

Bariatric Surgery in Heart and Lung Transplant

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BREAKTHROUGHS FOR LIFE.*

Disclosures

Food and Beverage:

Intuitive

Medtronics

Davol

Bard

Travel for non-CME Education:

Medtronics



Objectives

- Assess the use of Bariatric Surgery in the Heart Failure/ Cardiac Transplant Patient
- Evaluate the Use of Bariatric Surgery in the Pulmonary Lung/Transplant population

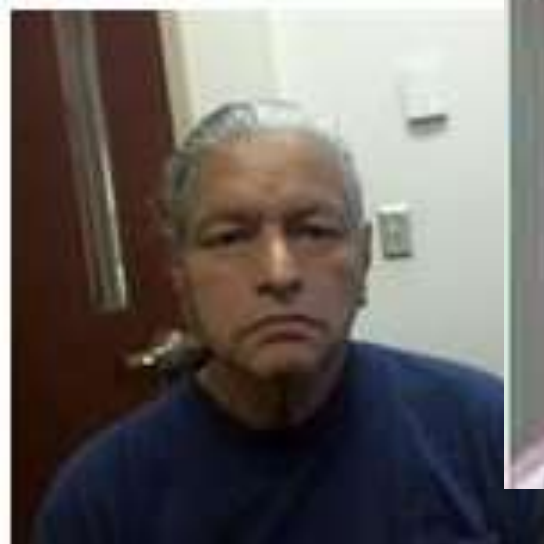


UPDATED- ASMBS/IFSO Criteria

- Metabolic and Bariatric Surgery (MBS) is recommended for $BMI \geq 35$, regardless of presence or absence of co-morbidities
- MBS should be considered for individuals with metabolic disease for BMI 30-34.9
- BMI thresholds in the Asian population should be adjusted
 - $BMI \geq 25$ = obesity
 - $BMI \geq 27$ - consider MBS with metabolic disease
- Appropriately selected children and adolescents should be considered for MBS
- MBS is safe and effective



Through weight-loss patient avoids need for transplant



Pre-operative Diagnosis:

1. Non-ischemic Cardiomyopathy.
2. Remission from chronic heart failure



Heart Failure/Heart Transplant/LVAD



Laparoscopic sleeve gastrectomy in morbidly obese patients with end-stage heart failure and left ventricular assist device: medium-term results.

Chaudhry UI¹, Kanji A¹, Sai-Sudhakar CB², Higgins RS², Needleman BJ³.

6 patients

BMI 47 ± 3 kg/m²

3 with LVAD

LOS 4 (4-16)

1 spontaneous flank hematoma

same patient had thrombosis of drive train @ 3 weeks (req device exchange)

LVAD patients did have longer

OR times (106 ± 31 vs 80 ± 19)

EBL (107 ± 82 vs 43 ± 6)

LOS (10.0 ± 5.2 vs 6.7 ± 3.1)

EBWL- 51%

All became transplant eligible

2 had been transplanted



2 listed at publication

SURGERY FOR OBESITY
AND RELATED DISEASES



Bariatric surgery and left ventricular assist device in patients with heart failure: A systematic review and meta-analysis



Ishna Sharma^a, Hayato Nakanishi^b, Karl Hage^a, Katie Marrero^c, Tayyab S. Diwan^d,
Adrian daSilva-deAbreu^e, Scott S. Davis Jr^f, Benjamin Clapp^g, Omar M. Ghanem^a  

271 patients in 11 publications
259 Lap Vertical Sleeve Gastrectomy
12 Lap Roux-en-Y Gastric Bypass

82% non-ischemic cardiomyopathy-(6)
18% ischemic cardiomyopathy

Mean Operative Time 126.2 min (95 CI:88.9) (5)



Mean LOS 8.1 days (95%CI: 6.3) (9)

20 patients had ICU admission (6)



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30 day readmission rate- 23.6%

1 year transplant free mortality- 10.2%

Post operative complications – 47.6% (9)

