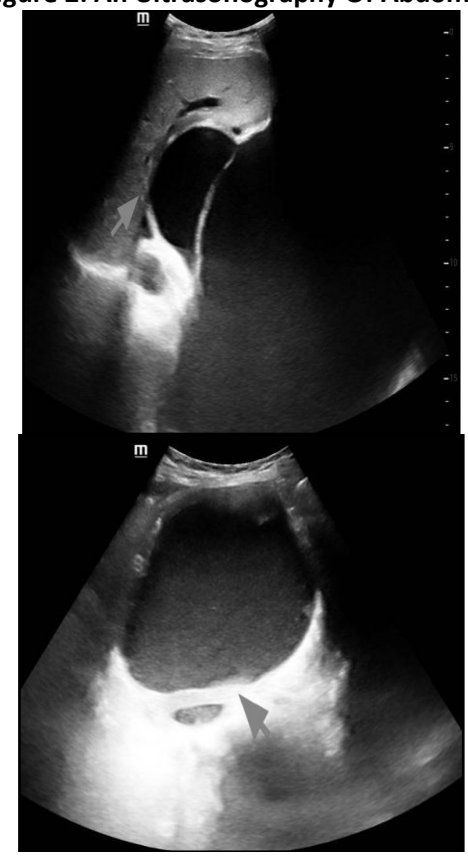


Figure 2: An ultrasonography revealed large lobulated cystic lesion with internal septations and dense echoes occupying entire abdomen and pelvis reaching upto epigastric region. No evidence of any solid component identified. In epigastric region, the lesion displaces and compresses the stomach superiorly. And bowel loops are displaced peripherally.

Figure 2: An Ultrasonography Of Abdomen



CECT Abdomen: Figure (3), (4), (5), (6), (7) and (8): A Computed Tomography Scan was performed for the patient that revealed large well defined peripherally enhancing cystic lesion involving abdominal cavity more on left side with few internal enhancing septation in epigastric and gastrohepatic region with possible origin from the left lobe of liver. Superiorly the lesion appears to be extending upto left hypochondriac and subdiaphragmatic region, left laterally the lesion extends upto left lateral abdominal wall.

It causes mass effect in form of indenting and compressing right lobe of liver laterally. Inferiorly the lesion compresses and displaces body of stomach. Posteriorly the lesion compresses body of pancreas. Posteriorly the lesion compresses common hepatic artery, portal vein and splenic vein at splenoportal junction, however the vessels appears patent. Anteriorly the lesion reaches upto anterior abdominal wall. Posteriorly and left laterally the lesion displaces and compresses mid and upper pole of spleen.

Few collaterals were noted in perisplenic and left hypochondriac region.

Figure: 3 Plain

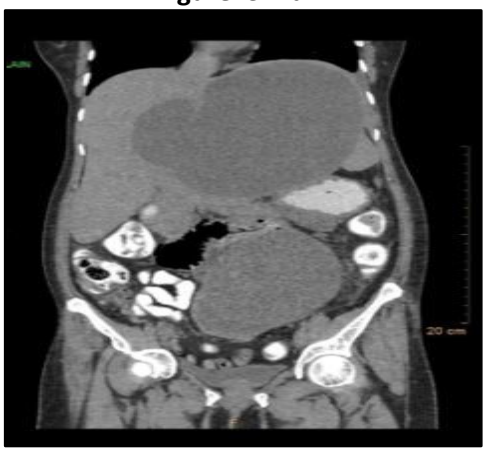


Figure: 4: Arterial Phase (Coronal)

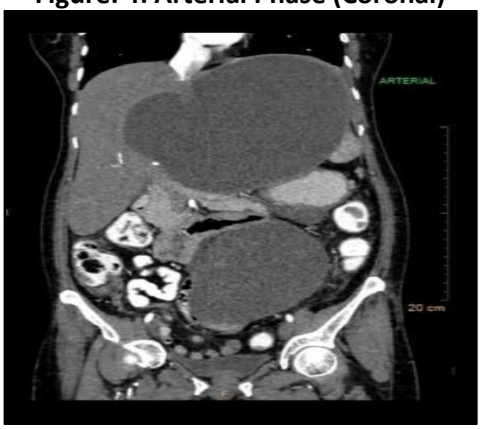


Figure: 5 Arterial Phase (Axial)

