

Symptoms and Syndromes

11 Hepatomegaly and splenomegaly

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11 Hepatomegaly and splenomegaly

1 Hepatomegaly

1.1 Definition

Hepatomegaly is present if (1.) *palpation* locates the lower border of the right lobe of liver to be more than 2 cm (1–2 finger breadths) below the left costal arch (MCL lateral to rectus abdominis) (caution: phrenoptosis), (2.) the absolute liver dullness on *percussion* is more than 14 cm, or (3.) the longitudinal diameter of the liver in the MCL is greater than approximately 15 cm in the *sonogram*.

Hepatomegaly is a cardinal symptom in a number of liver diseases or a concomitant reaction of the liver in various extrahepatic or systemic diseases. When detected, differential diagnostic clarification is always necessary.

Hepatomegaly can affect the entire liver as a *diffuse* enlargement or only a certain region of the liver as a *circumscribed* increase in volume. • Under clinical conditions, the **liver size** is ascertained by the combined application of *palpation* (to determine the inferior border of the liver) and *percussion* (to determine the border between the liver and lungs). (s. pp 77, 79) Determination of the liver size by *sonography* is considerably more precise. • It is also necessary to assess the **liver consistency** (soft, elastic, firm, compact, hard), the **liver surface** (smooth, protuberant), the **tenderness on pressure**, and the sonographically detectable **internal structure** (homogeneous, inhomogeneous, formation of foci, enlarged bile ducts or vessels). The **density** of the normal liver in the CT is 60 ± 6 HU. (s. p. 171)

1.2 Pathogenesis

1.2.1 Replication of cells

A diffuse enlargement of the liver can be caused by cell replication.

(1.) Replication of *hepatocytes* in the form of excessive hyperplasia can occur occasionally after extensive parenchymal necrosis or partial liver resection. However, this does not generally cause a clinical discernible form of hepatomegaly.

(2.) In systemic haematological diseases, the liver is usually involved in *extramedullary haematopoiesis*. This can result in hepatomegaly.

(3.) Diffuse enlargement of the liver can also be brought about by *lymphohistiocytic cell infiltrations*. This gener-

ally involves inflammatory reactions to viral or bacterial diseases.

(4.) Diffuse hepatomegaly is also expected to occur as a result of *malignant cell growth*.

1.2.2 Enlargement of cellular structures

An increase in the volume of sinusoidal cells and hepatocytes due to an enlargement of their cellular structures can be caused *actively* by proliferation or *passively* by storage processes.

(1.) *Endothelia* and *Kupffer cells* can be stimulated to considerable proliferation, so that in clinical terms hepatomegaly occasionally results.

(2.) Proliferation of the *smooth endoplasmic reticulum* due to the prolonged induction of the biotransformatory system localized at this site as a result of toxins, noxae or chemicals can bring about clinically and sonographically detectable hepatomegaly.

(3.) Hepatocellular *storage* of abnormal quantities of cholesterol, fat, glycogen, proteins, mucopolysaccharides, copper, iron, etc. occasionally leads to pronounced hepatomegaly. Hydropic swelling of the hepatocytes is also included in this category.

1.2.3 Augmentation of the extracellular space

Diffuse enlargement of the liver can also arise from augmentation of the extracellular space.

(1.) An increase in *blood* both in the sinusoids and in Disse's spaces culminates in hepatomegaly. This can be witnessed particularly in cases of right heart failure, constrictive pericarditis, veno-occlusive disease and the Budd-Chiari syndrome. Inflammation-related hyperaemia also occurs in acute viral hepatitis.

(2.) An enhanced formation of *lymph* or reduced lymph drainage can cause enlargement of the liver. Here fluid-filled *cysts* can also be regarded as a cause of hepatomegaly.

(3.) A disorder of the *bile flow*, particularly in infants, leads to extensive hepatomegaly.

(4.) An increase in the extracellular *matrix* due to collagens, elastin, proteoglycans, glycoproteins, etc. also produces various degrees of hepatomegaly.