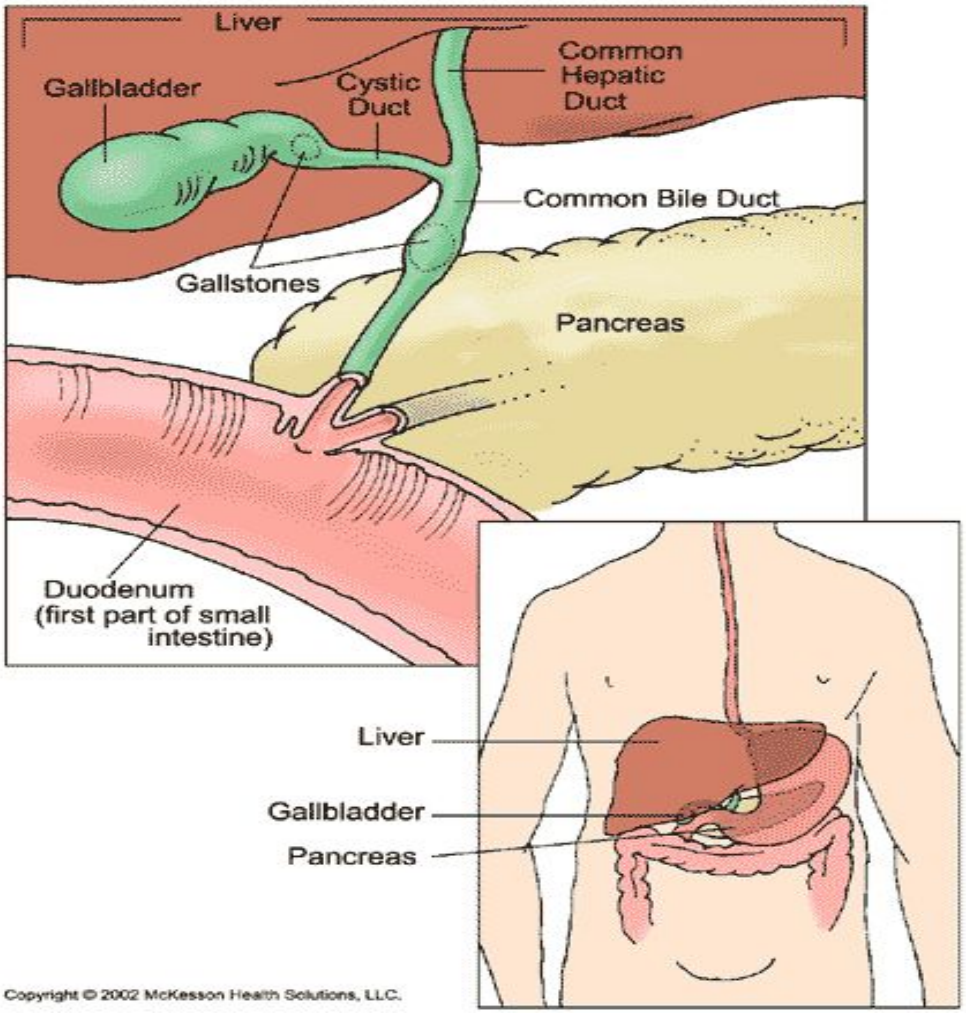
Gallbladder and Bile Ducts



Predominantly Unconjugated Hyperbilirubinemia

Predominantly Unconjugated Hyperbilirubinemia

Excess production of bilirubin
- Hemolytic anemias
- Resorption of blood from internal hemorrhage (e.g., alimentary tract bleeding, hematomas)
- Ineffective erythropoiesis syndromes (e.g., pernicious anemia, thalassemia)

Reduced hepatic uptake
- Drug interference with membrane carrier systems
- Some cases of Gilbert syndrome

Impaired bilirubin conjugation
- Physiologic jaundice of the newborn (decreased UGT1A1 activity, decreased excretion)
- Breast milk jaundice (?increased deconjugation by β-glucuronidases)
- Genetic deficiency of bilirubin UGT1A1 activity (Crigler-Najjar syndromes types I and II)
- Gilbert syndrome (decreased expression of UGT1A1)
- Diffuse hepatocellular disease (e.g., viral or drug-induced hepatitis, cirrhosis)

