MRCP is a fast, noninvasive, sensitive method of detecting bile duct stones, biliary dilatation and strictures. As magnetic resonance imaging technology advances, imaging times decrease, enabling MRI to provide answers to an increasing variety of clinical questions. Greater numbers of patients can now be evaluated using less invasive methods such as MRI.

MRI has become a widely used and accepted method of evaluating the biliary tree. Fast MR imaging methods enable images to be obtained during a single breath (less than 30 seconds). Image degradation from motion artifacts due to breathing or bowel motion are therefore minimized. As a result, resolution of stationary fluid-filled structures, such as the gallbladder or a dilated bile duct, is excellent.

Magnetic resonance cholangiopancreatography (MRCP) is a fast, noninvasive screening method utilized primarily to assess patients suspected of having biliary obstruction. HASTE (half-Fourier acquisition single-shot turbo spin echo) imaging is currently the best technique to perform MRCP. This imaging technique is available only on the newest MRI scanners. Valley Radiologists’ state-of-the-art MRI systems at the Olympic Building MRI have the capacity to quickly and noninvasively evaluate patients suspected of having biliary obstruction. Utilizing HASTE imaging, MRCP can screen for the presence of biliary dilatation with a sensitivity approaching 100%. If dilatation is detected, the etiology of the dilatation, such as a common bile duct stone or biliary stricture, can usually be determined. MR is better able than CT to detect small calculi due to the marked differences in MR signal characteristics between stones and fluid. Nonobstructing stones ≤ 3 mm, however, will not be visualized.

ERCP (endoscopic cholangiopancreatography) is utilized to demonstrate pancreatic or ampulary causes of jaundice, and can be therapeutic. Papillotomy, stone extraction, biopsy/brushings, or stent placement through an obstructing lesion can be performed during this procedure. However, it is invasive and complications may occur. These include pancreatitis (reported as < 4% of cases), and less frequently, cholangitis, bleeding, or duodenal perforation after papillotomy.

MRCP does not replace ERCP. It does provide an accurate, noninvasive, low risk screening study which can thus reduce the incidence of ERCP-related complications. MRCP is also a useful guide for the endoscopist prior to therapeutic ERCP. MRCP is particularly useful for patients who are pregnant, who have postoperative altered gastropancreatic anatomy due to surgery, or in patients with acute pancreatitis who may be at increased risk for ERCP-related complications.

Further Reading: