

Tuberculous peritonitis

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Section: Abdominal imaging

Area of Interest: Abdomen Thorax

Procedure: Diagnostic procedure

Imaging Technique: PET-CT

Imaging Technique: CT

Special Focus: Infection Case Type: Clinical Cases

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Patient: 50 years, female

Clinical History:

The patient presented an insidious epigastric pain, without fever, weight loss or other signs/symptoms. Past medical history included smoking (18-45years) and cervical lymphadenitis (at the age of 19). Ultrasound was performed and showed a peripancreatic cystic mass, thus the patient was referred to our institution with the suspicion of a pancreatic tumour.

Imaging Findings:

18F-FDG PET-CT showed increased FDG uptake in the peripancreatic region, as well as in the surrounding lymph nodes, subcapsular liver and pouch of Douglas. (Fig. 1)

Abdominal Computed Tomography (CT) revealed enlarged lymph nodes, especially in the hepatogastric ligament, featuring hypoattenuating centre. (Fig. 2) The pancreatic parenchyma was homogeneous, without nodules/masses. There was also a diffuse peritoneal thickening with associated enhancement after intravenous contrast administration, and a small amount of peri-hepatic fluid, as well as along the right paracolic gutter and between small bowel loops. (Fig. 3) A small volume of pleural effusion on the right was also identified.

Chest radiograph showed obliteration of the costophrenic angles (right hemithorax), with no other associated finding. (Fig. 4)

Lymphadenopathy biopsy was performed.

Discussion:

Tuberculosis has shown a resurgence in nonendemic areas in recent years, particularly in immigrant population and in immunocompromised patients, who have a higher prevalence of extrapulmonary involvement. Indeed, tuberculosis is usually confined clinically to the respiratory system, however, the disease can affect any organ system. [1] In the abdomen, tuberculosis can involve lymph nodes (the most common manifestation of abdominal disease), peritoneum, gastrointestinal tract and solid viscera. [2] Abdominal lymphadenopathy has a typical pattern - mesenteric and peripancreatic lymph node enlargement, with multiple groups involved simultaneously. A characteristic finding is a hypoattenuating centre and enhancing rims after intravenous contrast administration, suggesting caseous necrosis. With respect to tuberculous peritonitis, it can be classically divided into three main types, with an overlap in their CT appearance: Wet, Fibrotic and Dry/Plastic. [1, 2] The first one is the most common, and presents a variable amount of ascites, free or loculated, usually slightly hyperattenuating due to the high cellular content; fibrotic peritonitis manifests as low-attenuation cake-like masses in the omentum and mesentery; and finally, the least common dry type is characterised by mesenteric thickening, fibrous adhesions and caseous

nodules. [1, 2]

The differential diagnosis of abdominal lymphadenopathy is embracing, however, the characteristic finding of hypoattenuating centre lymph nodes associated with diffuse peritoneal thickening and enhancement, and ascites decreases the diagnostic hypotheses. One of the differential diagnoses is peritoneal carcinomatosis. The imaging findings vary from multifocal discrete nodules to infiltrative masses. Infiltration of the small bowel mesentery may produce characteristic stellate pattern. Peritoneal lymphomatosis may mimic peritoneal carcinomatosis, but the presence of extensive adenopathy in lymph node chains typically involved with lymphoma, such as those in the retrocrural region and mesentery, may suggest lymphomatosis over carcinomatosis. [3, 4] Granulomatous peritonitis encompasses a wide range of unusual forms of peritoneal inflammation/infection that have overlapping imaging features. Crohn's disease, sarcoidosis and Whipple disease have also been described as rare causes of granulomatous inflammation of the peritoneum. [3] Moreover, Whipple disease can lead to low-attenuation mesenteric lymphadenopathy, which may even have a fatty appearance due to infiltration of lipidladen macrophages. The CT combination of small bowel wall thickening and low-attenuation mesenteric adenopathy is most suggestive of either mycobacterial infection or Whipple disease; associated central nervous system or articular disease would favour the latter. [5]

Differential Diagnosis List: Lymph node and peritoneal tuberculosis, Peritoneal carcinomatosis, Peritoneal lymphomatosis, Sarcoidosis, Whipple disease

