

Gastroesophageal junction distensibility measured with a functional luminal imaging probe (FLIP) during hiatal hernia repair

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BACKGROUND

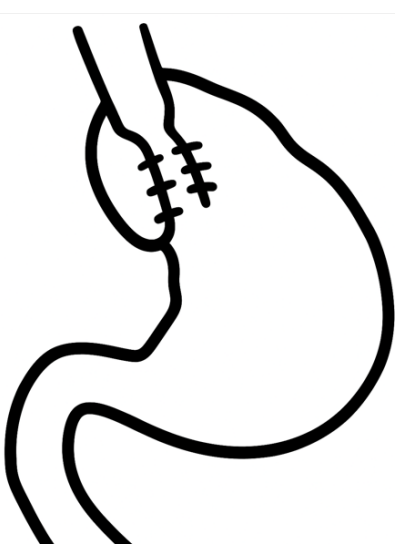
- EndoFlip is a catheter-based tool using high-resolution impedance planimetry to measure pressure changes, diameter, and volume
- It can measure the distensibility of GI lumens and sphincters
- The distensibility index (DI) is calculated by dividing the median narrowest cross-sectional area by the median intra-balloon pressure
- Little is known about the effect of hiatal hernia repair on gastroesophageal junction (GEJ) distensibility

RESEARCH OBJECTIVES

- Evaluate distensibility changes during hiatal hernia repair
- Evaluate the distribution of final distensibility and predictors of distensibility

METHODS

- Single institution cohort study from 12/2023-7/2025
- Single experienced foregut surgeon performing EndoFlip during all of his laparoscopic hiatal hernia repairs
- Patients at the beginning of the series had an initial Flip measurement after induction of anesthesia, but subsequent patients had only a final measurement after completion of cruraplasty and fundoplication
- An 8cm EndoFlip catheter was used filled to 40mL with the abdomen desufflated
- GEJ distensibility was the primary outcome of interest measured as minimum cross-sectional area divided by median intraballoon pressure



Hiatal hernia repair resulted in a significant decrease in GEJ distensibility and the final distensibility exhibited a tight range across the cohort

Paraesophageal hernia repairs and male sex were associated with higher distensibility

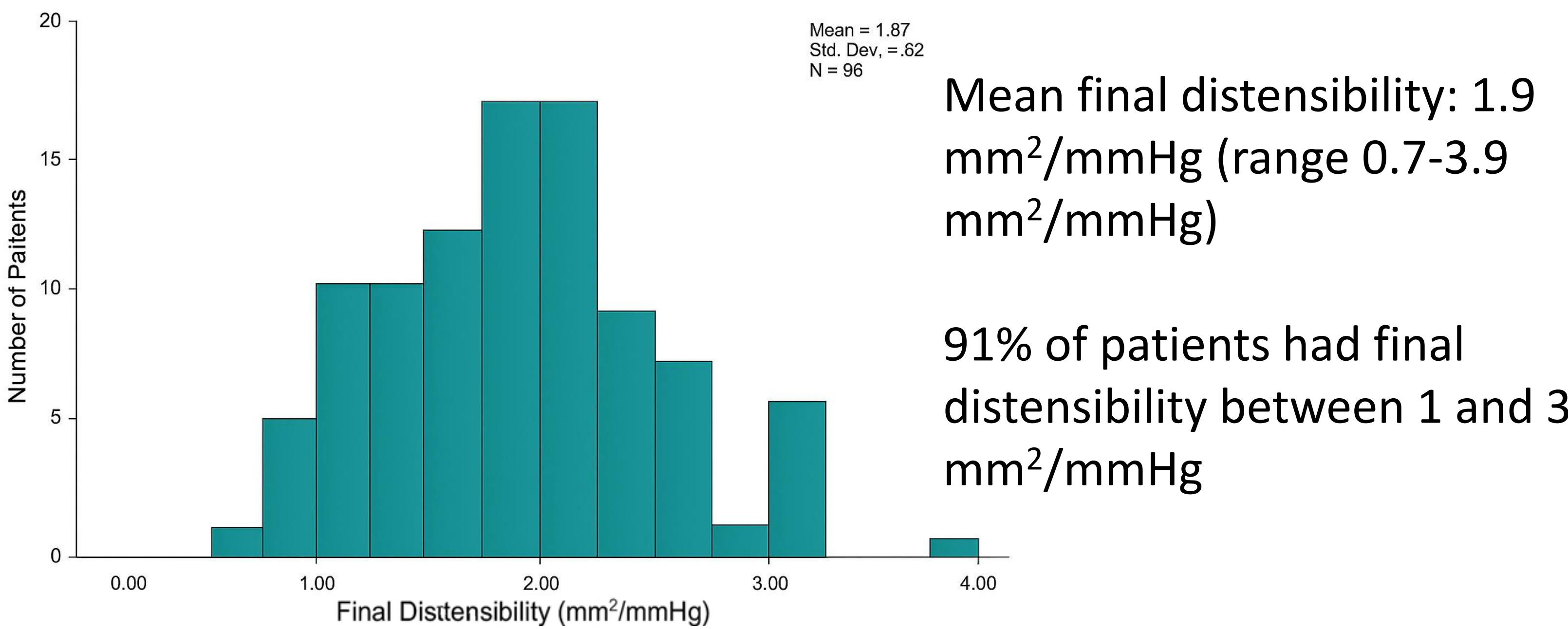
Further studies correlating intraoperative measurements with postoperative outcomes are needed to clarify its value as a calibration tool



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RESULTS

- 96 patients, median age 67, 76% female
- 8 patients had both initial and final Flip measurements
- GEJ distensibility decreased: mean 6.0 vs. 1.3 mm²/mmHg; p=.001



	N (%)	Final Distensibility (mm ² /mmHg)	p-value
Paraesophageal Hernia Repair	63 (65.6%)	2.0	<0.001
Hiatal Hernia Repair (type I)	33 (34.4%)	1.6	
Male	23 (24%)	2.2	0.01
Female	73 (76%)	1.8	

- 2 patients were deemed to have too tight of a repair after EndoFLIP and laparoscopic/endoscopic appearance
- Stitch was removed in each with improved visual appearance of hiatus (distensibility 1.3 to 1.5 mm²/mmHg & distensibility 0.8 to 0.9 mm²/mmHg)

LIMITATIONS

- Single surgeon with uniform results limits generalizability
- Low number of initial Flip measurements
- We didn't collect patient outcomes to know if these measurements correlate