

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Medical Imaging Quiz – Case 54

A 35-year-old man presented to the emergency department due to mild abdominal pain and severe nausea. None medical history referred. At initial physical examination body temperature, blood pressure and pulses were normal, with mild pain in the lower right of the abdomen. Laboratory tests revealed leukocytosis. At initial time abdomen ultrasound revealed only mild abdominal effusion. Thus patient was admitted to the surgical unit for clinical observation. In the first hours he showed clinical impairment with high fever and lumen obstruction. A computed tomography (CT) scan was performed urgently and revealed the diagnosis. CT guided percutaneous drainage was decided as a treatment method.

Comment

Intra-abdominal abscess continues to be an important and serious problem in surgical practice. Appropriate treatment is often delayed because of the obscure nature of many conditions resulting in abscess formation, which can make diagnosis and localization difficult.

Intra-abdominal abscesses are localized collections of pus that are confined in the peritoneal cavity by an inflammatory barrier. This barrier may include the omentum, inflammatory adhesions, or contiguous viscera. The abscesses usually contain a mixture of aerobic and anaerobic bacteria from the gastrointestinal (GI) tract. The most common causes of intra-abdominal abscesses are perfora-

tion of viscus, which includes peptic ulcer perforation, perforated appendicitis and diverticulitis, gangrenous cholecystitis, mesenteric ischemia with bowel infarction, pancreatitis or pancreatic necrosis progressing to pancreatic abscess. Intra-abdominal abscesses are highly variable in presentation. Persistent abdominal pain, focal tenderness, spiking fever, persistent tachycardia, prolonged ileus, leukocytosis, or intermittent polymicrobial bacteremia suggest an intra-abdominal abscess in patients with predisposing primary intra-abdominal disease or in individuals who have had abdominal surgery. If a deeply seated abscess is present, many of these classic features may be absent. The diagnosis of an intra-abdominal abscess in the postoperative period may be difficult, because postoperative analgesics and incisional pain frequently mask abdominal findings. In addition, antibiotic administration may mask abdominal tenderness, fever, and leukocytosis. In patients with subphrenic abscesses, irritation of contiguous structures may produce shoulder pain, hiccup, or unexplained pulmonary manifestations, such as pleural effusion, basal atelectasis, or pneumonia. With pelvic abscesses,

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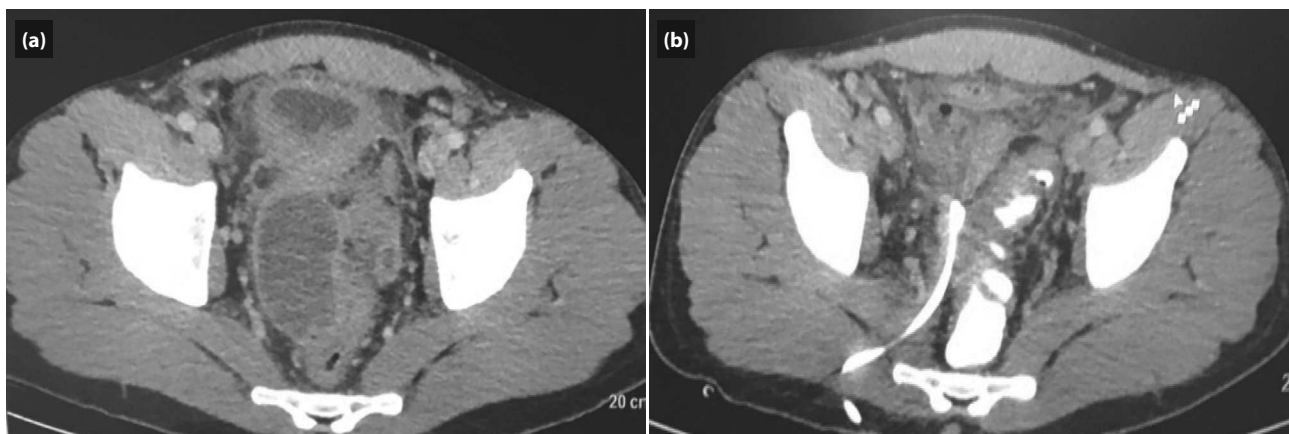


Figure 1. (a) Computed tomography (CT) scan revealed a big pelvic abscess. (b) Abscess improvement after the CT-guided percutaneous drainage. Catheter remains inside the abscess.

frequent urination, diarrhea, or tenesmus may occur. A diverticular abscess may present as an incarcerated inguinal hernia. Appropriate hematologic studies should be done. Hematologic parameters suggestive of infection (e.g., leukocytosis, anemia, abnormal platelet counts, and abnormal liver function) frequently are present, although patients who are debilitated or elderly often fail to mount reactive leukocytosis or fever.

Blood cultures indicating persistent polymicrobial bacteremia strongly implicate the presence of an intra-abdominal abscess. Plain abdominal radiographs, though rarely diagnostic, frequently indicate the need for further investigation. Abnormalities on plain abdominal films may include a localized ileus, extraluminal gas, air-fluid levels, mottled soft-tissue masses, absence of psoas outlines, or displacement of viscera. In experienced hands, ultrasonography has an accuracy rate greater than 90% for diagnosing intra-abdominal abscesses. A drawback of ultrasonography is that marked obesity, bowel gas, intervening viscera, surgical dressings, open wounds, and stomas can create problems with definition. In addition, the quality of the procedure is operator-dependent. CT has greater than 95% accuracy and is the best diagnostic imaging method for abdominal abscess. CT can document inflammatory edema in the adjacent fat and hyperemia in the abscess wall.

Drainage of pus is mandatory and is the first line of defense against progressive sepsis. Percutaneous CT-guided catheter drainage has become the standard treatment of most intra-abdominal abscesses. It avoids anesthesia and possibly difficult laparotomy, prevents the possibility of wound complications from open surgery, and may reduce the length of hospitalization. It also obviates the possibility of contaminating other areas within the peritoneal cavity. Percutaneous drainage, when feasible, is typically preferred to open drainage. CT-guided drainage delineates the abscess cavity and may provide safe access for percutaneous drainage. When performed by experienced physicians, it also prevents the possibility of injury to adjacent viscera or blood vessels. In patients who are critically ill, initial percutaneous drainage can control sepsis and improve hemodynamics before definitive surgical treatment. After drainage, clinical improvement should occur within 48–72 hours. Lack of improvement within this time frame mandates repeat CT to check for additional abscesses. Surgical drainage becomes mandatory if residual fluid cannot be evacuated with catheter irrigation, manipulation, or additional drain placement. Criteria for removal of

percutaneous catheters include resolution of sepsis signs, minimal drainage from the catheter, and resolution of the abscess cavity as demonstrated by ultrasonography or CT. Percutaneous drainage is effective in 90% of patients who have a single unilocular abscess with no enteral communication. Complex abscesses that include multiple loculations or interloop abscesses or those associated with an enteric fistula may necessitate surgery. Surgical intervention may also be indicated for abscesses with tenacious contents, such as infected hematoma, infected pancreatic necrosis, or fungal abscesses.

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