Abdominal Tuberculosis

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Clinical Presentation of our patient Ms X

• **History**
  - Ms X, age 30 years
  - Abdominal pain for 4 months
  - Pain suddenly worsened few hours before presentation
  - Weight loss of 3-4 kg in last three months
  - Born in the Philippines, lived in the UK for past 4 years

• **Examination**
  - Chest - faint crackles both lower lobes (R>L)
  - Abdomen – distended, generalised tenderness
Investigations

- **Labs – significant findings**
  - Hb 9g/dl
  - LFT increased: AST, ALT, LDH, Alk Phos
- Other parameters were essentially normal
- HIV antibodies: negative
Next steps

- A diagnosis of acute abdomen was made
- A CT scan of abdomen was ordered to find the cause
Radiological Findings

CT Scan of abdomen with IV contrast

The lower chest showed

- Enlarged hilar lymph nodes
- Right pleural effusion
Radiological Findings

CT Scan of abdomen with IV contrast

Liver showing multiple cystic masses (areas of low attenuation) with enhancement in arterial phase

Non contrast - liver
Radiological Findings

CT Scan of abdomen with IV contrast

Both liver and spleen were enlarged
Radiological Findings

CT Scan of abdomen with IV contrast

Multiple enlarged para aortic lymph nodes
Radiological Findings

CT Scan of abdomen with IV contrast

Pancreatic cyst
Radiological Findings

CT Scan of abdomen with IV contrast

- Thickening of terminal ileum
- Extensive mesenteric stranding
Radiological Findings

CT Scan of pelvis with IV contrast

Bilateral hydosalpinx

Fluid in dilated left fallopian tube

Fluid in dilated right fallopian tube
Radiological Findings

CT Scan of pelvis with IV contrast

Fluid in the uterine cavity
Radiological Findings

Chest X-ray

Opacity in right hilum
Impression from CT Scan

- **Pancreatic cyst**
  - Primary tumor with liver, mesenteric and ovarian metastases.
  - tuberculosis

- **Tubo-ovarian masses**
  - Tuberculosis
  - Actinomycosis
  - Peritoneal carcinomatosis
Impression from CT Scan (contd)

- **Terminal Ileum thickening**
  - Tuberculosis
  - Crohn’s
  - Yersinia, Campylobacter

- **Other differentials**
  - Lymphoma
  - Endometriosis
  - Metastatic caecal cancer
Because of the CT scan finding of a diffuse multifocal intra-abdominal process a **diagnostic laparascopy** and **multiple laparascopic peritoneal biopsies** were carried out.
Laparoscopic Findings

- diffuse intraperitoneal nodules throughout the entire abdomen.

- Frozen section of multifocal biopsies of these nodules revealed diffuse granulomatous inflammatory process and no evidence of carcinoma.
Confirmatory Tests

- **AFB positive smear in**
  - Sputum
  - abd biopsy tissue
  - The peritoneal fluid - negative

- **AFB culture positive**
  - sputum
  - abd biopsy
  - peritoneal fluid - negative

- **Abdominal wall biopsy:**
  - Fibro-adipose tissue with caseating granulomas;
  - acid fast bacilli seen on special stain.

- **Negative for other bacteria and fungi in other specimens**
55-year-old man with **urinary tuberculosis** involving renal parenchyma and calices.

Contrast-enhanced CT scan obtained at level of right renal hilum shows wedge-shaped hypoperfused areas (**arrowheads**).

http://radiographics.rsnaajnls.org/cgi/content/full/20/2/449
48-year-old man with tuberculosis confined to renal cortex.
Contrast-enhanced CT scan shows low attenuated nodules in left kidney (arrowheads).
CT scan also shows multiple low attenuated nodules in liver (arrows).

http://radiographics.rsna.org/cgi/content/full/20/2/449
65-year-old man with tuberculosis involving \textit{urinary bladder}.

Contrast-enhanced CT scan shows focal wall thickening and enhancement (arrowheads) in anterior bladder wall, suggesting active inflammation.

[Image: http://radiographics.rsnaajnl.org/cgi/content/full/20/2/449]
**Bladder tuberculosis.** Axial contrast-enhanced CT scan demonstrates a thickened and deformed bladder with an enhancing wall (straight arrow). There is extension of the inflammatory process to the anterior abdominal wall (curved arrow).

http://radiographics.rsna.org/cgi/content/full/20/2/449
Other Presentations in abdominal tuberculosis: companion patient 5

Adrenal tuberculosis

Axial contrast-enhanced CT scan demonstrates bilateral adrenal masses with central low-attenuation areas (arrows).

http://radiographics.rsnaajnl.org/cgi/content/full/20/2/449
Importance

• The global increase in incidence of TB in both immunocompromised as well as in immunocompetent patients is a health issue of universal concern.

• Factors that have contributed to this increase are the acquired immunodeficiency syndrome (AIDS) and the problem of multi-drug resistant TB

• The WHO says 5 – 10 % of HIV negative people who get infected with TB get sick
Importance

- Abdominal TB will therefore be more commonly seen by radiologists.

- The diagnosis of abdominal TB remains a diagnostic challenge; therefore, one should be familiar with the various radiological features in order to prevent unnecessary surgical intervention.

- Although co-existence of pulmonary tuberculosis may be suggestive of associated abdominal TB, only 15% of cases of abdominal TB have evidence of associated pulmonary disease.
Importance

• Abdominal TB is one of the most prevalent forms of extrapulmonary disease

• Abdominal tuberculosis (TB) can affect
  – the gastrointestinal tract (66 – 75%)
    the terminal ileum and the ileocecal region are the most common sites, followed by the jejunum and colon
  – the peritoneum
  – lymph nodes of the small bowel mesentery or
  – the solid viscera (e.g. liver, spleen, pancreas).

• Multiple sites are common.
• The term 'miliary TB' denotes generalized involvement of multiple organs or systems.
Etiological Agents

- Mycobacterium tuberculosis
- M. avium-intracellulare (especially in patients with AIDS)
- Mycobacterium bovis (rarely)
Conclusion

- Tuberculosis can affect **virtually any organ system** in the body and can be devastating if left untreated.

- Because tuberculosis demonstrates a variety of clinical and radiologic findings and has a known propensity for dissemination from its primary site, it can **mimic numerous other disease entities**.
Conclusion

- A **high index of suspicion** is needed for the diagnosis of abdominal tuberculosis, especially in people at increased risk (intravenous drug abuse, alcoholism, acquired immunodeficiency syndrome (AIDS), cirrhosis, or steroid therapy); **a good history** helps.

- Correct diagnosis is necessary since **effective anti-tuberculosis drugs are available** and also to **prevent surgical intervention**
References

  www.wjgnet.com/1007-9327/9/1098.htm
- [www.stoptb.org](http://www.stoptb.org) (WHO TB fact sheet)
- **Tuberculosis from Head to Toe**
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Me da mo ase!

(‘Thank you’ in Ghanaian Language)