# Clinical Aspects of Liver Diseases

## 26 Mycotic infections and the liver

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► *The clinical diagnosis of any mycosis requires proof of the pathogenic fungus and, as far as possible, additional differentiation by fungal culture.* • **Endogenous mycosis** is a fungal infection caused by saprophytic fungi − normal inhabitants of the gastrointestinal tract − especially as secondary mycosis following other immunocompromising diseases. • **Exogenous mycosis** is caused by primary pathogenic fungi: it may be localized or generalized, and it may show a preference for certain tissues or systems. • **Systemic mycosis** shows widespread dissemination, predominantly affecting particular organs and tissues; it may originate from endogenous or exogenous mycosis. • *Thus, a mycotic disease of the liver and biliary tract is always systemic.*

## 1 Predisposing factors

Hepatic or biliary mycosis is only likely to occur with a deficiency of the endogenic defence response. However, in isolated cases, discussion has also centred on locally impaired defence mechanisms (e. g. after ERCP (17), choledocholithiasis, papillotomy) which cause or exacerbate an existing mycotic focus. There have been several cases without any noticeable immunosuppression (e. g. aspergillosis and candidosis). The occurrence of systemic and organ mycosis is causally related to many factors or events leading to a reduced immune response, especially the clearance function of the hepatic RES. Saprophytic fungi thus become opportunistic pathogens, which, like exogenous primary pathogenic fungi, gain the upper hand over the body's defence system. (s. tab. 26.1)

1. Medicaments
   − immunosuppressants
   − glucocorticoids
   − cytostatics
   − antibiotics
2. Immunological diseases
   − e. g. AIDS, collagenosis
3. Haematological diseases
   − e. g. leukaemia, aplastic anaemia
4. Malignant diseases
5. Organ transplantation
6. Severe hepatic dysfunction
7. Serious acute diseases
   − e. g. pancreatitis, endocarditis, peritonitis
8. Chronic renal diseases
   − e. g. glomerulonephritis, dialysis
9. Intensive care
   − e. g. artificial respiration, parenteral feeding
10. Infectious diseases
    − e. g. salmonellosis, tuberculosis
11. Diabetes mellitus
12. Burns
13. Major surgery
14. Prepartal and postpartal complications
15. Chronic alcoholism
16. Malnutrition
17. Ileus
18. Tooth extraction
19. ERCP, papillotomy

***Tab. 26.1:*** Predisposing factors for organ mycosis, including the liver and biliary tract

## 2 Pathogens

Hepatobiliary organ mycosis may be caused by several fungal species, whereby the Candida species by far outnumber the others. With the exception of Candida sp. and Mucor sp., all hepatotoxic fungi have an airborne route of infection. (s. tab. 26.2)

## 3 Diagnosis

Even though hepatobiliary mycosis is a rare occurrence in terms of numbers, the possibility of mycotic infection should always be considered in the presence of predisposing factors or respective events. • Signs of such a complication include additional **complaints** (e. g. loss of appetite, increasing malaise, tenderness in the right epigastrium) or **clinical symptoms** (e. g. fever of unknown origin − especially in non-response to antibiotics − hepato(spleno)megaly) and **laboratory parameters** (e. g. increase in transaminases, alkaline phosphatase, serum bilirubin, ESR, CRP, decrease in ChE). (s. tab. 27.4)

**Ultrasound** and **CT** only reveal hepato(spleno)megaly or suggest multiple foci similar to small abscesses, possibly in the form of a "snowstorm" − and occasionally biliary congestion as a result of obstruction due to fungal masses. (1, 2, 13, 15, 25, 26, 28, 29) • **MRI** is a better diagnostic tool (85−100%) − equally reliable information was also obtained with MRI when monitoring the treatment and follow-up of hepatolienal mycoses. (7)

These hints of hepatolienal mycosis can be confirmed by **liver biopsy** or **fine needle biopsy.** (9, 18, 20, 51, 52) In this respect, however, only a small area is examined by the puncture technique, with the result that negative histological findings are not always representative of the liver as a whole. Diagnostic reliability is, of course, increased by taking 2 or 3 biopsy samples from the two lobes of liver during laparoscopy. (s. pp 157, 161) • Conclusive proof of **mycosis** is obtained by (*1.*) microscopic examination, (*2.*) serological tests or immunoassays, and (*3.*) fungal culture.