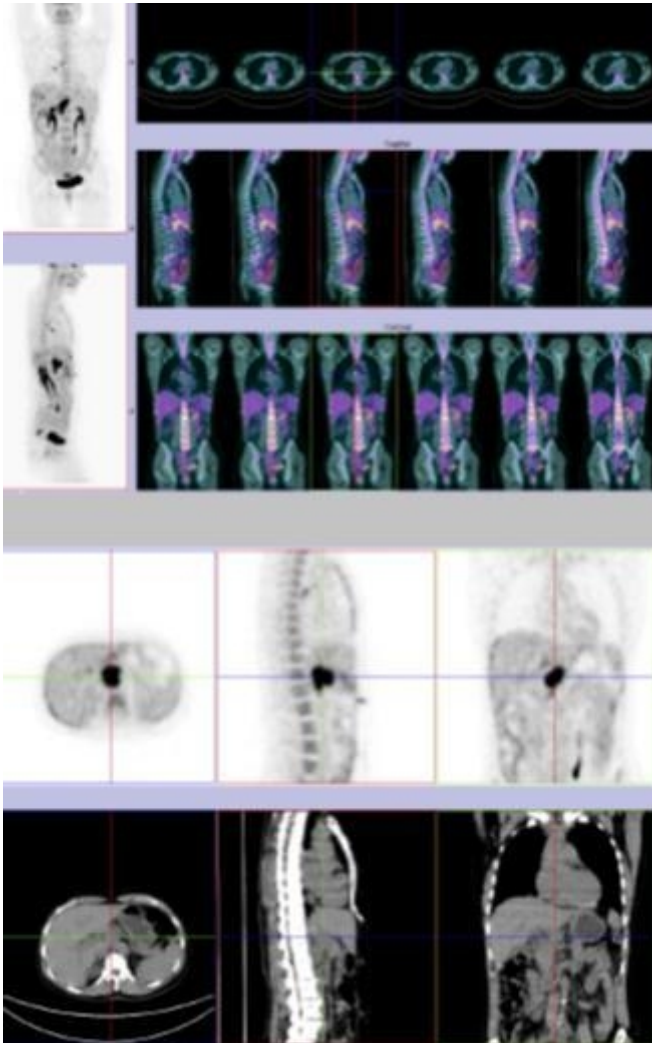
Final Diagnosis: Lymph node and peritoneal tuberculosis

References:

- Joshua Burrill, Christopher J. Williams, Gillian Bain, Gabriel Conder, Andrew L. Hine, Rakesh R. Misra (2007) Tuberculosis: A Radiologic Review. *RadioGraphics* 27:1255–1273 (PMID: [17848689](#))
- Mukesh G. Harisinghani, Theresa C. McLoud, Jo-Anne O. Shepard, Jane P. Ko, Manohar M. Shroff, Peter R., Mueller (2000) Tuberculosis from Head to Toe. *RadioGraphics* 20:449–470 (PMID: [10715343](#))
- Angela D. Levy, Janet C. Shaw, Leslie H. Sobin (2009) Secondary Tumors and Tumorlike Lesions of the Peritoneal Cavity: Imaging Features with Pathologic Correlation. *RadioGraphics* 29:347–373 (PMID: [19325052](#))
- Sheila Sheth, Karen M. Horton, Melissa R. Garland, Elliot K. Fishman (2003) Mesenteric Neoplasms: CT Appearances of Primary and Secondary Tumors and Differential Diagnosis. *RadioGraphics* 23:457–473 (PMID: [12640160](#))
- Pickhardt PJ, Bhalla S (2005) Unusual Nonneoplastic Peritoneal and Subperitoneal Conditions: CT Findings. *RadioGraphics* 25:719–730 (PMID: [15888621](#))

Figure 1

a



Description: 18F-FDG PET-CT showed increased uptake near the pancreatic head, regional lymph nodes, subcapsular liver and pouch of Douglas. **Origin:** Oncology Institute FG, Oporto, Portugal

Figure 2

a



Description: Enlarged lymph node, with hypoattenuating centre, in the hepatogastric ligament. Biliary cyst in the liver. **Origin:** Oncology Institute FG, Oporto, Portugal

Figure 3

a



Description: Diffuse peritoneal thickening with associated enhancement. Also note the small amount of peri-hepatic fluid. **Origin:** Oncology Institute FG, Oporto, Portugal

b



Description: Diffuse peritoneal thickening with associated enhancement. **Origin:** Oncology Institute FG, Oporto, Portugal

Figure 4

a



Description: Obliteration of the costophrenic angles, in the right hemithorax, resulting from the small amount of pleural effusion. There is no other radiologic finding. **Origin:** Oncology Institute FG, Oporto