Liver anatomy

**Morphological anatomy**
(the ligamentum falciforme divides the liver into the right and left anatomic lobes)

**Functional anatomy**
(Couinaud's & Bismuth’s)
Couinaud classification

- Divides into Eight segments depending on vascular inflow, outflow, and biliary drainage.
- Center of each segment has a hepatic vein, portal vein, and a bile duct.
- **Right hepatic vein** divides the right lobe into anterior and posterior segments.
  **Middle hepatic vein** divides the liver into right and left lobes. This plane runs from the inferior vena cava to the gallbladder fossa.
  **Left hepatic vein** divides the left lobe into a medial and lateral part.
- **Portal vein** divides the liver into upper and lower segments.
  The left and right portal veins branch superiorly and inferiorly.
Numbering of segments

- There are eight segments numbered from 1-8.
- Numbering of segments is in a clockwise manner.
- Segment 1 caudate lobe is situated posteriorly.
- Segment 4 is divided into 4a and 4b (Bismuth classification).
Frontal projection

• Right border formed by segment 5 & 8.
• Left border by 2 & 3
• Segments 6, 7 and 1 are not visualized in frontal view as they are situated posteriorly.
• Cantlie’s line (middle hepatic vein runs along this) passing from middle of the GB fossa anteriorly to the inferior vena cava posteriorly divides liver into functional left and right lobes.
• Left hepatic vein situated slightly to the left of the falciform ligament, separates seg. 4 from segs. 2 & 3.
TRANSVERSE ANATOMY

• Superior liver segments, that are divided by the hepatic veins.

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TRANSVERSE ANATOMY

At the level of the left portal vein, divides the left lobe of the liver into segments (2&3) and the falciform ligament fissure separates them form segment 4 laterally and segment 1 inferiorly.
Caudate lobe

- The caudate lobe or segment 1 is located posteriorly. The caudate lobe is anatomically different from other lobes in that it often has direct connections to the IVC through hepatic veins, that are separate from the main hepatic veins. The caudate lobe is supplied by both right and left branches of the portal vein.
At the level of the right portal vein, divides the right lobe of the liver into superior segments (7 & 8) and the inferior segments (5 & 6).
AT THE LEVEL OF SPLENIC VIEN

Inferior segments of liver 3, 4b, 5, & 6 are visualized
At the level of gall bladder
References

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