Percutaneous transhepatic cholangioscopy with biliary stent placement under direct visualization for malignant hilar biliary obstruction when ERCP fails: a cohort study

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Abstract

Objective

Biliary drainage in advanced Malignant hilar obstruction (MHBO) remains a challenge. Endoscopic retrograde cholangiography (ERCP) and percutaneous transhepatic drainage (PTCD) are the main drainage strategies recommended by guidelines for the treatment of malignant hilar obstruction. However, 10% of cases fail due to nipple inaccessibility or inability to intubate, and the clinical success rate of biliary drainage varies widely in reported studies, from 42% to 81%. Percutaneous transhepatic cholangioscopy (PTCS) enabled the procedure to be performed within the biliary tree due to the ability to directly visualize the biliary system during interventions. As a novel alternative, we describe the feasibility of PTCS with biliary stent placement to facilitate internal biliary drainage under direct visualization for malignant biliary obstruction when ERCP fails in this study.

Methods

Patients with MHBO after ERCP failure who were treated with PTCS and placed with self-expanding metal stents at West China Hospital of Sichuan University from November 2023 to July 2024 were enrolled.

All patients underwent the following surgical procedures:
First, a fistula from extrahepatic to intrahepatic bile duct was established using one-step PTCS. The target bile duct was punctured with 18G-PTC needle under intraoperative ultrasound guidance, and the puncture path was immediately gradually expanded from 8-Fr to 18-Fr with a fascial dilator until the 18-Fr surgical sheath was placed into the target hepatic duct.
Secondly, a choledochoscope was placed to explore the obstruction site, and intraoperative radiography was performed to evaluate the obstruction.
Subsequently, 18G-PTC needle was used to puncture the obstructed bile duct under direct choledochoscope and intraoperative ultrasound guidance. The obstructed bile duct was then dilated with a balloon.
Finally, a self-expanding metal stent was placed at the obstruction site through a fistula. After biliary stent placement, cholangiography was performed again to evaluate the effect of intrabiliary drainage through the established fistula.

Results

A total of 15 patients were included, Stenosis was Type II for 8, III for 5, and Type IV for 2 patients. Technical and clinical success was 100% and86.7%, respectively. Morbidity was 20% (3 patients), including 2 with bacterial infection of unspecified site managed conservatively and 1 with cholangitis. None of the patients died. Chemotherapy could be administered in 75% (9) patients in cases of clinical success.

Conclusion

PTCS with biliary stent placement under direct visualization may be a feasible alternative approach to achieve internal biliary drainage when ERCP is fails.