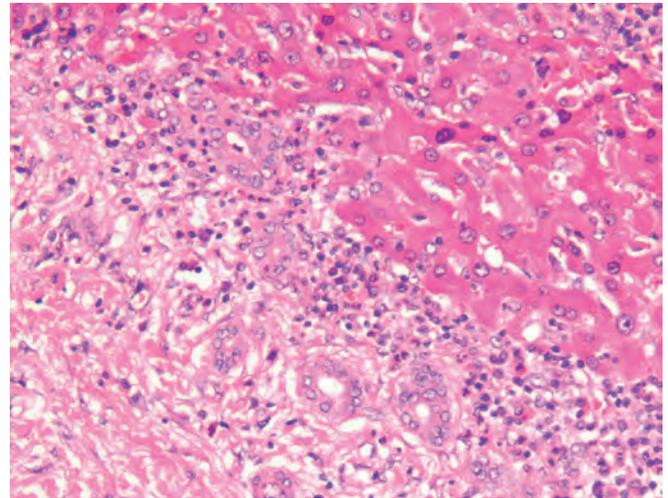


**Figure 18-28** Cholestasis. **A**, Morphologic features of cholestasis (right) and comparison with normal liver (left). Cholestatic hepatocytes (1) are enlarged with dilated canaliculi spaces (2). Apoptotic cells (3) may be seen, and Kupffer cells (4) frequently contain regurgitated bile pigments. **B**, Intracellular cholestasis showing the bile pigments in the cytoplasm. **C**, Bile plug (arrow) showing the expansion of bile canaliculus by bile.

ischemia relating to hypotension caused by sepsis (particularly when the liver is cirrhotic), or (3) in response to circulating microbial products. The last mentioned is most likely to lead to the cholestasis of sepsis, particularly when the systemic infection is due to gram-negative organisms. The most common form is *canicular cholestasis*, with bile plugs within predominantly centrilobular canaliculi. This entity may be associated with activated Kupffer cells and

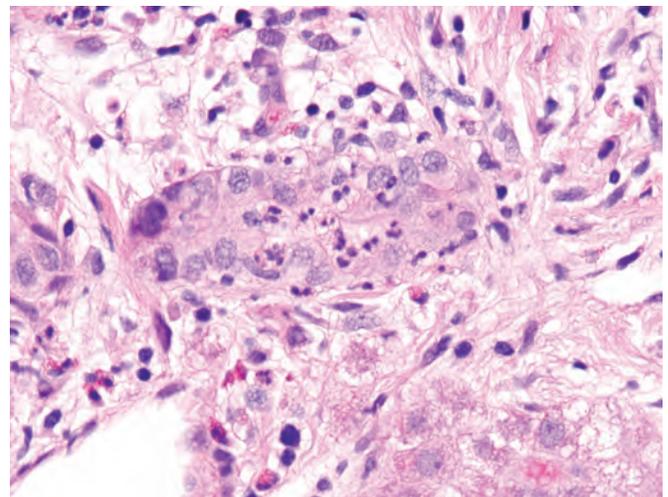


**Figure 18-29** Acute large duct obstruction. There is marked edema of the portal tract stroma (white spaces) and a ductular reaction with admixed neutrophils at the interface between portal tract and hepatocellular parenchyma.

mild portal inflammation, but hepatocyte necrosis is scant or absent. *Ductular cholestasis* is a more ominous finding, wherein dilated canals of Hering and bile ductules at the interface of portal tracts and parenchyma become dilated and contain obvious bile plugs (Fig. 18-32). This change, which is not a typical feature of biliary obstruction, despite the appearance of bile in large, dilated ductules, often accompanies or even precedes the development of septic shock.

### Primary Hepatolithiasis

**Hepatolithiasis is a disorder of intrahepatic gallstone formation that leads to repeated bouts of ascending cholangitis, progressive inflammatory destruction of hepatic parenchyma, and predisposes to biliary neoplasia.** The disease has a high prevalence in East Asia, but elsewhere is rare. Previously this disease has been called *recurrent*



**Figure 18-30** Ascending cholangitis. Individuals with large bile duct obstruction risk bacterial infections of the static bile within the biliary tree. Neutrophils are then seen within the bile duct epithelial lining and within the lumen.