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MRCP-GUIDED SURGICAL STRATEGY IN OBSTRUCTIVE JAUNDICE: IMPACT ON CLINICAL OUTCOMES

Mukhiddinov A.A., Nurmurzaev Z.N.

Background and Rationale.

The selection of an appropriate surgical approach in obstructive jaundice—endoscopic sphincterotomy, percutaneous transhepatic drainage, biliodigestive anastomosis, or pancreatoduodenectomy—fundamentally depends on accurate preoperative anatomical characterization of the obstruction. Magnetic resonance cholangiopancreatography (MRCP), as a non-invasive high-resolution technique, provides precise visualization of the biliary tree and pancreatic duct without radiation exposure or procedural risk. However, data on the impact of MRCP-guided algorithms on treatment outcomes in local clinical settings remain limited. Evaluation of the clinical efficacy of an MRCP-based decision-making algorithm represents an important research objective.

Objective.

To develop a surgical decision-making algorithm based on MRCP findings and to assess its impact on the clinical outcomes of patients with obstructive jaundice of benign and malignant etiology.

Materials and Methods.

Ninety-five patients with obstructive jaundice (January 2021 – December 2024) were enrolled. Group 1 (n=52, MRCP-guided): surgical strategy was determined preoperatively based on MRCP findings. Group 2 (n=43, conventional): standard diagnostic algorithm (US + CT + ERCP) was applied. Groups were comparable in sex, age, etiology, and disease severity ($p>0.05$). Outcome measures included: accuracy of preoperative surgical strategy prediction, 30-day complication rate, mean hospital stay, and rates of endoscopic vs. open intervention. Statistical analysis employed χ^2, Fisher's exact test, and Student's t-test.

Results.

Preoperative surgical strategy was correctly predicted in 96.2% (50/52) of Group 1 patients and 74.4% (32/43) of Group 2 patients ($\chi^2=9.47$; $p=0.002$). The 30-day complication rate was 11.5% in Group 1 versus 27.9% in Group 2 ($\chi^2=4.42$; $p=0.036$).

Mean hospital stay was 9.4±2.1 days in Group 1 and 14.2±3.8 days in Group 2 (t=–7.33; p<0.001). In benign obstruction (choledocholithiasis), 78.6% of Group 1 patients underwent planned endoscopic stone extraction without the need for re-evaluation. In malignant obstruction, the type of surgery was correctly determined preoperatively in 84.3% (Group 1) vs. 61.5% (Group 2).

Conclusion.

An MRCP-guided surgical algorithm improves the accuracy of preoperative strategy prediction by 21.8%, reduces the 30-day complication rate by 2.4-fold, and shortens hospital stay by an average of 4.8 days compared to a conventional approach. These results confirm that routine incorporation of MRCP into the preoperative workup of patients with obstructive jaundice is clinically effective, economically justified, and should be adopted as a standard of care.

Key words: MRCP, obstructive jaundice, surgical strategy, biliary decompression, minimally invasive intervention, treatment outcomes.