

Salivary pepsin for the detection of erosive esophagitis post laparoscopic sleeve gastrectomy: a prospective observational study

Deepa Chandra Segaran, Gan Jin Yuan, Chan Yarn Kit, Lim Chin Hong
Singapore



INTRODUCTION

- LSG is the most common bariatric surgery performed worldwide
 - Advantages: technically less challenging, lower morbidity
 - Disadvantage: increased risk of reflux and EE
- Need for regular endoscopic surveillance
 - Scope risks
 - Healthcare resource burden
- Alternative – salivary pepsin?

METHOD

- Recruitment: Post LSG patients already on routine OGD surveillance
- Preparation: PPI and H2 blockers discontinued 3 days prior to sample date
- Collection of samples at 2 timings
 - Morning of OGD prior to scope
 - 1h after lunch on the same day

METHOD

- Variables
 - **Pepsin levels:** Using the Peptest lateral flow device – contains unique monoclonal Ab that bind specifically to pepsin
 - **Quality of life questionnaire:** 25 item questionnaire on severity of symptoms
 - **Endoscopic evaluation:** LA classification of oesophagitis

RESULTS

- Endoscopic findings
 - 10 had LA grade A oesophagitis, 1 with LA grade B oesophagitis
 - Increased interval post LSG correlated with increased incidence of EE (p = 0.026)
 - Use of post op PPI reduced incidence of EE (p=0.047)
 - Age, gender, ethnicity, weight loss post op – not statistically significant