Predominantly Conjugated Hyperbilirubinemia

Predominantly Conjugated Hyperbilirubinemia

Decreased hepatic excretion of bilirubin glucuronides
- Deficiency in canalicular membrane transporters (Dubin-Johnson syndrome, Rotor syndrome)
- Drug-induced canalicular membrane dysfunction (e.g., oral contraceptives, cyclosporine)
- Hepatocellular damage or toxicity (e.g., viral or drug-induced hepatitis, total parenteral nutrition, systemic infection)

Decreased intrahepatic bile flow
- Impaired bile flow through bile canaliculi (e.g., drug-induced microfilament dysfunction)
- Inflammatory destruction of intrahepatic bile ducts (e.g., primary biliary cirrhosis, primary sclerosing cholangitis, graft-versus-host disease, liver transplantation)

Extrahepatic biliary obstruction
- Gallstone obstruction of biliary tree
- Carcinomas of head of pancreas, extrahepatic bile ducts, ampulla of Vater
- Extrahepatic biliary atresia
- Biliary strictures and choledochal cysts
- Primary sclerosing cholangitis (extrahepatic)
- Liver fluke infestation

CLASSIFICATION – CBD Stones

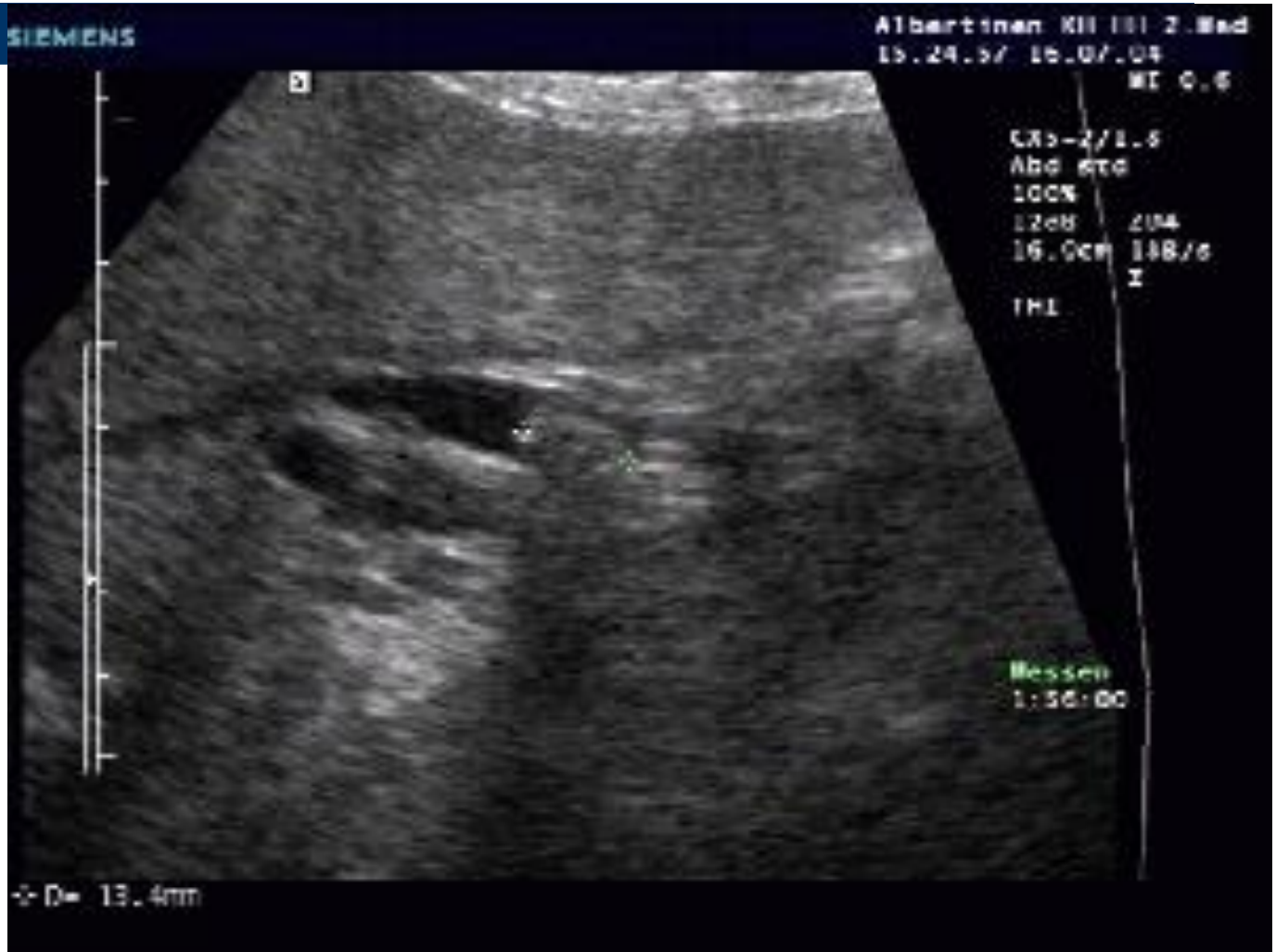
- **By the point of origin**

1. Primary CBD Stones
2. Secondary CBD Stones

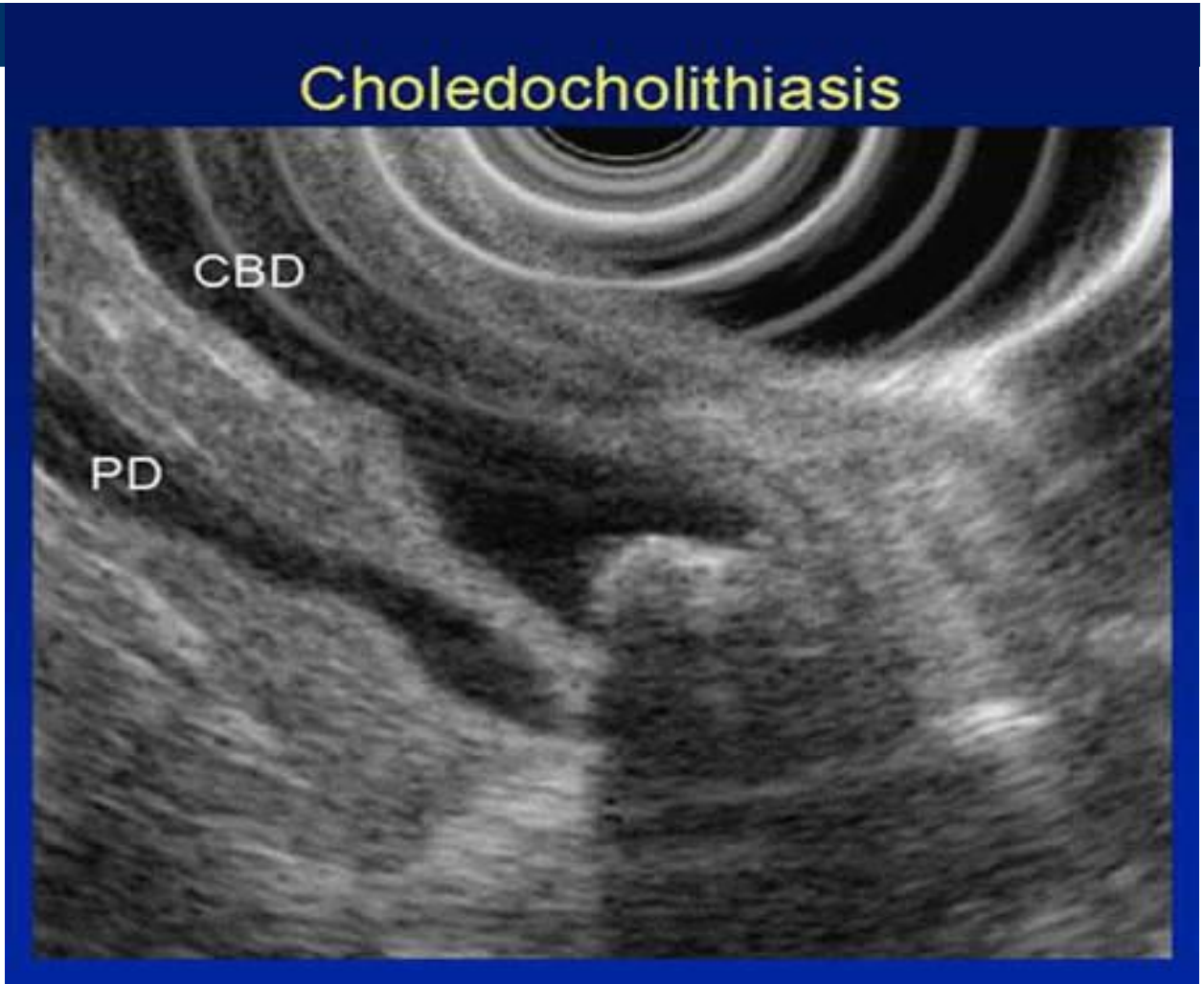
- **By the time of discovery relative to cholecystectomy**

