Hepatic Abscess

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Jasvinder Singh and Niraj J. Gusani

Algorithmic Approach

Epidemiology

The overall incidence of liver abscess in the United States is estimated to be 3.6 per 100,000 population per year. Although the incidence and mortality from liver abscess have gone down significantly over the last century, its incidence appears to be increasing in recent years [1, 2]. Amoebic liver abscess is the most common type of liver abscess worldwide, whereas in western series, pyogenic liver abscess predominates.

Clinical Presentation and Diagnosis

The most common symptoms include fever (90%) and chills (50%), respectively, right upper quadrant pain and hepatomegaly with or without jaundice [2, 3]. Diagnosis is usually made after radiologic studies, e.g., ultrasound (US) abdomen or computed tomography (CT) scan.

J. Singh · N. J. Gusani (✉)
Department of Surgery, Program for Liver, Pancreas, and Foregut Tumors, Penn State College of Medicine, Penn State Cancer Institute, Hershey, PA, USA
e-mail: ngusani@pennstatehealth.psu.edu

Patients may have prodromal symptoms of weight loss, fatigue, malaise, fever, and anorexia for many days before more specific symptoms like right upper quadrant pain localize the process. Patient may even present with bacteremia of unclear etiology.

Etiology

1. *Pyogenic*: Biliary, portal, arterial, or traumatic origin. The etiology has changed over the last 100 years, with the biliary route replacing portal route as the most common cause of pyogenic liver abscess [3]. Patients usually present with multiple abscesses, especially when biliary in origin.
   (a). Biliary: Result of biliary obstruction and cholangitis from gallstones, biliary stricture or malignancy.
   (b). Portal: Spread of infection from the gastrointestinal tract to the liver via the portal vein. Examples include appendicitis, diverticulitis, perforated ulcers, perforated cancers, etc.
   (c). Arterial: Hematogenous spread of infection from a distant site, e.g., infectious endocarditis.
   (d). Traumatic: Secondary infection of a traumatic liver hematoma.
2. *Amoebic*: Usually solitary and in the right lobe but can be multiple. It is uncommon in

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the United States but is important to consider if there is history of travel to the tropical region, immunosuppression, human immunodeficiency virus (HIV), and corticosteroids.

3. *Malignant*: Historically, malignant tumors accounted for approximately 3% of liver abscess cases [4]. But with the increased use hepatic arterial interventions like transarterial chemoembolization (TACE) and transarterial radioembolization (TARE) with yttrium microparticles, it is not uncommon to see hepatic abscess in patients with malignant tumors in the present era.

Diagnosis

Right upper quadrant US It can identify liver abscess, gallstones, biliary dilation from common bile duct (CBD) stones.

CT scan Compared to ultrasound, CT scan has slightly increased sensitivity (95% vs 90%) and better anatomic localization for complex biopsies and drainage procedures. The characteristics suggestive of pyogenic liver abscess include contrast enhancement in the periphery as opposed to non-enhancement of the central portion during the portal venous phase [5].

MRI Magnetic resonance imaging (MRI) is a reasonable cross-sectional imaging modality but does not have any advantage over CT for diagnosis or management of liver abscess.

Labs Elevated white blood cell (WBC) count, anemia, elevated liver enzymes, hyperbilirubinemia, hypoalbuminemia

Serologic diagnosis Serologic testing for antibodies to *Entamoeba histolytica* using indirect hemagglutination and gel diffusion precipitation is the best way to confirm diagnosis of amoebic liver abscess (85–95% sensitivity and specificity) [6].

Culture The most commonly isolated organisms in those with positive blood culture include *Streptococcus* species (29.5%) and *E. coli* (18.1%) with polymicrobial cultures noted in 16.3% [1]. Presence of *Streptococcus faecalis* may indicate underlying colon cancer and should prompt evaluation for this [7].

Stool for ova and parasites The cysts of *Entamoeba histolytica* are found in the stool in about 1/4th of the patients [6].

Management

Amoebic Liver Abscess

(a). Medical Treatment

- Metronidazole is the mainstay of treatment. Dosage is 750 mg three times daily for 7–10 days.
- Metronidazole treatment needs to be followed with paromomycin (25–35 mg/kg/day in three divided doses for 7 days) or diloxanide furoate (500 mg three times daily for 10 days) to eradicate amoeba in the intestine.
- Alternatives for metronidazole include chloroquine (600 mg daily for 2 days, followed by 300 mg daily for 3 weeks) with or without dehydroemetine.
- Role of antibiotics: Antibiotics may be needed in case of secondary infection of amoebic liver abscess. Secondary infec-

tion should be suspected if patient doesn't respond to metronidazole within a few days; usually aspiration of abscess would be required to confirm this.

