

Endoscopic closure of iatrogenic gastrointestinal perforations in a high-volume centre: technique, outcomes, and predictors of failure

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INTRODUCTION

Iatrogenic GI perforations are rare (0.01–5.5%) but serious complications of endoscopy. Endoscopic closure is the preferred first-line strategy, but evidence for large defects remains limited; The loop-and-clip technique may provide a cost-effective and widely available solution.

AIM

To evaluate outcomes of endoscopic closure strategies for iatrogenic gastrointestinal perforations, with emphasis on the effectiveness of the loop-and-clip technique.

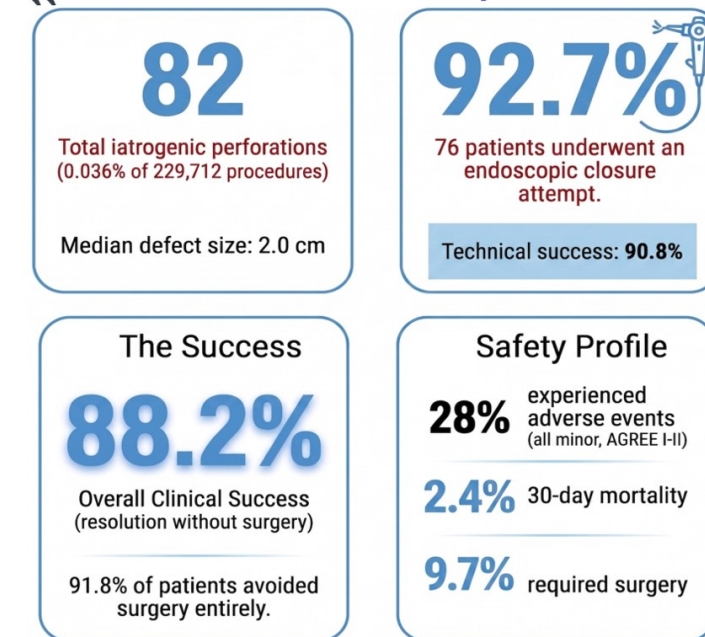
METHOD

- **Study Design:** Retrospective cohort (2022-2024), AIG Hospitals- Hyderabad- India.
- **Inclusion criteria:** Iatrogenic GI perforations during endoscopic procedures.
- **Exclusion criteria:** Post-sphincterotomy (Stapfer II-IV) or post-papillectomy duodenal perforations.
- **Closure strategies:** Loop-and-clip, TTS, OTSC.
- **Primary Outcome:** Clinical success (no surgery or rescue interventions).

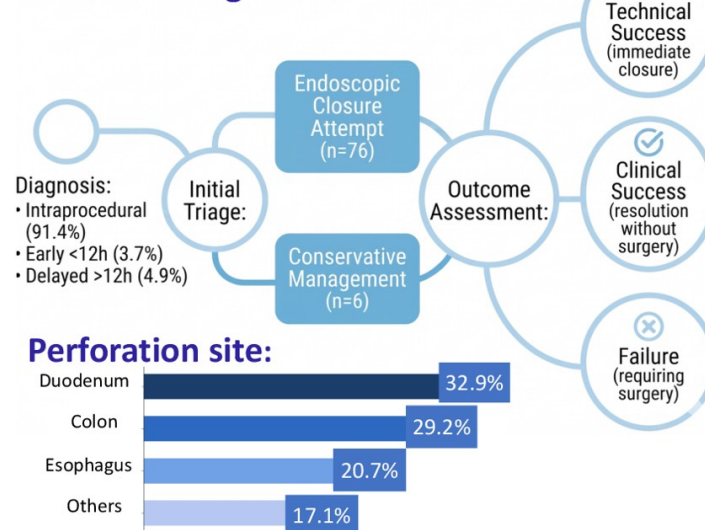
- **Secondary Outcomes:** Technical success, clinical success stratified by perforation size, need for surgical intervention, conservative management; predictors of failed endoscopic closure attempt, adverse events.
- **Statistics:** Firth logistic regression for predictors of failure; ROC analysis for optimal size cut-off.

RESULTS

Overall outcomes and safety:



Patient management:



CONCLUSIONS

While a defect size >2.0 cm predicts failure, the **loop-and-clip technique** achieves **92.9%** clinical success for defects up to **3.5 cm**, representing a practical and accessible alternative.

Predictors of closure failure:

- Perforation size >2.0 cm (OR 2.87)
- Jejunal perforations had low technical success due to difficulty in re-accessing the defect and technical limitations with enteroscopy.

Clinical success by perforation size:

Size category	Clinical success (%)
<1 cm	93
1-2 cm	94
>2 cm	81

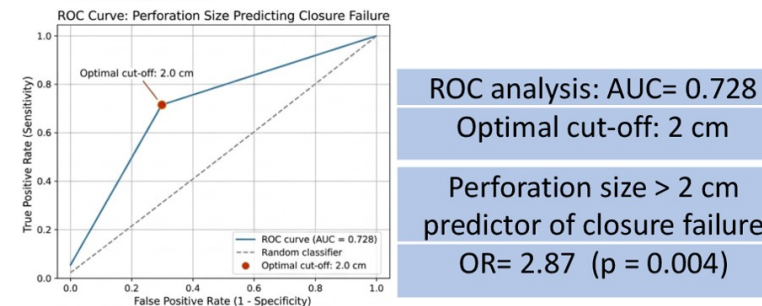
The 2 cm threshold:

- >2 cm success (Loop-and-clip)
 - **2.3-3.5 cm: 92.9%**
 - ≥ 4 cm: no successful closures observed

Clinical implications:



Statistics:



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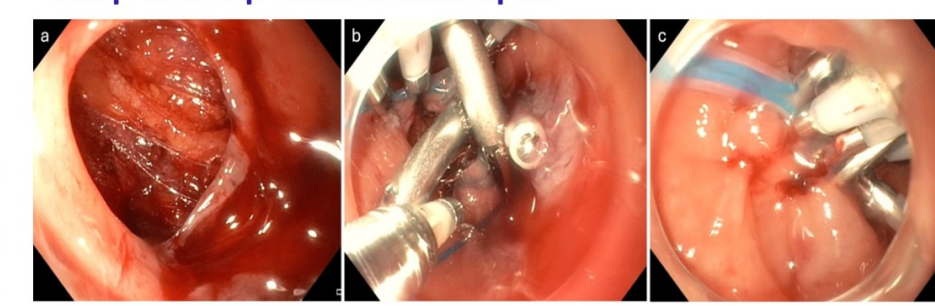


Endoscopic techniques:

Descriptive outcomes by size-dependent selection

Technique	Median size (cm)	Technical success	Clinical success
Loop-and-clip	2.3 (1.0 – 4.0)	46 (92%)	45 (90%)
OTSC	1.5 (1.0 – 2.0)	4 (100%)	4 (100%)
TTS	0.5 (0.5 – 1.0)	19 (100%)	18 (94.7%)

Loop-and-clip closure technique:



ACKNOWLEDGEMENTS: No grant support or other assistance was received for this study

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