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MINIREVIEWS

Role of digital single-operator cholangioscopy in the diagnosis and treatment of biliary disorders

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Abstract

Due to the need for improvement in the diagnosis and minimally invasive therapy of the bile duct disorders new technologies for cholangioscopy have been recently developed. Per-oral cholangioscopy has become an important diagnostic and therapeutic tool leading to avoidance of aggressive and unnecessary surgery in many clinical scenarios. This paper focuses on the newly developed SpyGlass DS technology, its advantages, and the technique of single-operator cholangioscopy (SOC), biliary indications and possible adverse events. We also review the available literature; discuss the limitations and future expectations. Digital SOC (D-SOC) is a useful technique, which provides endoscopic imaging of the biliary tree, optical diagnosis, biopsy under direct vision and therapeutic interventions. The implementations are diagnostic and therapeutic. Diagnostic indications are indeterminate biliary strictures, unclear filling defects, staging of cholangiocarcinoma, staging of ampullary tumors (extension into the common bile duct), unclear bile duct dilation, exploring cystic lesions of the biliary tree, unexplained hemobilia, posttransplant biliary complications. Therapeutic indications are lithotripsy of difficult stones, retrieval of migrated stents, foreign body removal, guide wire placement, transpapillary gallbladder drainage and endoscopic tumor ablative therapy. Most studied and established indications are the diagnosis of indeterminate biliary stricture and intraductal lithotripsy of difficult stones. The adverse events are not different and more common compared to those of Endoscopic retrograde cholangiopancreatography (ERCP) alone. D-SOC is a safe and effective procedure, adjunct to the standard ERCP and the newly available digital technology overcomes many of the limitations of the previous generations of cholangioscopes.

Key words: Per-oral cholangioscopy; Digital single-operator cholangioscopy; Difficult stones; Indeterminate strictures; Endoscopic retrograde cholangiopancreatography; Biliary interventions

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MINIREVIEWS

Post-liver transplant biliary complications: Current knowledge and therapeutic advances

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Abstract

Liver transplantation is the current standard of care for end-stage liver disease and an accepted therapeutic option for acute liver failure and primary liver tumors. Despite the remarkable advances in the surgical techniques and immunosuppressive therapy, the postoperative morbidity and mortality still remain high and the leading causes are biliary complications, which affect up to one quarter of recipients. The most common biliary complications are anastomotic and non-anastomotic biliary strictures, leaks, bile duct stones, sludge and casts. Despite the absence of a recommended treatment algorithm many options are available, such as surgery, percutaneous techniques and interventional endoscopy. In the last few years, endoscopic techniques have widely replaced the more aggressive percutaneous and surgical approaches. Endoscopic retrograde cholangiography is the preferred technique when duct-to-duct anastomosis has been performed. Recently, new devices and techniques have been developed and this has led to a remarkable increase in the success rate of minimally invasive procedures. Understanding the mechanisms of biliary complications helps in their early recognition which is the prerequisite for successful treatment. Aggressive endoscopic therapy is essential for the reduction of morbidity and mortality in these cases. This article focuses on the common post-transplant biliary complications and the available interventional treatment modalities.

Key Words: Post-transplant biliary complications; Endoscopic retrograde cholangiopancreatography; Cholangioscopy; Percutaneous biliary interventions; Liver transplantation; Living-donor liver transplantation