(b). Drainage
- Abscess drainage: Routine drainage of abscess is not needed. When needed, percutaneous needle aspiration (PNA) usually provides relief, and catheter placement may be avoided. Indications for drainage include left-lobe abscess, impending rupture, multiple abscesses, or abscess that does not respond to medical therapy within three to 5 days, unclear diagnosis [8].

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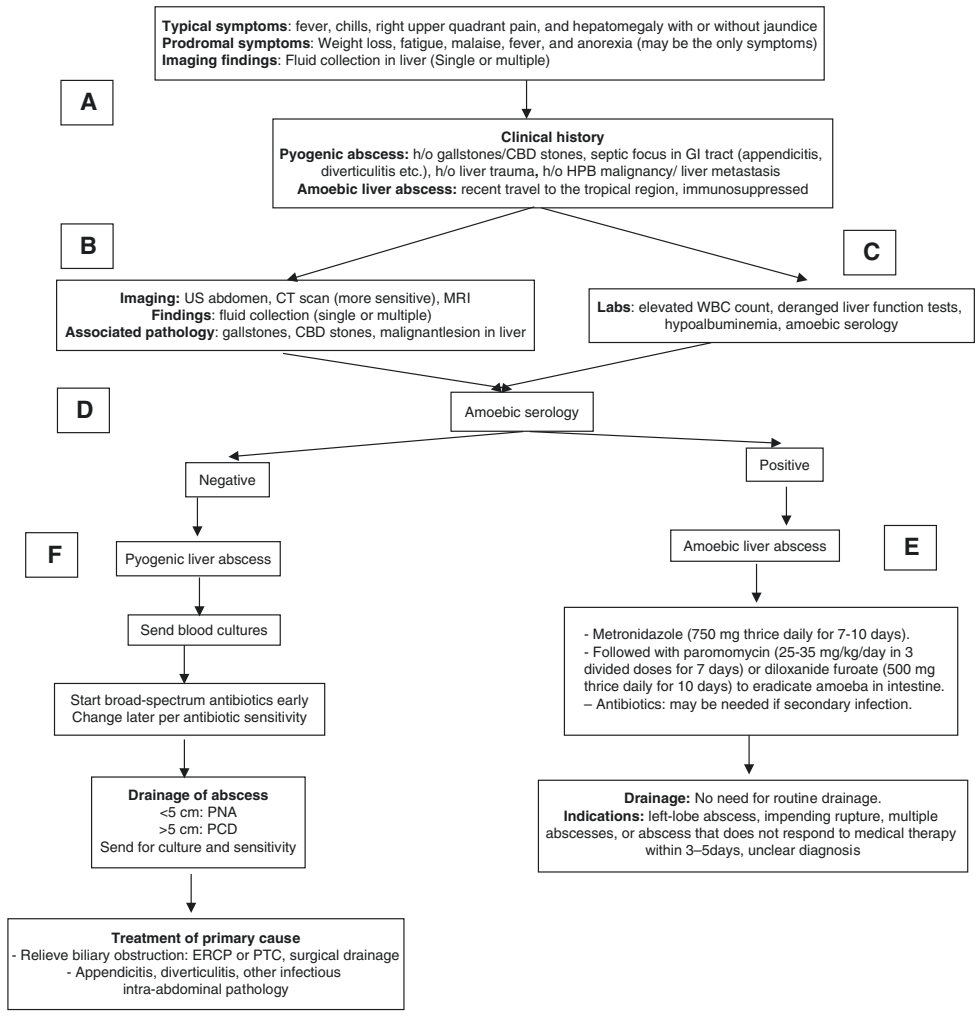
Pyogenic Liver Abscess

(a). *Antibiotics*: Initially start with parenteral broad spectrum antibiotics (polymicrobial infection is common), with adjustments per culture reports. Usually 4–6 weeks of antibiotic therapy is needed, but duration of antibiotic treatment should be individualized based on clinical response, etiology, and number/extent of abscesses [3]. If there is significant clinical improvement, patients can be transitioned to oral antibiotics after 2–3 weeks of intravenous antibiotics with equivalent results [9].

(b). *Drainage (percutaneous or internal)*: Drainage is essential to control sepsis and may be needed to confirm diagnosis. Usually percutaneous needle aspiration (PNA) alone is sufficient especially when the size of the abscess is <5 cm. Percutaneous catheter drainage (PCD) should be done in abscesses >5 cm or those that fail to resolve with PNA alone [10]. PCD generally is more effective than PNA for large abscesses, with a higher success rate and reduced time to achieve clinical relief [11]. Occasionally, operative intervention including drainage or resection of the affected liver is required.

(c). *Primary source control*: Treatment of the primary cause (e.g., appendicitis, diverticulitis, biliary obstruction, etc.) is essential.



Algorithm 79.1

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