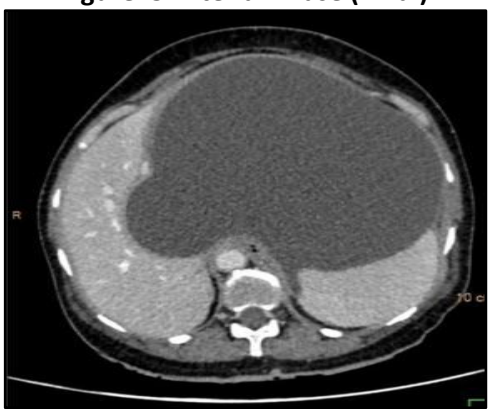


Figure 6: Venous Phase (Coronal View)

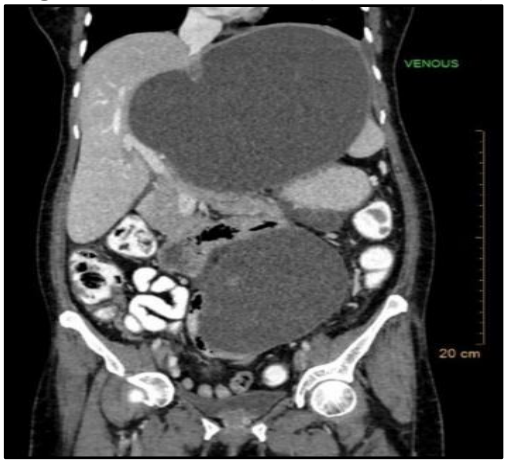


Figure 7: Portal

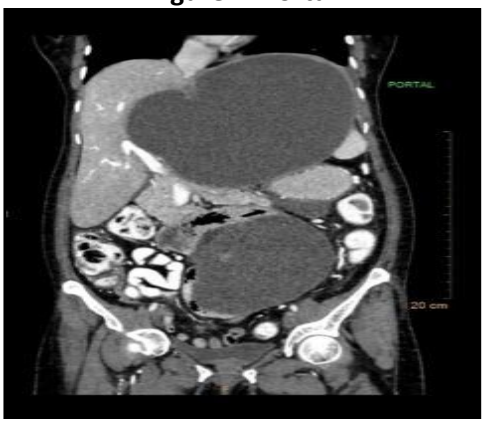


Figure: 8 Delayed

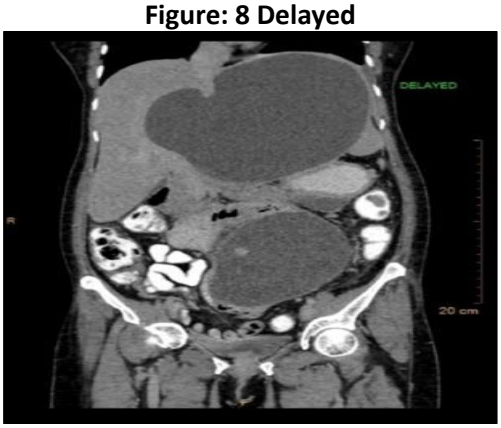


Figure (9) and (10) shows another peripherally enhancing cystic lesion measuring approximately 52 x 25 x 22 mm (AP x TR x CC) in size is noted in greater omentum along greater curvature of body of stomach. Another similar characteristic lesion is noted in left lumbar region. The lesion encase one of the small bowel loops. Anteriorly and right laterally the lesion displaces jejunal loops. Posteriorly the lesion compresses left common iliac artery and left common iliac vein, however it appears patent. Posteriorly the lesion compresses mid ureter with resultant hydroureter and mild fullness of pelvicalyceal system on left side.

Figure 9: Venous Phase

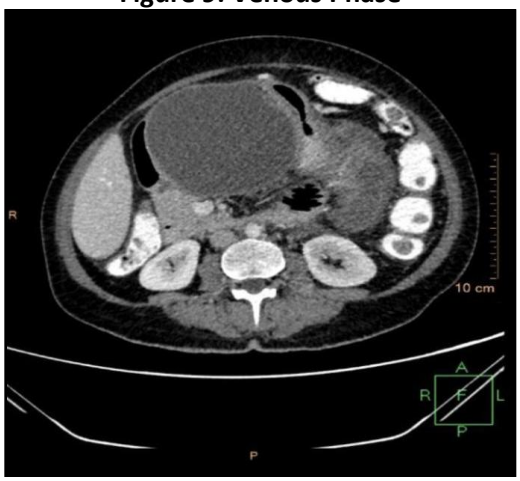
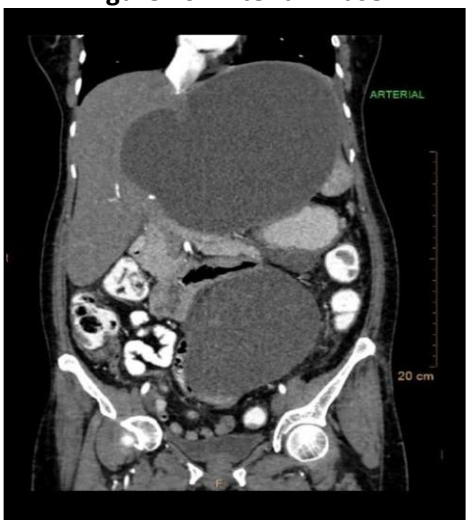


