

Gallbladder



The gallbladder is a saclike structure on the inferior surface of the liver, measuring about 4 cm wide and 8 cm long. It is joined to the common hepatic duct by the cystic duct, whose mucous membrane forms prominent spiraling folds that contain bundles of smooth muscle. These folds make up the spiral valve that prevents the collapse or distention of the cystic duct during sudden changes in pressure. The wall of the gallbladder consists of a mucous membrane, a muscularis, and a serosa or adventitia.

The mucous membrane of the gallbladder wall consists of a simple columnar epithelium and an underlying lamina propria. The oval nuclei are located basally in the cells and the luminal surfaces show numerous short microvilli. The apices of adjacent cells are joined, near the lumen, by typical zonula occludens junctions. The epithelium rests on a thin basal lamina that separates it from the delicate connective tissue of the lamina propria, which contains numerous small blood vessels. Occasional glands are found in the lamina propria, especially where the gallbladder joins the cystic duct. These small, simple tubuloacinar glands are thought to secrete mucus. The mucosa of the non-distended gallbladder forms large irregular folds called rugae, which flatten out as the gallbladder fills with bile. There is no submucosa in the gallbladder. The muscularis consists of interlacing bundles of smooth muscle that spiral around the lumen of the gallbladder. The smooth muscle cells contain numerous receptors for cholecystokinin. Gaps between the smooth muscle bundles are filled with collagenous, reticular, and elastic fibers. Because of the musculoelastic wall and the rugae, the gallbladder

has considerable capacity for distention. The surrounding fibro-connective tissue of the adventitia is fairly dense and is continuous with the connective tissue of the liver capsule. The free surface of the gallbladder (that exposed to the abdominal cavity) is covered by a mesothelium, forming a serosa.

The gallbladder stores and concentrates bile, which is elaborated continuously by the liver. In humans the gallbladder may contain 30 to 50 ml of bile. On stimulation by cholecystikin, the gallbladder wall contracts and the sphincters of the common bile duct and ampulla relax, allowing bile to be released into the duodenum.

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