

Peritoneal Mesothelioma

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Section: Abdominal imaging

Imaging Technique: CT

Imaging Technique: MR

Case Type: Clinical Cases

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Patient: 49 years, male

Clinical History:

49 years-old male with diffuse abdominal discomfort.

Imaging Findings:

49-years old male patient who presented with weight loss and abdominal pain without history of asbestos exposure. Legends: 1) Abdominal 5mm-slices CT-scan after i.v contrast injection: at the level of hepatic dome, we found an heterogenous mass located either in segment 8 or on the diaphragm, with infiltration of the subdiaphragmatic fat. 2) MRI of the liver: on T2 axial images this lesion has a cystic and a solid hyperintense component. On sagittal T1 Weighted images, the lesion seems to originate from the perihepatic fat with scalloping of the liver surface. After gadolinium chelates injection, on the axial slice, the mass is vascular with enhancement of the adjacent peritoneal fat.

Discussion:

Introduction: Mesothelioma is a neoplasm originating from the mesothelial surface lining cells of the serous human cavities. Mesothelioma may involve the pleura, less frequently the peritoneum and, rarely, the pericardium, the tunica vaginalis testis and ovarian epithelium. The peritoneal form represents 10-15% of all mesotheliomas. This tumor has a clear male predominance with a 7/1 sex ratio and occurs in patients between 55 and 60 years old. **Predisposing factors:** The link between pleural mesothelioma and exposure to asbestos is widely accepted but implication of asbestos exposure in the development of peritoneal mesothelioma is discussed. The asbestos fibers that play a role in the development of pleural mesothelioma are the amphibole type, with two commercial fibers named crocidolite and amosite. The presence of these types of fibers in the omentum and mesentery suggests a translocation from lung through lymphatic vessels or migration through intestinal wall. **Pathology:** Macroscopy of peritoneal mesothelioma is typical. The parietal and visceral layers are diffusely coated with a whitish nodular tumoral tissue associated with ascite and pleural effusion. Histologically, four types of malignant mesotheliomas are recognized: epithelial, sarcomatous, mixed and poorly differentiated. 75% of peritoneal mesotheliomas are of the epithelial form in which the mesothelial cells are arranged in tubulopapillary or trabecular formations. They also may elaborate a microglandular structure. Three benign forms of mesotheliomas are described: well-differentiated papillary, multicystic and adenomatoid mesothelioma. The two first forms are not associated with asbestosis and are considered to have a malignant potential of degeneration. The third form is a clear benign neoplasm that is often intimately related to the genital organs of both sexes. **Diagnosis:** The diagnosis of malignant mesothelioma is usually made in a late stage, because clinical signs like weight loss, fatigue and diffuse abdominal pain generally appear after a long evolution of the disease. The most frequent clinical sign, which is encountered in 90% of cases is ascite. Exposure to asbestosis often remains unreported and signs of asbestosis in chest radiography are found in less than half of patients with peritoneal mesothelioma. Radiological patterns in CT-scan are characterized by diffuse or nodular thickening of the peritoneum, peritoneal or omental masses, thickened mesentery and serosal ligaments, local invasion of adjacent abdominal organs and ascite. Sometimes pleural effusion and pleural plaques are

observed. MRI aspect is similar to CT-scan. Generally, the tumoral masses appear hypointense in T1-W images and hypo or hyper intense in T2- W images. This technique allows a better delineation of the tumoral tissue from adjacent organs like urinary or genital tract, intestinal structures and vessels than CT-scan, because of its better characterization of the different tissular components. The radiological distinction between a malignant and a benign mesothelioma is difficult. Some indirect signs like the presence of adenopathy, pleural effusion or pleural thickening evoke a malignant pathology. Radiological differential diagnosis include peritoneal carcinomatosis, tuberculous peritonitis and pseudomyxoma peritonei Treatment: Treatment consists of a combined approach of extensive cytoreductive surgery with peritonectomy procedures and intraperitoneal perioperative chemotherapy. This aggressive approach results in successful palliation of ascite and long term survival has been seen in some patients. Usually, the pronostic of this tumor is poor with a median survival of less than one year.