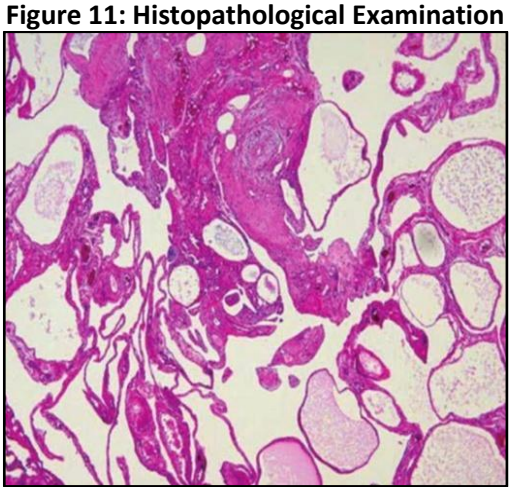
Figure 10: Arterial Phase



The patient was operated for the mass. Exploratory laparotomy + Resection of cysts + ileoileal anastomosis + paul mikulicz ileostomy was done. Mass was sent for histopathological examination.

Specimen sent for Histopathological examination showed: Neoplastic acini and micropapillae in serosa and muscularis propria. Lymphovascular invasion is also seen. Sections from the nodule show cyst lined by neoplastic cells forming micropapillae with presence of necrosis in the center. The peritoneal mesothelioma was diagnosed histopathologically.

Figure 11: Histopathological Examination



DISCUSSION: Differential diagnosis of peritoneal mesothelioma are peritoneal carcinomatosis, pseudomyxoma peritonei, peritoneal lymphangiomatosis and peritoneal tuberculosis were considered.

Peritoneal Carcinomatosis: Peritoneal carcinomatosis is the intraperitoneal dissemination of any tumour that does not originate from the peritoneum itself. It presents with irregular thickening and enhancement of peritoneum with nodule formation and invasion of fat of mesentry and greater omentum with resultant formation of omental cake. It presents with ascites in 70 % of cases which can be free as well as loculated.

Pseudomyxoma Peritonei: It is characterised by the presence of a large amount of neoplastic mucin-secreting cells in the peritoneum. It is thought to be originate from the appendix. In females, ovarian involvement is assumed to be due to a metastatic process that distributes mucinous tumour cells as a result of a ruptured appendix. Pseudomyxoma peritonei has nonspecific CT signs that include peritoneal effusion, peritoneal nodules, and invasion of the greater omentum.

Peritoneal Lymphomatosis: Diffuse peritoneal involvement in lymphomatous disease is encountered above all in high grade lymphomas, lymphomas complicating AIDS, and Burkitt lymphomas. It shows non loculated ascitic fluid, invasion of the greater omentum and the mesentery, and abnormal thickening of the peritoneal membrane, frequent lymph node involvement, associating preaortic and retroperitoneal lymphadenopathy. It appears as confluent masses encasing the mesenteric vessels, producing the “sandwich” sign. These masses are bulky, soft, non-obstructing, homogeneous without significant necrosis, and shows minimal vascularity.

Peritoneal Tuberculosis: There are three forms of peritoneal tuberculosis: Wet, fixed fibrotic, dry/plastic type.

Diagnostic characteristics of peritoneal tuberculosis are: Presence of mesenteric macronodules, regular thickening and enhancement of the parietal peritoneum being identified, splenomegaly and calcifications of the spleen and involvement of the ileocecal wall with retroperitoneal and peri-pancreatic lymphadenopathy with a hypodense centre and ring-enhancement.

Conclusion: Malignant peritoneal mesothelioma is very rare tumour of peritoneum diagnosed less frequently than the pleural variant. Radiological findings are of paramount importance in cases of

peritoneal malignancy – mesothelioma, which enables accurate diagnosis in appropriate settings. Early diagnosis and timely operative interventions must occur in order to provide best outcome for patient. With advances in treatment, the primary treatment includes excision of the tumour followed by intraperitoneal chemotherapy.

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