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Use of a Slim Duodenoscope Improves Technical Success of ERCP in Malignant Extrahepatic Biliary Obstruction: A Prospective Cohort Study

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INTRODUCTION

Technical failure of ERCP in malignant extrahepatic biliary obstruction (EHBO) often results from inability to reach the papilla due to duodenal deformation, tumor infiltration, or gastric outlet obstruction.

Slim duodenoscopes, with a smaller outer diameter and improved maneuverability, may better negotiate narrowed or angulated duodenal segments and facilitate access in anatomically challenging cases.

AIM

We evaluated whether the introduction of a slim duodenoscope improves the technical success of ERCP in malignant EHBO.

METHOD

We conducted a prospective cohort study including all consecutive patients undergoing ERCP for biliary drainage at our center in Central India.

ERCP was done using a slim duodenoscope (Olympus JF-140) in patients with duodenal narrowing due to the malignancy from March 2024.

Patients who underwent ERCP using a standard adult duodenoscope between January 2021–February 2024 formed a retrospective comparison group.

The primary endpoint was technical success in terms of successful placement of a biliary stent in patients with malignant EHBO. Secondary endpoints were procedure-related adverse events.

RESULTS

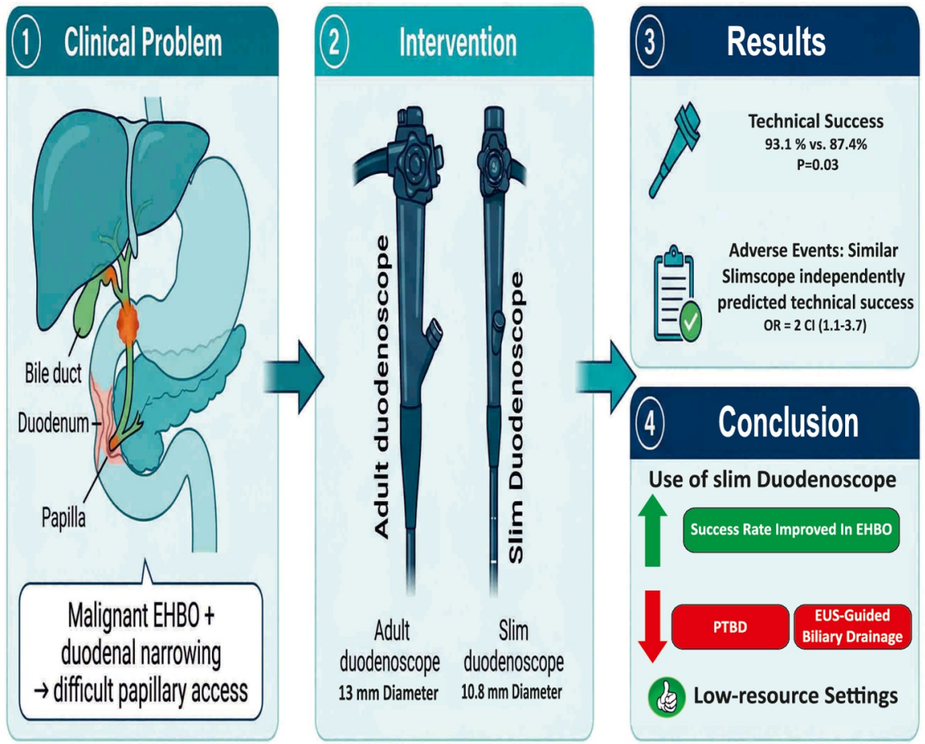
A total of 702 patients (mean age was 54.4±14 years; 59% female) underwent ERCPs during the study period: 413 prospectively and 289 retrospectively.

Malignant EHBO accounted for 479 cases (68%). In malignant EHBO, the technical success was significantly higher in the prospective cohort (93.1% vs. 87.4%, p=0.03).

A slim duodenoscope was used in 68 of the 413 patients in the prospective cohort and a self-expandable metal stent was placed in 41 (61%) of these 68 patients.

Adverse events were infrequent (1.6%) and comparable between groups; post-ERCP pancreatitis occurred in 1.1%, and perforation in 0.1%, with no increase after the use of slim duodenoscope.

On multivariable analysis, the use of a slim duodenoscope independently predicted technical success in patients with malignant EHBO {OR 2 CI (1.1-3.7)}.



CONCLUSIONS

A slim duodenoscope significantly improved the technical success of ERCP in malignant EHBO and duodenal narrowing.

The slim duodenoscope offers an effective, resource-appropriate strategy to overcome access challenges in patients with duodenal distortion, potentially reducing the need for PTBD or EUS-guided biliary drainage in low-resource settings.

REFERENCES

1- Advancing in ERCP: the Slim Duodenoscope as a cornerstone for challenging anatomies – Insights from an Italian case series
S S De Lucia et al, Endoscopy 2025; 57(S 02): S180, DOI: 10.1055/s-0045-1805448

Comparison of Baseline Characteristics and Outcomes Between Prospective and Retrospective Cohorts Undergoing ERCP

Variable	Total (n=702)	Prospective (n=413)	Retrospective (n=289)	p-value
Age, years (mean ± SD)	54.4 ±14.0	54.6 ±13.7	54.0 ±14.6	0.50
Male sex, n (%)	285 (40.6%)	168 (40.6%)	117 (40.5%)	0.90
Etiology				
Malignant EHBO, n (%)	479 (68.2%)	304 (73.6%)	175 (60.6%)	0.001
Primary Outcome				
Technical Success In Malignant EHBO, n (%)	436 (91.0%)	283 (93.1%)	153 (87.4%)	0.03
Adverse Events				
Any complication n (%)	11 (1.6%)	8 (1.9%)	5 (1.7%)	0.80
Post ERCP pancreatitis, n (%)	8 (1.1%)	5 (1.2%)	3 (1.0%)	0.80
Bleeding, n (%)	4 (0.5%)	2 (0.4%)	2 (0.6%)	0.70
Perforation, n (%)	1 (0.1%)	1 (0.2%)	0	1.00

EHBO: Extrahepatic biliary obstruction, continuous variable are expressed as mean ± Standard deviation.

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