Differential Diagnosis List: Peritoneal Mesothelioma

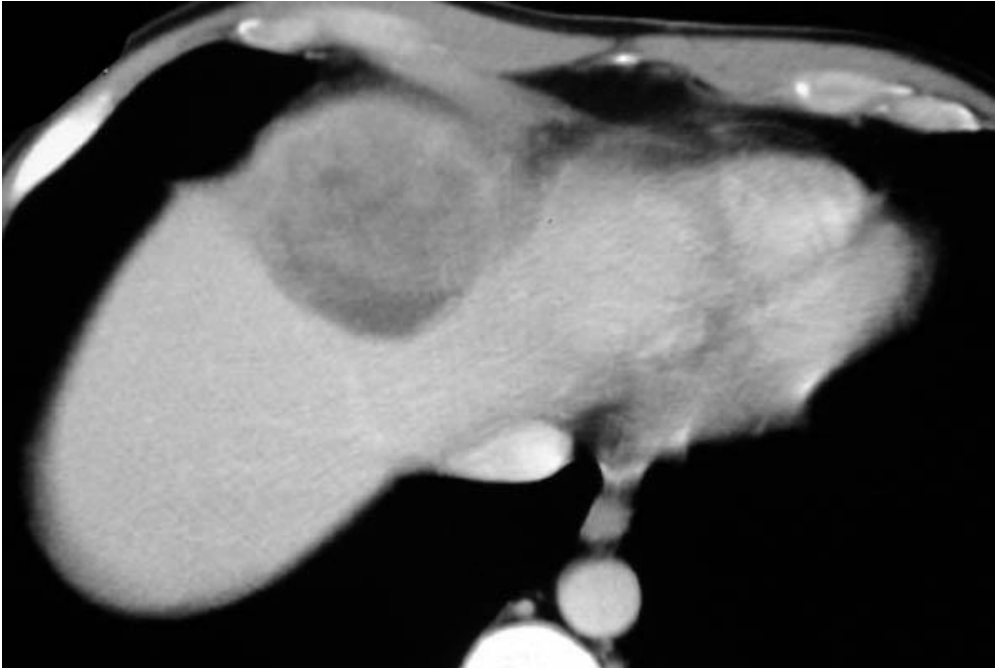
Final Diagnosis: Peritoneal Mesothelioma

References:

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Figure 1

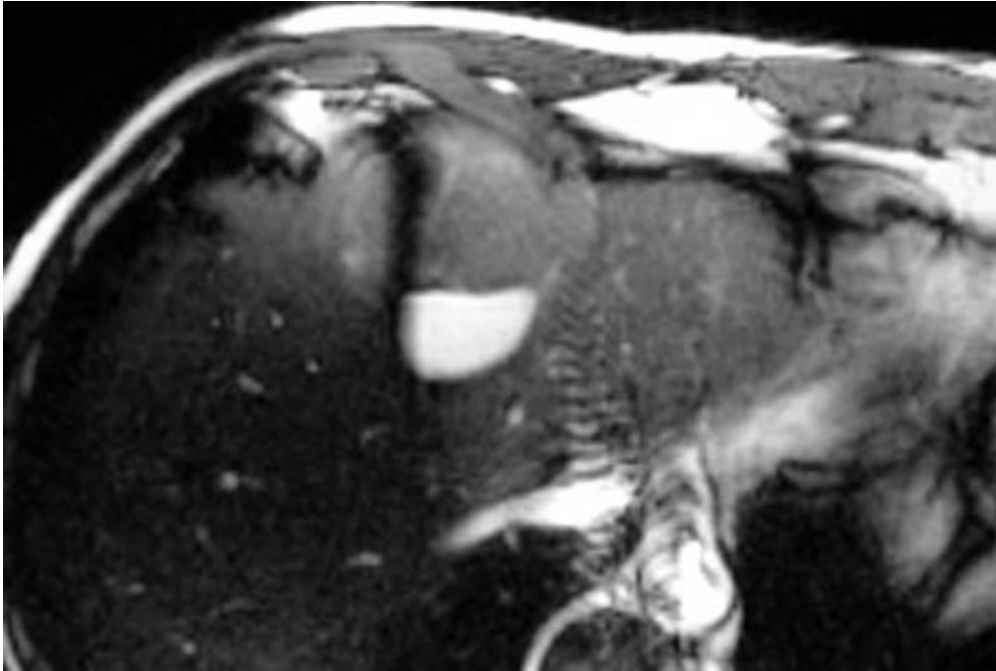
a



Description: Abdominal 5mm-slices CT-scan after i.v contrast injection: at the level of hepatic dome, we found an heterogenous mass located either in segment 8 or on the diaphragm, with infiltration of the subdiaphragmatic fat. **Origin:**

