

PELVIC INFLAMMATORY DISEASE

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Key-word: Pelvic organs, inflammation

Background: A 27-year-old woman presented to the emergency department with acute pelvic pain, most prominent in the right lower quadrant. There was slight leucocytosis and elevation of the C-Reactive Protein. Because of clinical suspicion of appendicitis, a CT scan of the abdomen was requested.



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Fig. 1A | 1B
2A | 2B

Work-up

Contrast-enhanced CT scan of the abdomen (Fig. 1) shows on axial section at the level of the pelvis (A) bilateral tubular structures parauterine, with enhancing, thickened walls. Note also enlarged multiloculated ovaries bilaterally and a small amount of fluid in Douglas pouch (asterisk). Axial section at a slightly higher level (B) demonstrates dilatation of the lumen and enhancement of the wall of the right fallopian tube is better demonstrated (arrow).

CT scan of the abdomen (Fig. 2) shows on reformatted image at the level of the uterus (A) the presence of dilated and peripheral enhancing fallopian tubes bilaterally (arrows). On reformatted image at the level of the caecum (B), there is slight thickening of the wall of the caecum (arrow).

Radiological diagnosis

Based on the CT-findings, the diagnosis of pelvic inflammatory disease was made which was confirmed after laparoscopy. Bacteriological examination revealed *Streptococcus pneumoniae* infection.

Discussion

Pelvic inflammatory disease (PID) is one of the most common causes of acute pelvic pain in women. An estimated 1 million American women experience an episode of PID each year. In most cases PID results from ascending polymicrobial cervical infection. Genital chlamydia infections are the most common.

Lower abdominal pain is the cardinal presenting symptom but is unfortunately nonspecific and may be seen in other acute pelvic conditions and appendicitis. Most useful clinical signs for differentiation of PID from appendicitis include (1) absence of migration of pain from the midline towards the right lower quadrant, (2) bilateral lower abdominal tenderness and (3) absence of nausea or vomiting. However, in some cases the inflammatory process extends to the neighboring structures, such as the appendix or colon, causing misleading clinical symptoms.

Ultrasonography often is equivocal in patients with PID. Therefore, the referring physicians usually order an urgent CT scan for further evaluation. CT scan is particularly helpful in determining the extent

of the disease and identifying potential complications. Early CT-changes are an enlarged cervix with an enhanced canal, enlarged ovaries, dilated and enhancing fallopian tubes (pyosalpinges), peritoneal enhancement and periovarian stranding. With disease progression, bilateral thick-walled, low-attenuating adnexal masses with thick internal septations (tubo-ovarian abscesses), often associated with serpiginous structures corresponding to pyosalpinges, and free fluid in the pelvis, are seen. There is overlap in the CT-appearance of tubo-ovarian abscesses with that of other complex cystic masses. Associated findings in PID include thickening of the uterosacral ligaments, increased attenuation of the presacral fat secondary to edema, hydronephrosis, and indistinct margins of adjacent bowel loops. Anterior displacement of a thickened broad ligament and loss of definition of the uterine border are suggestive for adnexal origin of the inflammatory process and help to distinguish tubo-ovarian abscess from other causes of pelvic abscess, as in complicated appendicitis or diverticulitis. The inflammatory process may extend to or involve the appendix or colon and greater omentum.

Primary treatment of PID is administration of antibiotics. When not successful, or if large abscesses are identified, laparoscopic exploration is considered. The consequences of withholding therapy are severe.

If pelvic inflammatory disease is not treated promptly, the patient is at risk of developing chronic pelvic pain, infertility, or ectopic pregnancy.

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