Diagnostic Capabilities Of MRCP In Obstructive Jaundice

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Relevance. Obstructive jaundice remains one of the most critical and challenging conditions in hepatobiliary surgery, often leading to progressive hepatic failure and severe metabolic disorders. Accurate and timely diagnosis of the site and cause of biliary obstruction determines the effectiveness of subsequent surgical or interventional treatment. The use of advanced radiological techniques — ultrasound (US), multislice computed tomography (MSCT), magnetic resonance cholangiopancreatography (MRCP), and endoscopic retrograde cholangiopancreatography (ERCP) — allows for detailed visualization of the biliary tract, identification of pathological changes, and assessment of hepatic function, thus playing a decisive role in clinical decision-making.
Aim of the study. To evaluate the diagnostic accuracy and clinical significance of modern radiological imaging methods in determining the cause and level of biliary obstruction, as well as their role in assessing liver functional impairment in patients with obstructive jaundice.
Materials and Methods. This study analyzed 424 patients who were examined and treated for obstructive jaundice of various etiologies at the Samarkand State Medical University Clinic from 2016 to 2024. All patients underwent a comprehensive diagnostic protocol, including ultrasound, contrast-enhanced MSCT, MRCP, and, when indicated, ERCP. Biochemical tests (total and direct bilirubin, ALT, AST, ALP) were evaluated alongside radiological data. Statistical analysis was performed to determine the diagnostic sensitivity, specificity, and correlation between biochemical and imaging findings.
Results and Discussion. Ultrasound detected signs of biliary hypertension in 89.4% of cases, identifying the level of obstruction in 77%. MSCT and MRCP demonstrated high diagnostic precision (94.5%) in determining the exact cause and site of obstruction, especially in tumor-related and complex cases. The leading causes of obstruction were choledocholithiasis (46.7%), pancreatic head tumors (22.1%), cholangiocarcinoma (14.8%), and postinflammatory strictures (10.4%). A strong positive correlation was found between serum bilirubin levels and the degree of bile duct dilation ($r = 0.79$; $p < 0.01$). The integration of multiple imaging modalities significantly improved diagnostic accuracy, optimized preoperative planning, and reduced misdiagnosis rates.
Conclusion. Modern radiological methods provide essential, noninvasive diagnostic information in obstructive jaundice, allowing precise identification of the obstruction site, cause, and associated hepatic dysfunction. The combined use of US, MSCT, and MRCP enhances diagnostic accuracy, supports appropriate therapeutic decisions, and improves patient outcomes.