

Cholangioscopy and Electrohydraulic Lithotripsy:

Transforming Biliary Stone Management

CASE STUDY

Managing a Difficult Cystic Duct Stone (Mirizzi Syndrome) Using Cholangioscopy and EHL

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A 58-year-old patient underwent a previous ERCP and bile duct stone clearance. She also underwent uncomplicated laparoscopic cholecystectomy, but represented with further jaundice three months later. An MRCP confirmed a dilated biliary tree down to an obstructing 8mm stone in the lower duct. Despite undergoing two additional ERCP procedures, the stone could not be removed.

The patient was then referred for ERCP with cholangioscopy. Direct visualization using the SpyGlass™ DS System confirmed that the stone was entirely within the distal cystic duct, explaining the difficulty of stone removal with conventional ERCP. Using electrohydraulic lithotripsy (EHL) the stone was fragmented during a single session and the fragments removed with flushing and subsequent balloon trawls.

The patient did well post-procedure, experiencing no further problems with biliary obstruction.

“We typically use the SpyGlass DS System with EHL for patients who have stones above strictures, Mirizzi Syndrome, stones in the intrahepatic ducts, and stones larger than 15 mm,” Dr. Webster said. “I am an advocate for the technique and the benefits it offers. It is a highly effective advancement in the management of particularly large and difficult-to-treat stones without having to perform multiple procedures. That is a great value to both the patient and hospital systems.”

Endoscopic retrograde cholangiopancreatography (ERCP) with basket or balloon extraction is often used for the initial treatment of most bile duct stones, with **more than 1 million people worldwide undergoing ERCP procedures annually**. While stones can be removed with standard ERCP techniques, approximately ten to fifteen percent are considered difficult and cannot be treated effectively.¹ An obstructed duct left untreated may result in significant infection, particularly in the elderly.²

ELECTROHYDRAULIC LITHOTRIPSY (EHL) is one option to remove these difficult stones. The American Society of Gastrointestinal Endoscopy finds EHL not only to be effective, “but relatively inexpensive” compared to other modalities, such as laser lithotripsy.³ The EHL catheter must be passed through a cholangioscope for effective direct visualization and treatment. The SpyGlass DS System is used in an increasing number of EHL procedures, further enabling an increased stone clearance success rate in a single session.¹

THE SPYGLASS DS SYSTEM AND EHL IN PRACTICE

Dr. George Webster of University College London Hospitals (UCLH) in the United Kingdom has been using the SpyGlass System with EHL for stone management since 2007. He treats patients referred from a large region throughout and outside the city who have difficult-to-treat biliary stones. “Since obtaining the SpyGlass DS System,” said Dr. Webster, “EHL referrals have increased 70 to 80 percent.”

“By the time we see patients, nearly all have already undergone at least one, if not more, ERCPs,” he said. In fact, a multi-center, Boston Scientific-sponsored registry demonstrated that 86 percent of patients undergoing an EHL procedure using the SpyGlass System had a previous ERCP, and one-third of those had more than three previous ERCPs.¹



Boston Scientific and Northgate Technologies

Despite the fact that EHL is an effective option for treating difficult stones,⁴ many hospitals around the world using the SpyGlass™ DS System have not had an EHL solution widely available to them.

That should change given the recent co-exclusive agreement between Boston Scientific and Northgate Technologies to distribute the Autolith™ Touch EHL System and EHL accessories designed for use with the SpyGlass DS System.

The Autolith Touch EHL System and accessories may now be ordered directly from Boston Scientific sales representatives or distributors, delivering a more efficient ordering process and expanded options for cholangioscopy and stone management.

Srinadh Komanduri, M.D., who practices at Northwestern University in Chicago, typically uses ERCP with papillary balloon dilation as a first-line treatment for patients with difficult-to-remove stones. If that fails, either due to the size of the stone or the angulation of the bile duct, cholangioscopy using the SpyGlass DS System with EHL is often performed next. “Cholangioscopy with EHL has nearly replaced mechanical lithotripsy in my practice given its effectiveness and ease of use,” said Dr. Komanduri.

“The ability to better visualize the biliary duct and the extent of the stone burden with the SpyGlass DS System during EHL is critical,” said Dr. Komanduri. “The ease and use of the SpyGlass DS System helps makes it a much faster and more efficient procedure.”

“The success of EHL also helps avoid surgery for difficult stones which cannot be removed by standard ERCP techniques,” Dr. Komanduri continued. “That’s why it is so high in our stone management algorithm. It is clearly effective, and it’s rare that the patient requires another procedure.” In fact, data shows that direct visualization and stone clearance with EHL has a demonstrated procedural success in 90% of patients, with single-session stone clearance rates of 76%.³

The ability to reduce the need for repeat procedures, said Drs. Webster and Komanduri, may help provide greater patient satisfaction as well as help reduce costs for hospitals and payers.

“If, as is often the case with the SpyGlass DS System using EHL, it results in a high rate of stone clearance with one procedure, then clearly there is a good argument to say if that if the procedure had been performed earlier, there may have been significant cost savings,” said Dr. Webster.

References:

- 1) Chen YK, Parsi MA, Binmoeller KF, et al. Single-operator cholangioscopy in patients requiring evaluation of bile duct disease or therapy of biliary stones (with videos). *Gastrointest Endosc.* 2011;74(4):805-814.
- 2) Trikudanathan G, Navaneethan U, Parsi MA. Endoscopic management of difficult common bile duct stones. *World J Gastroenterol.* 2013;19(2):165-173.
- 3) American Society for Gastrointestinal Endoscopy. *Biliary and pancreatic lithotripsy devices, ASGE technology status evaluation report.* 2007.
- 4) American Society for Gastrointestinal Endoscopy. *ASGE Endoscopic Operations Trends.* 2013.

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