Efficacy Of Antral Resection Versus Antral Preservation In Laparoscopic Sleeve Gastrectomy – A Randomized Comparative Study

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INTRODUCTION

Majority of bariatric surgeons prefer gastric resection at 2-6 cm from pylorus during Laparoscopic Sleeve Gastrectomy (LSG) .

- LSG with Antral Preservation (AP) preserves contractile function of pylorus, delays gastric emptying.
- LSG with Antral Resection (AR) eliminates the reservoir storage function and hence evacuates food rapidly , decreases GER.
- LSG with AR enhances restrictive effect and hence associated with significant percentage excessive weight loss (%EWL).
- We have compared the efficacy of AP with AR in LSG done for morbidly obese patients
- No such published study in Asian population.
- This study evaluated the %EWL = {(Initial Weight) -(Post op weight) / (Initial weight)}x100) and Gastroesophageal reflux (GER) in LSG with AR versus AP.

AIMS AND OBJECTIVES

AIM : To evaluate impact of antral resection on weight loss following LSG in morbidly obese patients.

OBJECTIVES:

PRIMARY - To evaluate and compare weight loss in AR versus AP following LSG.

SECONDARY - To evaluate and compare GER in AR versus AP following LSG.

PATIENTS AND METHODS

- Randomized comparative hospital-based study.
- All patients meeting the inclusion criteria, attending the Surgery OPD, Lady Hardinge Medical College, from October 2018 to March 2020

INCLUSION CRITERIA

1) All patients between 18 to 65 years with morbid obesity undergoing LSG were included in this study.

2) Patients with BMI >40 kg/m^2 & with BMI >35 kg/m^2 with comorbidities.

EXCLUSION CRITERIA

Patients who underwent previous bariatric surgery/Pregnant patients/Gastric outlet obstruction patients/Patients not fit for anaesthesia/Patients with severe psychiatric illness/Patients of DVT/Patients unwilling for dietary compliance with postoperative dietary regimen and follow up.

METHODOLOGY

- Randomization done by a computer-generated number sequence, and contained in sequentially numbered opaque envelopes.
- Written and informed consent.
- Two groups : LSG with AR and LSG with AP.
- UGI endoscopy, 24-hour Multichannel Intraluminal Impedance(MII) pH monitoring was done pre operatively & 3 months post-operatively. % EWL was assessed 3mth postoperatively
- This study was approved from Ethics Committee for Human Research, Lady Hardinge Medical College & Associated Hospitals , Ref. NO. is LHMC/ECHR/2018/97 T (R).
- Study registered with clinical trial registry of India, No: REF/2019/06/026391.

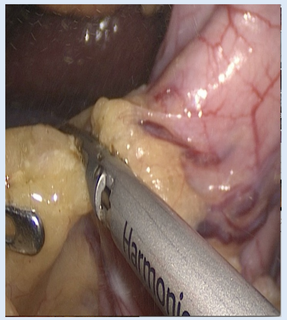


Fig 1 Mobilization of greater omentum from distal stomach using harmonic

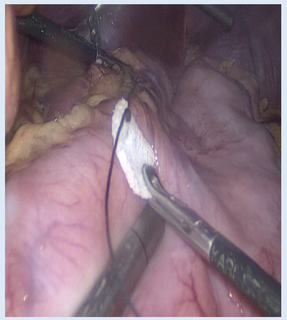


Fig 2 Extent of Pyloric resection measured using a ribbon gauge of size 2 cm for LSG with AR and 5 cm for LSG with AP

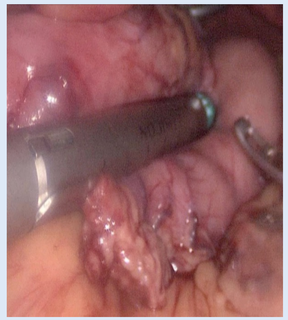
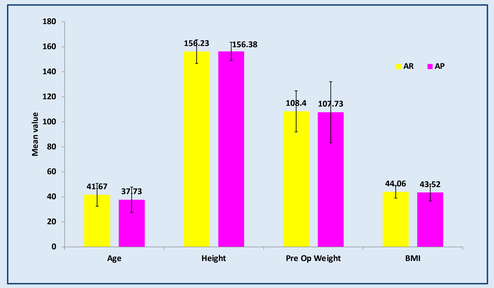