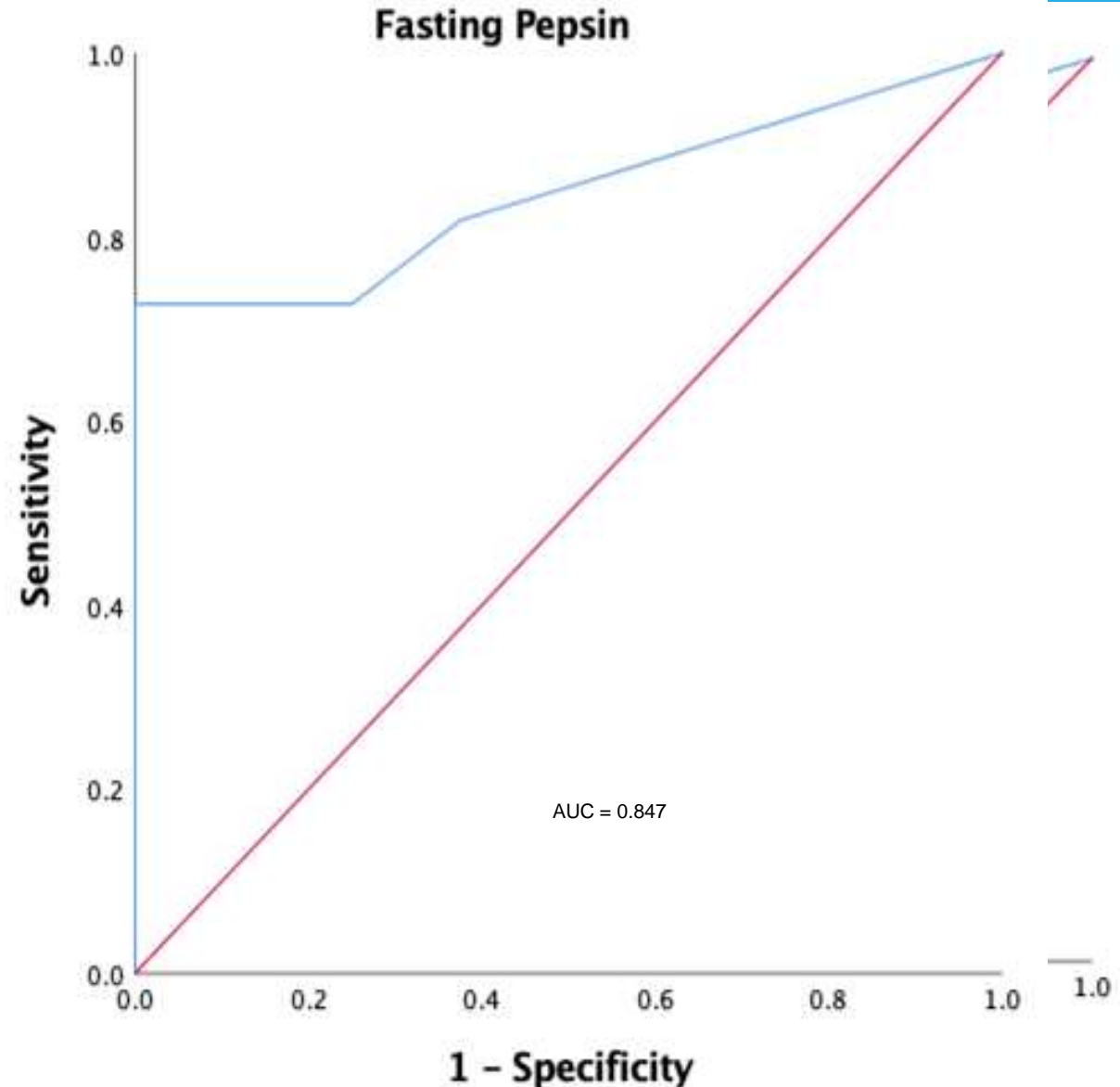
RESULTS

- Endoscopic findings
 - Increased pepsin levels correlated significantly with endoscopic findings of EE (p=0.09)
 - Average fasting & post parandial pepsin concentration for :

	Fasting	Post parandial
EE group	90.55ng/ml ± 81.28	135.09ng/ml ± 81.28
Normal group	13.13ng/ml ± 18.97	30.50ng/ml ±57.72

