

Clinical Aspects of Liver Diseases

27 Liver abscess

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(Figure 27.1; tables 27.1–27.4)	

27 Liver abscess

1 Definition

The term liver abscess describes a circumscribed, often encapsulated, purulent inflammation with necrosis of the local parenchyma caused by a multitude of pathogens (bacteria, protozoa, helminths) and fungi. Liver abscesses can be detected as a solitary or multiple occurrence. Microabscesses are also witnessed, diffusely affecting the entire liver, sometimes as the outcome of purulent, suppurative cholangitis.

2 Pathogenesis

Infection can develop in five different ways, whereby a weakening of the body's defence system enormously heightens susceptibility. (13, 42, 91) (s. tab. 27.1)

1. **haematogenic:** via the *proper hepatic artery* in severe septic processes (e.g. furunculosis, osteomyelitis) as a metastatic-pyæmic liver abscess, or via the *portal vein* as a pylephlebitic liver abscess (such as in appendicitis, colitis, diverticulitis), and occasionally via the *umbilical vein* as omphalophlebitis
2. **biliary:** via the bile ducts, arising from cholecystitis or cholangitis as well as from the invasion of parasites or foreign bodies
3. **per continuitatem:** spread of inflammatory processes to the adjacent areas (e.g. gall-bladder empyema, subphrenic or perinephritic abscess)
4. **posttraumatic:** following injuries to the liver or as a result of intrahepatic haematoma
5. **postoperative**

Tab. 27.1: Access routes leading to the development of liver abscesses

3 Pathogens

Fundamental differentiation may be made between four types of liver abscess, depending on the **aetiology**:

- | | |
|----------------------|-----------------------|
| 1. bacterial abscess | 3. helminthic abscess |
| 2. protozoal abscess | 4. fungal abscess |

The causative **pathogen** can be detected directly from the abscess or by cultures set up from the blood or bile, sometimes even from the urine or stool. It can also be detected microscopically (e.g. evidence of parasites or their eggs and larvae) and sometimes serologically or sonographically (e.g. *Ascaris lumbricoides*, s. figs.

25.5–25.8). In order to reach a diagnosis, it is necessary to select the examination method which is most suitable for the detection of the respective pathogen. When applying suitable bacteriological techniques, anaerobes can be found in 30–40% of cases. Solitary liver abscesses (63%) displayed a polymicrobial pathogenic spectrum in twice as many cases as did multiple abscesses (30%). (13) *Streptococcus milleri* is a very common cause. (72) It can be cultured in a carbon dioxide-enriched medium. (s. tab. 27.2)

Bacteria (12, 21, 24, 27, 32, 36, 39, 70, 87, 91, 97)

Gram-negative aerobes

Acinetobacter
Brucella species (86, 107)
Campylobacter jejuni (14)
Citrobacter freundii
Edwardsiella tarda (116)
Eikenella corrodens
Escherichia coli
Klebsiella species (19)
Proteus species
Pseudomonas species (108)
Salmonella species (35, 95)
Yersinia species (1, 6, 26, 49, 58, 105)

Gram-positive aerobes

Listeria monocytogenes (63, 84)
Mycobacterium tuberculosis (18, 43)
Pediococcus acidilactici (93)
Staphylococcus (38, 109)
Streptococcus pneumoniae (61)
Streptococcus species (64, 72)

Gram-negative anaerobes

Aeromonas hydrophilia (96)
Bacteroides species
Fusobacterium nucleatum (90)

Gram-positive anaerobes

Actinomyces (9, 69)
Clostridium species
Diphtheria species
Lactobacillus (11)
Peptostreptococcus
Streptococcus anaerobius

Protozoa

Amoebiasis

Helminths

Ascaris lumbricoides
Fasciola hepatica

Fungi

Aspergillosis
Candida species (92)
Mucormycosis
Torulopsis glabrata
Trichosporon species

Tab. 27.2: Main pathogens (bacteria, protozoa, helminths, fungi) of liver abscesses and microabscesses (with some references) (see chapters 24, 25 and 26)