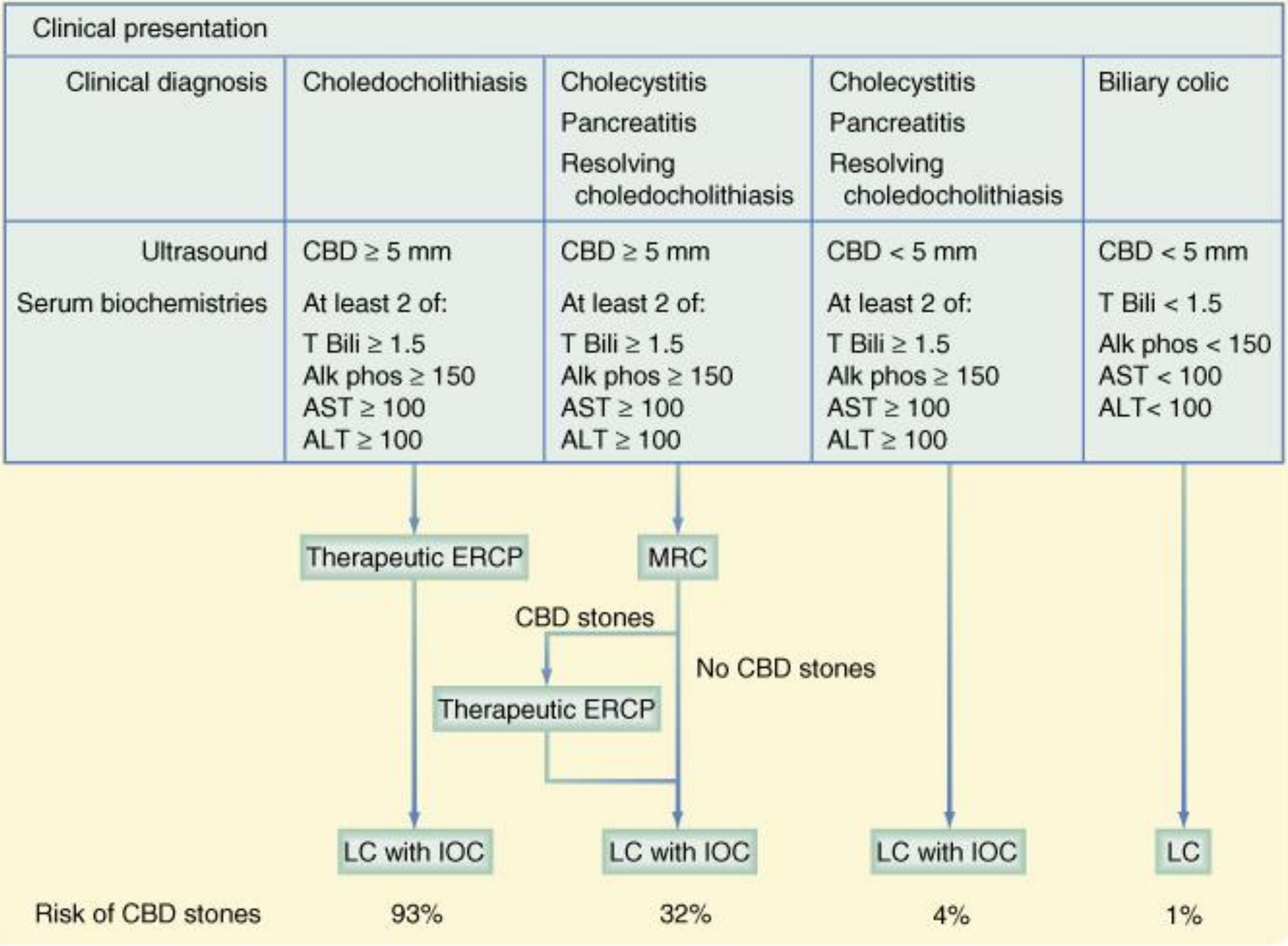
1. Retained
2. Recurrent

CBD Stone on USG

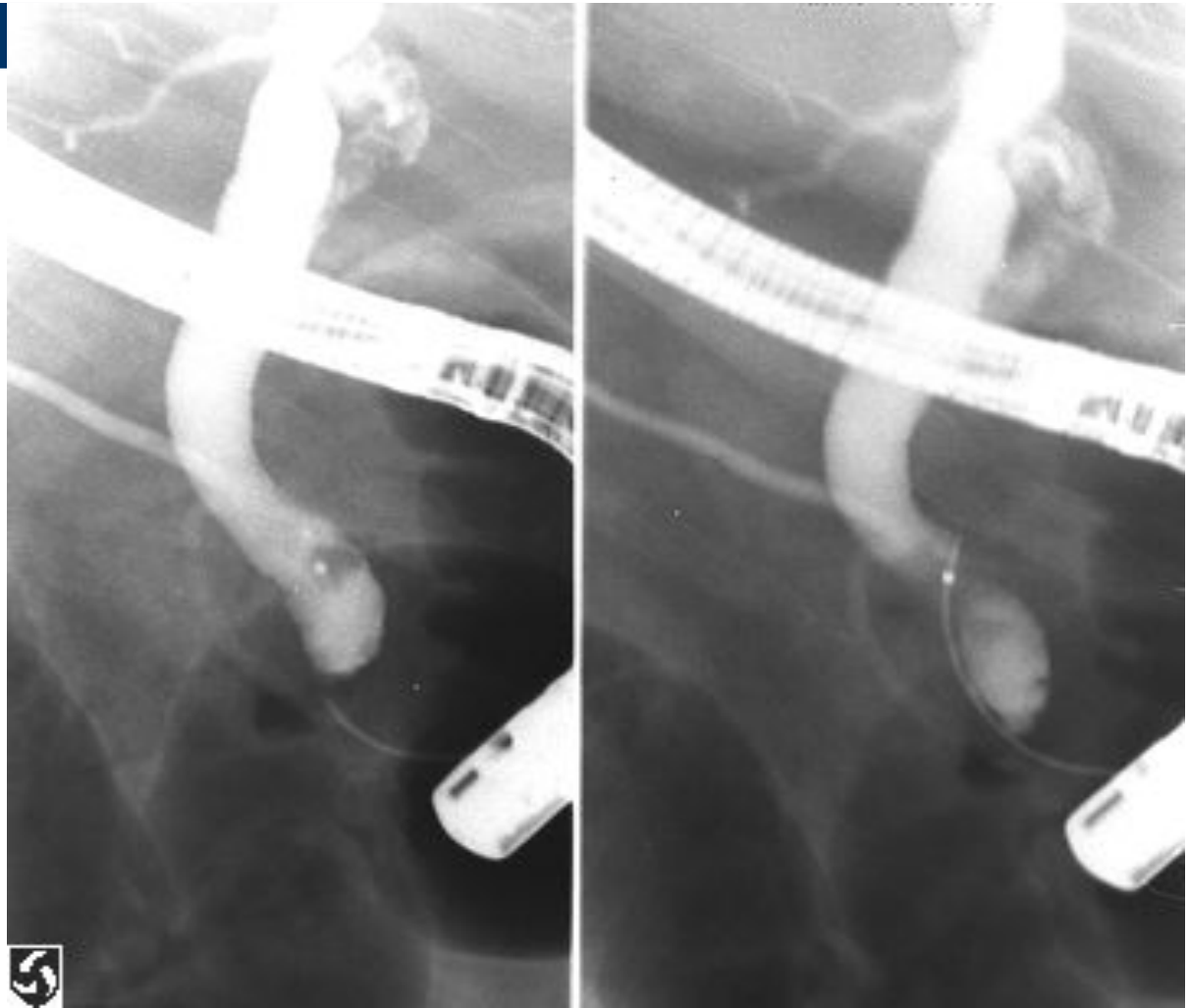


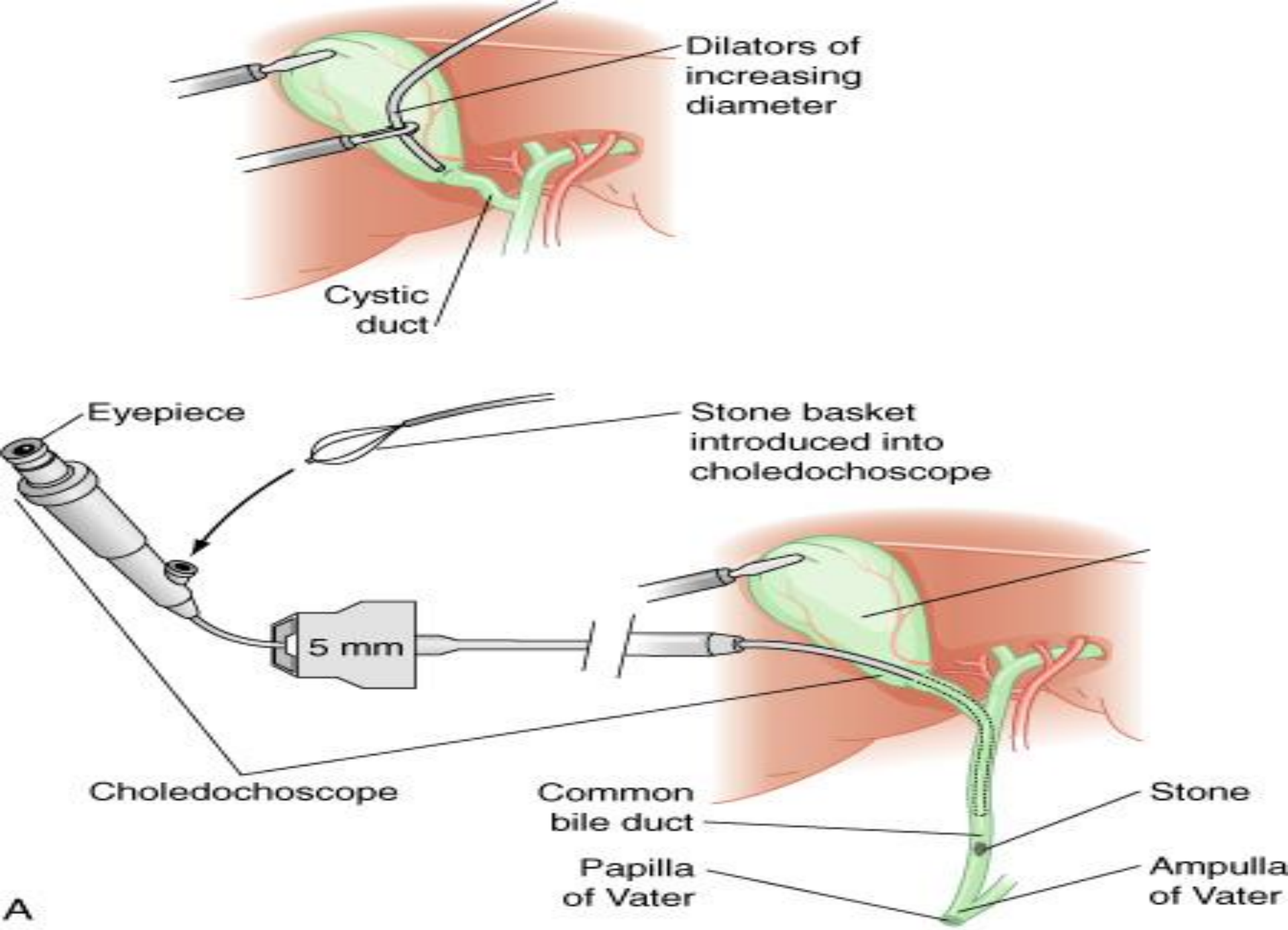
CBD Stone on EUS





CBD Stone on ERCP





CONCLUSION

- CBD Stones associated in 10 – 15 % pts undergoing cholecystectomy
- Advanced endoscopic & laparoscopic techniques have revolutionised management
- Treatment depends on resources, technical limitations, surgeons expertise
- LCBDE is safe, feasible, single stage management option for CBD stones