Spyglass direct visualization system has been recently developed for single-operator examination of bile duct and pancreatic duct. It is composed of 3 components, Spyscope, optic probe, and Spybite biopsy forceps. Endoscopic sphincterotomy is usually required for Spyglass examination because outer diameter of Spyscope is 10 Fr. This system has several advantages. It allows for single-operator control of both duodenoscope and Spyscope. This system uses 4-way tip deflection, which allows for controlled optic examination and targeted biopsy. Irrigation channel is separate from the working channel, which allows for continuous saline irrigation. Direct optical examination may provide additional information about intraductal lesions. Furthermore, the ability to guide instruments in the ducts under direct optical guidance provides significant advantages.

It can be used for both diagnostic and therapeutic purposes. Diagnostic indications are indeterminate biliary stricture, differentiation of benign from malignant intraductal mass, evaluation of intraductal tumor extent prior to resection, evaluation of intraductal mucinous or papillary neoplasms. Therapeutic applications can be for stone extraction with EHL or laser lithotripsy, tumor ablation with argon plasma coagulation or photodynamic therapy, cystic duct stent or drainage. 10F Spyscope is limited for the intrahepatic duct and non-dilated pancreatic duct. In such cases, usual ERCP cannula can be used for the path of optic probe. This method does not cost additionally other than reusable optic probe, and not require sphincterotomy. However, this simple method has limitations of lower successful visualization rate and impossible biopsy and lithotripsy.

However, this system has several limitations. The main drawback is image quality. Fiberoptic images of current system are inferior to digital images with standard video endoscopes. Another limitation is 1.2-mm working channel which allows only guidewire, EHL, laser probe, and Spybite. Small sample size taken from Spybite may be inadequate for proper evaluation. The high cost of disposable Spyscope and Spybite are also obstacles in the extension of its use. Although Spyglass system has some limitations, it is safe, easy to perform, and will be more popular as technology advances.

Reference

2. Chen YK. Preclinical characterization of the Spyglass peroral cholangiopancreatostomy system for direct access, visualization,