Pyogenic Liver Abscess

Key Points:
- Pyogenic liver abscesses are most commonly the result of ascending biliary infection but may also arise from spread of intraabdominal infection, hematogenous spread, or spread from the portal vein
- The microbiology of the abscess varies tremendously based on the source of infection and is frequently polymicrobial
- Clinical presentation may be incredibly non-specific and will not involve the RUQ in 50% of cases
- Definitive treatment usually involves drainage in addition to antibiotics

I. Mechanism: Most commonly ascends from biliary source (~30% of cases)
  - Other sources:  -- Direct extension from intraabdominal infection
  -- From portal vein (pylephlebitis)
  -- Hematogenous spread

II. Microbiology: Depends on original source of infection and is frequently polymicrobial
  - Biliary source: Enteric aerobic gram-negative bacilli and enterococcus
  - Intra-abdominal source: Mixed enteric flora, including B. fragilis
  - Hematogenous spread: Single organisms like S. aureus or Streptococcus milleri, anaerobes
  - Reports of isolated Klebsiella liver abscesses in Taiwan
  - Candida is not uncommon in immunosuppressed patients
  - Consider amebic abscess (E.histolytica) in patients from endemic areas (non-industrialized areas with poor sanitation) or with HIV; overwhelmingly affects men more than women

III. Signs and symptoms: Frequently non-specific
  - Symptoms referable to RUQ in only 50% of cases
  - Fever present in 90% of patients

IV. Diagnostic tests:
  - Elevated alkaline phosphatase most “reliable” LFT abnormality, although elevations in any parameter may be seen
  - Some may have elevated R hemidiaphragm, RLL infiltrate, or R effusion on CXR
  - Well visualized on ultrasound or CT scan
  - Amebic serologies will be positive in 95% of cases

V. Treatment:
  1. Empiric: Depends on the source, again
     a. Biliary source: Combination like amp/gent for gram-negative and enterococcal coverage
     b. Intraabdominal source: Good enteric GNR and anaerobe coverage (CTX/Flagyl)
  2. Definitive:
     a. Tailor antibiotics to microbiologic data (note: important to use data from initial aspiration as opposed to cultures from drains days after insertion)
     b. Standard of care remains aspiration and drainage of abscess contents, although there are small series in which serial aspiration was as successful as IR-guided continuous drainage
     c. Open surgical procedures for those who fail the above, or for those with multiple complex abscesses
     d. Amebic liver abscesses usually resolve with antimicrobial therapy alone

References
Everts RJ; Heneghan JP; Adholla PO; Reller LB. Validity of cultures of fluid collected through drainage catheters versus those obtained by direct aspiration. J Clin Microbiol 2001 Jan;39(1):66-8