Normal Anatomy Imaging

The liver is divided into the left and right lobes, and each lobe is divided into segments on the basis of its vascular anatomy and biliary drainage. The intrahepatic bile ducts generally follow the internal hepatic segmental anatomy (Figs. 6.1, 6.2). In the left lobe, a left medial segment duct and a left lateral segment duct normally join to form the main left hepatic duct. The right hepatic duct branches near its origin at the common hepatic duct. Frequently, the right hepatic duct has a dorso-caudal branch, draining the posterior segment of the right lobe, and a ventro-cranial branch, draining the anterior segment of the right lobe (Fig. 6.1). Ductal drainage of the caudate lobe is variable and may be related to the left or right ductal system. The left and right hepatic ducts unite just outside the liver to form the common hepatic duct, which is usually 3–4 cm in length (Figs. 6.3, 6.4). The common hepatic duct courses ventrally and inferiorly with the hepatic artery and the portal vein from the porta hepatis into the hepatoduodenal ligament (Fig. 6.4). The common hepatic duct joins the cystic duct to form the common bile duct (CBD) that averages 6–7 cm in length. The

Fig. 6.1 Anatomy of the intrahepatic bile ducts: magnetic resonance cholangiopancreatography (MRCP). Coronal MRCP shows the anatomy of the intrahepatic bile ducts. The hepatic segments are indicated by roman numbers.

Fig. 6.2 Anatomy of the intrahepatic bile ducts: sonography. The intrahepatic bile ducts appear as hypoechoic structures (arrow) within the hepatic parenchyma, surrounded by hyperechoic fat within the portal space.
CBD is divided into suprapancreatic, intra-pancreatic, and ampullary segments, and enters the posterior-medial aspect of the second portion of the duodenum through a 1–2 cm long intramural tunnel terminating at the major duodenal papilla (Papilla of Vater) (Fig. 6.4). In many cases, the CBD joins the pancreatic duct in the duodenal wall, and has a short common channel. The sphincter of Oddi surrounds the common channel and the choledochal sphincter surrounds the CBD from its entrance into the duodenal wall to its junction with the pancreatic duct. Microscopically, the extrahepatic ducts are composed mainly of elastic fibers, and are sparse in muscle fibers. This explains their change in size in response to fluctuations in intraductal pressure.

The gallbladder is an elliptical organ that straddles the intersegmental plane between liver segments IV and V (Figs. 6.5 and 6.6). The gallbladder is divided into four parts: the fundus, the body, the infundibulum, and the neck (Fig. 6.5). Usually the organ is attached to the liver by the parietal peritoneum. When relaxed, the normal gallbladder is approximately 10 cm long, 3–5 cm in diameter and has a capacity of approximately 50 ml. The gallbladder wall is usually 2–3 mm thick and composed of columnar epithelium. Lymphatic drainage of the gallbladder descends...