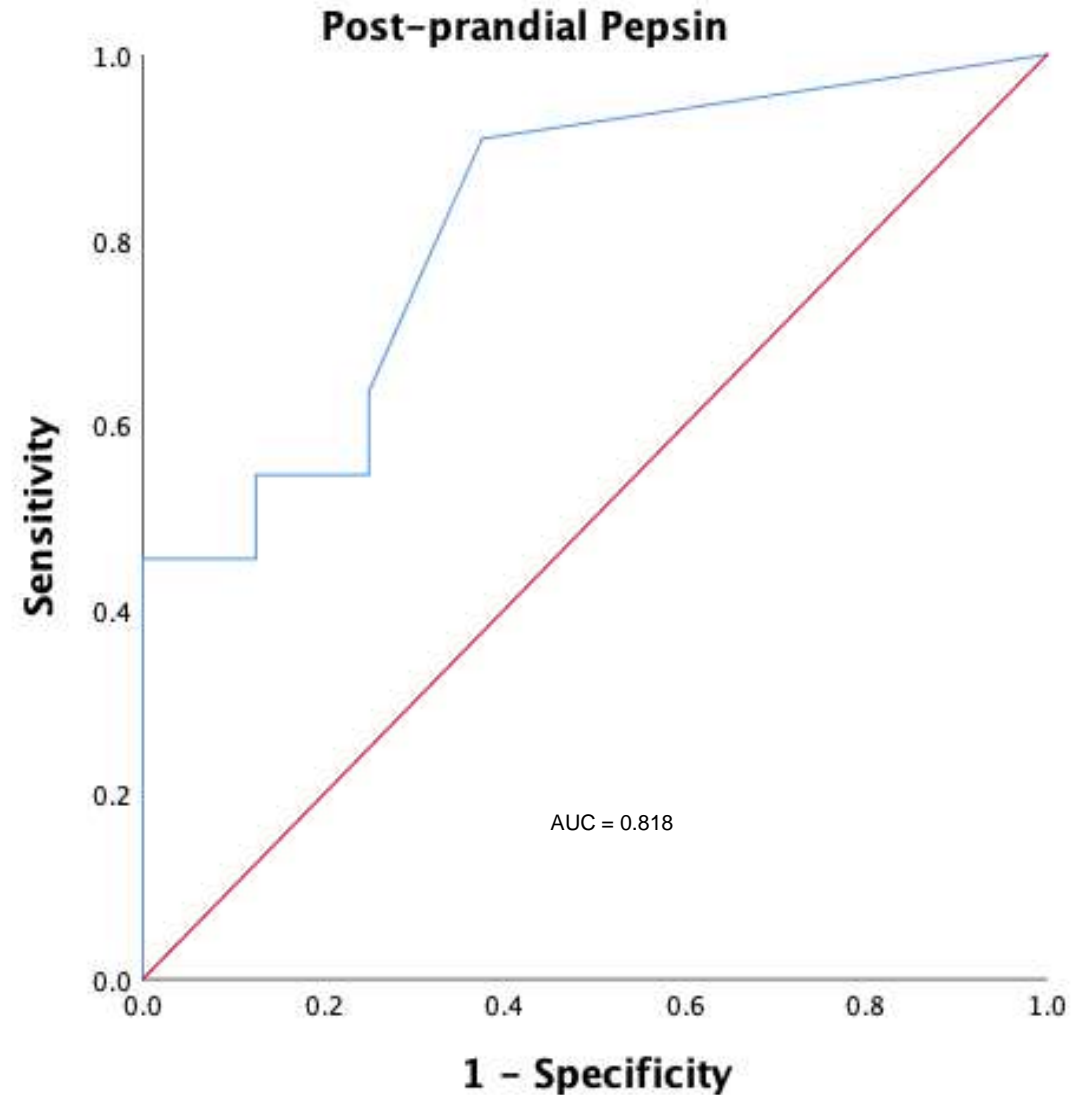
RESULTS

- ROC curve plotted using prediction probabilities used to assess overall predictive value of salivary pepsin
- Largest Youden index of fasting pepsin curve at 72.7%, the sensitivity was 72.7% and specificity 100%, with an optimal cut-off value of 47.5 ng/mL
- AUC 0.847 ± 0.093 (95% CI, 0.665 to 1.000, $p = 0.012$)



