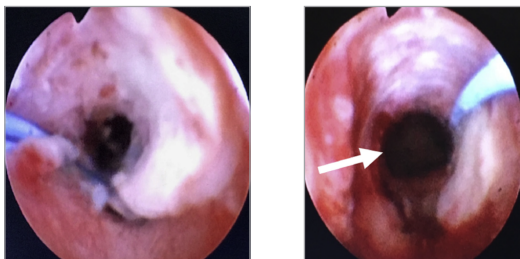


Percutaneous biliary endoscopy provides access and visualization to treat challenging conditions

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Percutaneous biliary endoscopy offers an effective way for interventionalists to perform procedures under direct, three-dimensional, color visualization in real time. Percutaneous endoscopy enables interventionalists to evaluate the biliary system and treat biliary strictures and stones that may be difficult to access by conventional endoscopy. The availability of this treatment can be especially advantageous for patients who would otherwise be stuck with biliary drains or cholecystostomy tubes for life. In addition, the use of percutaneous endoscopy can greatly improve the diagnostic yield of biopsy tissue.



Patient with indwelling biliary drain for over a decade due to benign biliary stricture. Image at left shows white scar tissue at anastomosis. Image at right following percutaneous laser stricturotomy and cholangioplasty by interventional radiologist shows significant luminal gain. Patient's drain was successfully removed one week following intervention.

Biliary strictures

UCLA interventional radiologists have been using endoscopic laser stricturotomy to treat patients with restricted bile-duct flow to the intestine due to strictures at biliary anastomosis sites. Liver-transplant recipients and those who have had a pancreaticoduodenectomy (Whipple procedure) to treat disorders of the pancreas, intestine or bile duct often develop anastomotic strictures from scar tissue that forms at the bile duct anastomosis site, limiting or blocking the flow of bile and causing it to pool in the liver where it can result in cholangitis and/or liver dysfunction. Conservative therapies, including balloon dilation, most frequently fail to restore adequate functionality. “The stricture just doesn’t stay open because the scar tissue is still there,” explains Ravi N. Srinivasa, MD, associate professor of clinical radiology, Division of Vascular and Interventional Radiology. “We have previously tried putting in large-bore drains to try to passively dilate these strictures. We’ll try repeat ballooning or stents. None of these techniques have shown any durable results.”

Endoscopic laser stricturotomy allows interventional radiologists to incise scar tissue very precisely to minimize the chance of injury to adjacent structures while obtaining the desired margin of scar tissue to allow better flow through the bile duct. “For many patients who have been stuck with biliary drains for years and years, the procedure can potentially be life-changing. They don’t have to come to the hospital every six months to get their tubes changed. They don’t have to perform drain care,” says Dr. Srinivasa.

UCLA is preparing to launch the first prospective study of endoscopic laser stricturotomy. “The preliminary data has been very encouraging,” says Dr. Srinivasa, “and the data we have retrospectively on patients we’ve treated at UCLA has been very promising.”

Stone disease

Patients who have altered biliary anatomy due to previous surgery — including hepaticojejunostomy and choledochojejunostomy — can develop stones above the level of strictures in the revised anatomy. Removing stones in these patients using standard endoscopic procedures can be very challenging for gastroenterologists. Some patients who develop bile duct stones can be difficult to treat even in the absence of surgically altered anatomy, including those who have duodenal diverticulum.

Patients whose gallbladder stones have led to cholecystitis, and who are not candidates for cholecystectomy due to age or medical comorbidities, may require gallbladder drains until definitive treatment is possible. Percutaneous endoscopy enables interventional radiologists to access the gallbladder through the existing drain, which is then removed and the gallbladder is cleared of stones using a laser or ultrasonic lithotripter to fragment the stones and a basket or suction to retrieve the debris. “We are able to get the drain out with this procedure,” says Dr. Srinivasa, “and older patients with cholecystostomy tubes are not stuck with drains for the rest of their lives. It greatly improves quality of life for these patients who are not surgical candidates.”

Direct-visualization biopsies

“In the past, many biopsies in the bile duct were not of diagnostic value because they were just brushings or blind biopsies,” explains Dr. Srinivasa. “Doing biopsy under direct visualization has significantly improved the yield.”

Direct visualization biopsy has proved especially beneficial in instances — such as localized cholangiocarcinomas — where interventional radiologists are able to direct the scope into the segmental bile duct and take biopsies based on visualization of the abnormality. Two-dimensional fluoroscopy-guided procedures cannot offer similar accuracy or diagnostic certainty.

Training in percutaneous endoscopy techniques

As pioneers in the use of percutaneous biliary endoscopy, UCLA interventionalists have been active in training others in their techniques. Dr. Srinivasa has taught courses throughout the country and internationally. He has also collaborated with the endoscope manufacturers to develop 3D silicon molds to emulate the biliary tree, which he uses in his courses to train others in percutaneous biliary endoscopy techniques. 