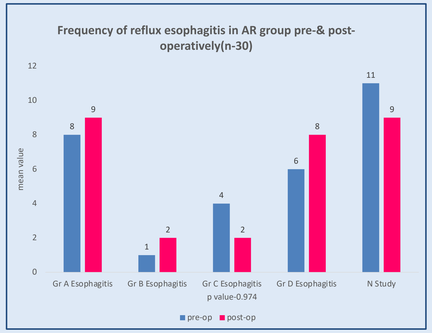
Fig 3Stapler applied at Greater curvature of stomach, after measuring extent of resection from pylorus

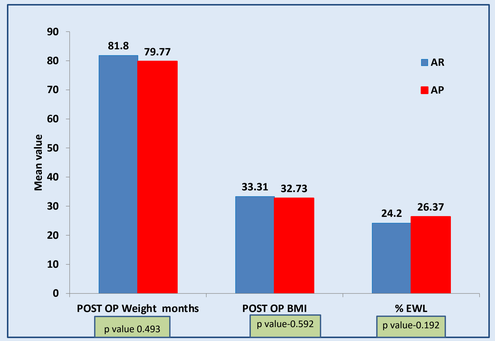


Fig 4 Newly created stomach pouch and stomach specimen with stapled lines, lying side by side after stapler application

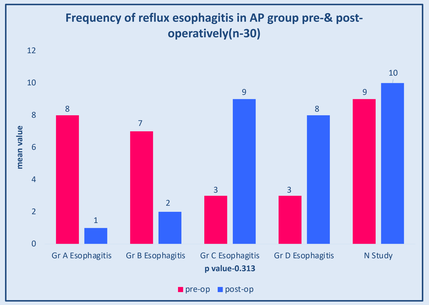


Bar diagram showing the Demographic Profile of study population





Bar diagram showing comparison of weight loss, BMI and % EWL at 3 months interval in study groups



p value of reflux esophagitis in AR and AP group pre-operatively -0.212

Frequency Reflux Esophagitis in Study Population pre & post op on UGIE(Los -Angeles Classification)

Groups	Pre Demeester	Total	Post Demeester				p value
			<14.7		>14.7		
			Frequency	%	Frequency	%	
AR	<14.7	20	16	53.3%	4	13.3%	<0.001
	>14.7	10	1	3.3%	9	30.0%	
AP	<14.7	19	17	56.7%	2	6.7%	0.004
	>14.7	11	4	13.3%	7	23.3%	

De-novo GER based on Demeester score	AR	AP	p value
N	4/20	2/19	0.661
%	20.0%	10.5%	

Comparison effects of LSG on GER in the study population on 24-hour Multichannel Intraluminal Impedance pH monitoring pre- and post-operatively

DISCUSSION

- In a study by Abdallah E et al , patients who underwent LSG with AR showed greater % EWL compared to LSG with AP . In our study , both AR and AP had significant loss of weight and BMI postoperatively (p value 0.01) i , however the weight loss (p value 0.493), BMI (p value 0.592) and % EWL (p value =0.192)were not significant when AR and AP were compared to each other .
- In study by Kai Tai Derek Yeung et al , loss of excessive weight and reduction in BMI is supposed to decrease the gastro-oesophageal pressure and lead to accelerated gastric emptying and helps in improving GER. In our study, UGIE done pre-operatively and post-operatively at 3 months interval in AR and AP study groups, revealed that within AR study group there was a significant increase in reflux esophagitis post-operatively on UGIE (p value of 0.021). In AP study group there was no significant increase in post -operative oesophagitis in UGIE (p value of 0.967).
- In a study by Fabrizio Rebecch et al , 24-h pH multichannel intraluminal impedance monitoring was performed 2 years after LSG in patients with preoperative GER and it showed a significant decrease in Demeester score.In our study, 20 patients in AR group had Demeester score <14.7 in pre-operative period, however, post-operatively 4 out of 20 developed de-novo reflux with Demeester score >14.7. In AR study group 19 patients pre-operatively had Demeester score <14.7, post-operatively 2 patients out of 19 developed de-novo reflux with Demeester score >14.7. The p value for development of de-novo reflux was 0.661, which is statistically insignificant.

CONCLUSION

Significant weight loss, BMI, %EWL in both AR and AP group postoperatively. However , No statistical difference in outcome of weight loss, BMI, %EWL in between AR and AP group.

Reflux esophagitis is significantly increased in AR group and insignificantly increased in AP group.

Post operative Demeester score significantly increased in both the groups.

No significant impact of either procedure on development of post-operative reflux oesophagitis when compared to each other .

No statistically significant association of Demeester score and non-acidic refluxes between both the groups.

As AR and AP group have no statistically significant difference in weight loss but there is a statistically significant increase in reflux esophagitis and Non acid reflux in AR group so we recommend that AP may be preferred over AR .However ,We also recommend that a larger sample size & longer follow-up period is required to validate our findings

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