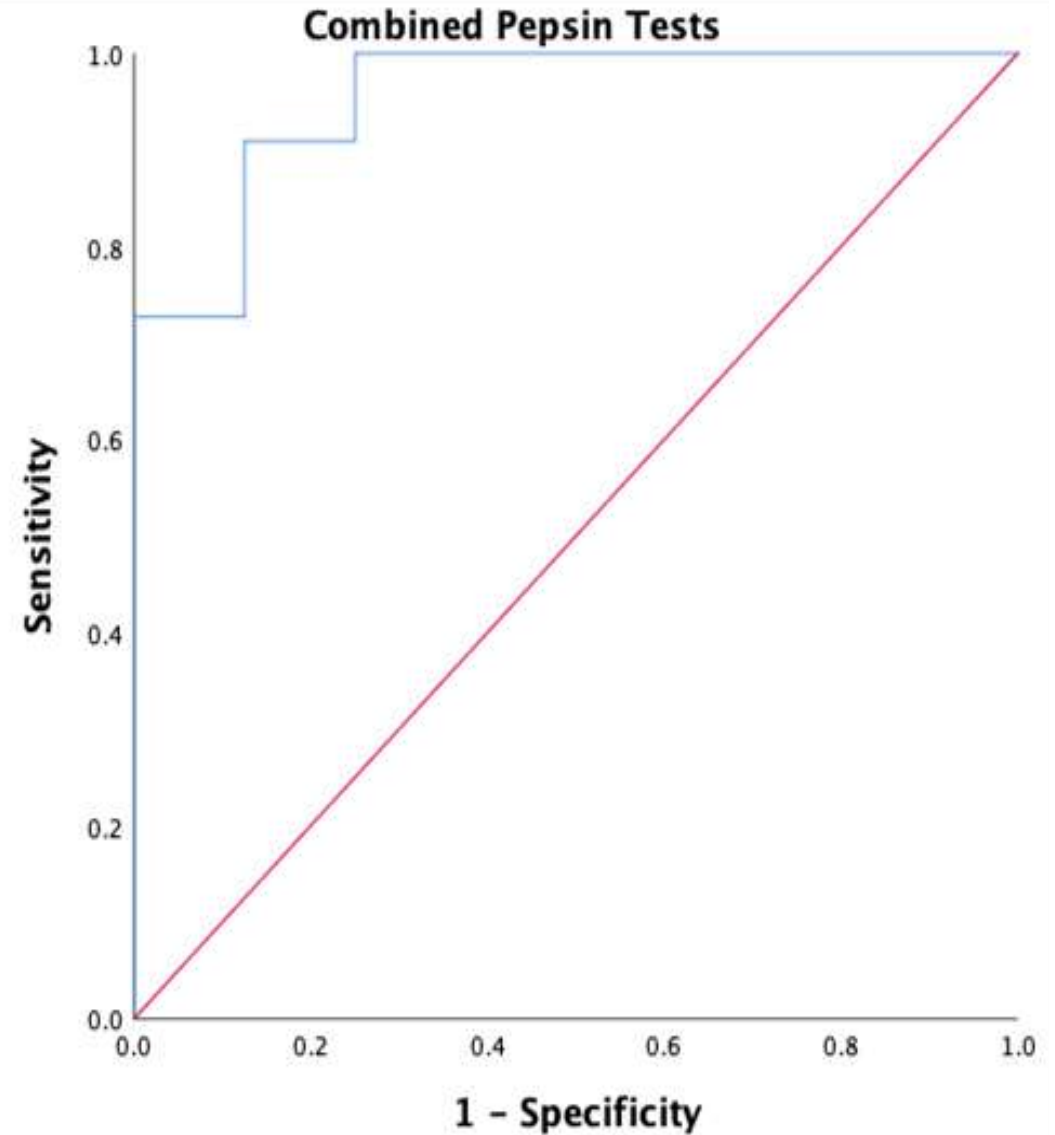
RESULTS

- Largest Youden index for post-prandial pepsin curve was 53.4%, sensitivity of 90.0%, specificity of 62.5% and a cut-off value of 12.5 ng/mL
- Nearly 100% sensitivity for the exclusion of erosive oesophagitis when pepsin concentration of 16 ng/mL used (the lower limit of detection of pepsin concentration)
- AUC 0.818 ± 0.099 (95% CI, 0.624 to 1.000, $p = 0.021$)



RESULTS

- When both samples were combined, the AUC of the ROC curve was even higher 0.955 ± 0.044 (95% CI, 0.868 to 1.000, $p < 0.001$)
- No significant statistical correlation between questionnaire and endoscopic findings



DISCUSSION

- Salivary pepsin as an alternative to OGD surveillance for EE
 - Salivary pepsin produced exclusively in the stomach
 - Significant factor for development of EE at low pH
 - High sensitivity for detecting reflux in previous studies
- Benefits
 - Reduced costs of surveillance
 - Avoidance of invasive procedures

CONCLUSION

- From our study, pepsin has good predictive and discriminatory value between erosive oesophagitis and normal findings
 - low pepsin concentration makes a good negative predictor
 - none of the subjects who had both fasting and post-prandial pepsin values below detection threshold (16ng/ml) had endoscopic findings showing EE

CONCLUSION

- While the fasting sample performed better at distinguishing between normal and EE but given higher AUC for the combined fasting/post prandial data, recommend using both samples to predict likelihood of EE
- GERD symptom questionnaire is a poor predictor of EE

LIMITATIONS

- Confounders:
 - Use of PPI therapy closer to initial surgery
 - participants with normal endoscopic findings were more likely to be on PPI therapy
- Small sample size
- Variability in fasting sample collection timings (taken just before endoscopy for convenience/supervision for collection)
- Limited treatments for pepsin inhibition

In accordance with «EACCME criteria for the Accreditation of Live Educational Events»:

I have no potential conflict of interest to report