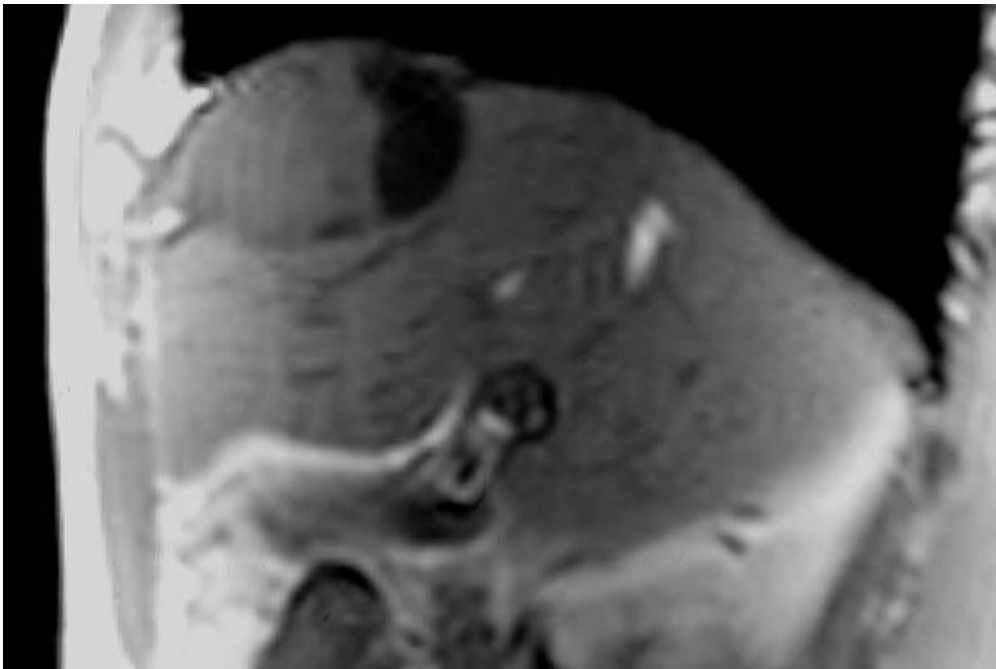
Figure 2

a



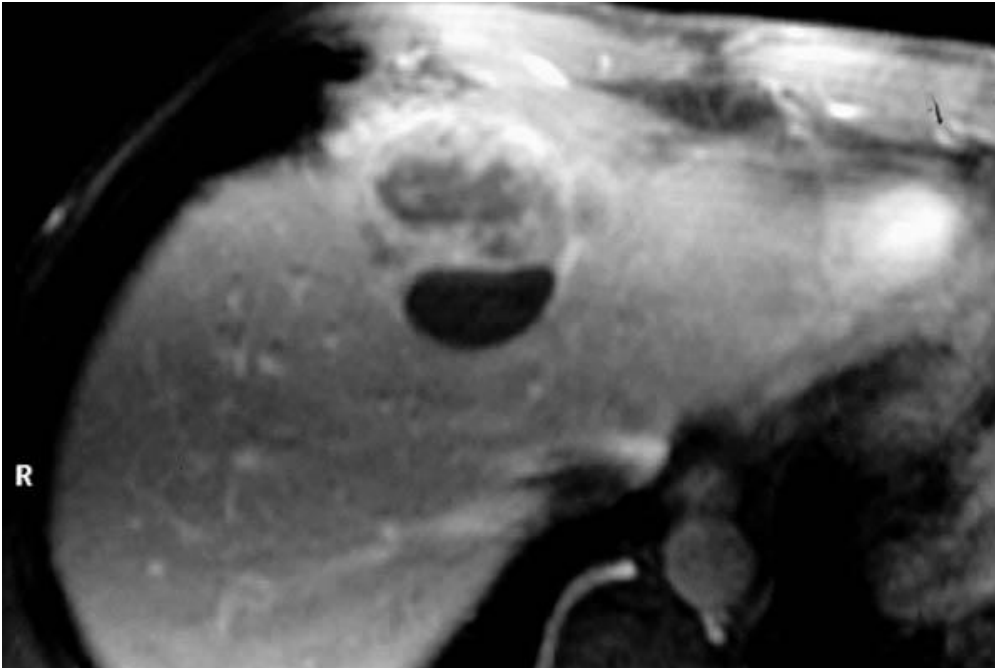
Description: MRI of the liver: on T2 axial images this lesion has a cystic and a solid hyperintense component. **Origin:**

b



Description: On sagittal T1 Weighted images, the lesion seems to originate from the perihepatic fat with scalloping of the liver surface. After gadolinium chelates injection, on the axial slice, the mass is vascular with enhancement of the adjacent peritoneal fat. **Origin:**

C



Description: After gadolinium chelates injection, on the axial slice, the mass is vascular with enhancement of the adjacent peritoneal fat. **Origin:**