MACE- 13 patients

Bleeding (GI and staple line)- 9

LVAD pump thrombosis-5



Pooled EBMIL- 56.6%

65.3% reached a BMI \leq 35 kg/m²



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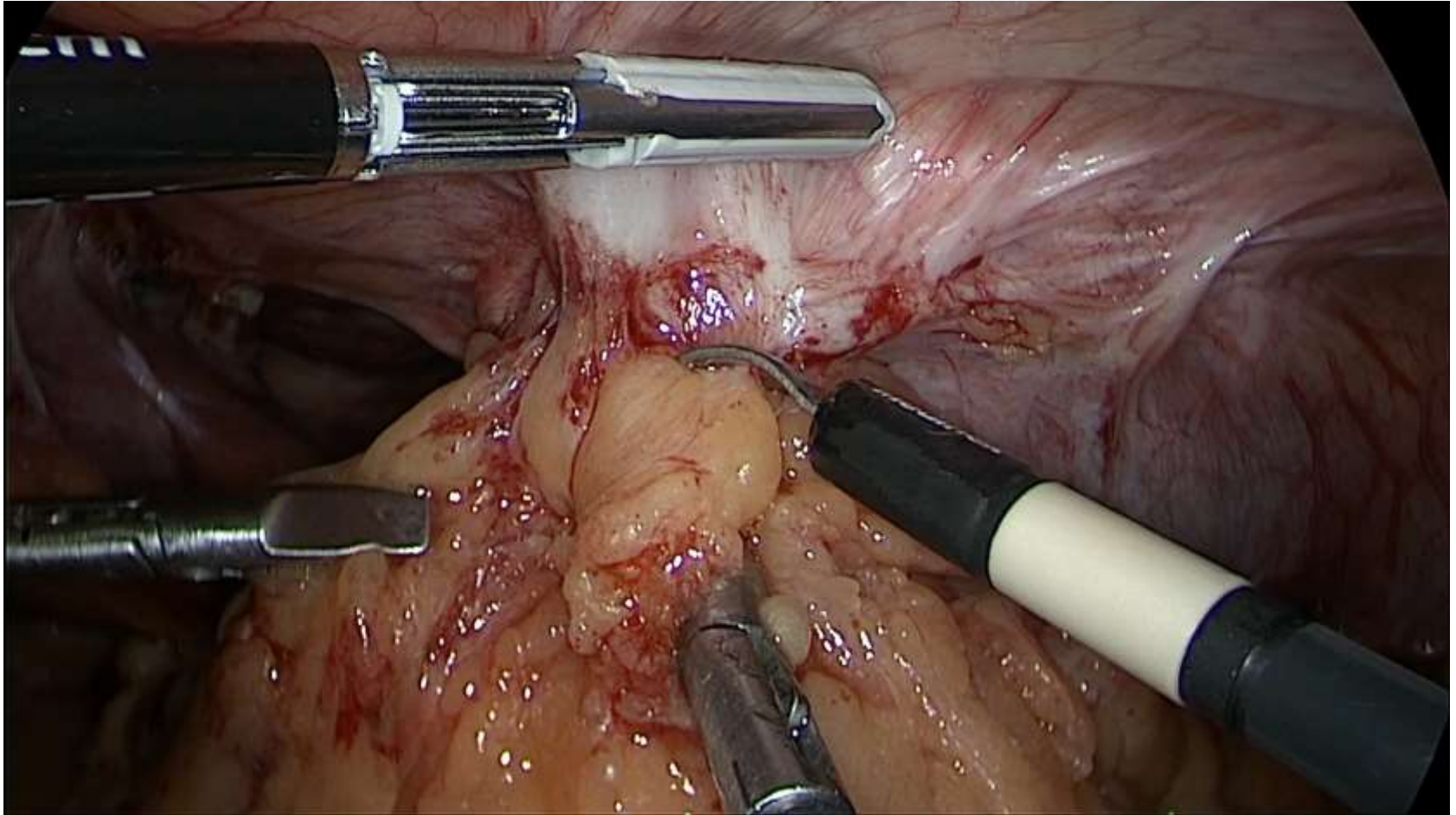
64.7% listed for transplant

32.5% successfully transplanted (67/271)

Time to transplant- 13.8 mo.



Surgical Tips



Simultaneous left ventricular assist device placement and laparoscopic sleeve gastrectomy as a bridge to transplant for morbidly obese patients with severe heart failure

4 Patients

LVAD is completed via a median sternotomy

Anticoagulation is reversed

LSG using 4 port technique

Ports are placed lower than usual secondary to the drive line

no liver retractor

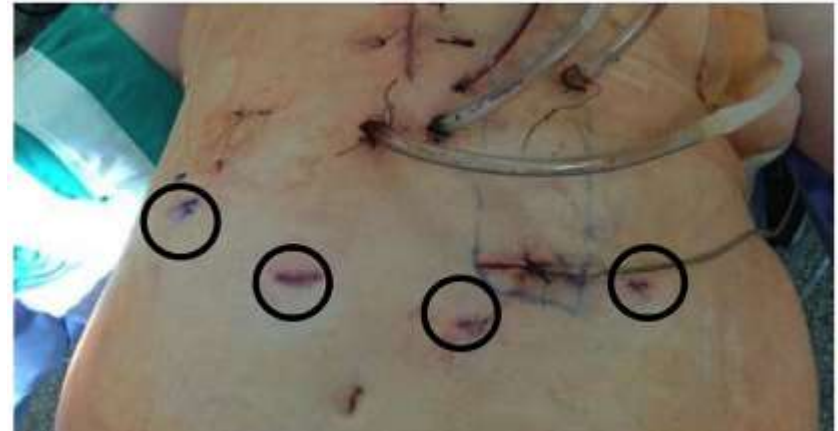
34 Fr Bougie

Black Tri-staple loads with staple line re-enforcement



Endoscopy to confirm no bleeding
OGT is place but NO suction

Extubated on POD#1
Anticoagulation at 12-24 hours



Results:

- 1- required a defibrillator on POD 15, multiple other complications but ultimately got a TXP at 9 mo.
- 2- Mediastinal bleeding and washout. LOS 26 d
- 3- LOS 18 days
- 4- LOS 15 days



UNMC Data

Eid, J, V Kothari, CL McBride. Submitted

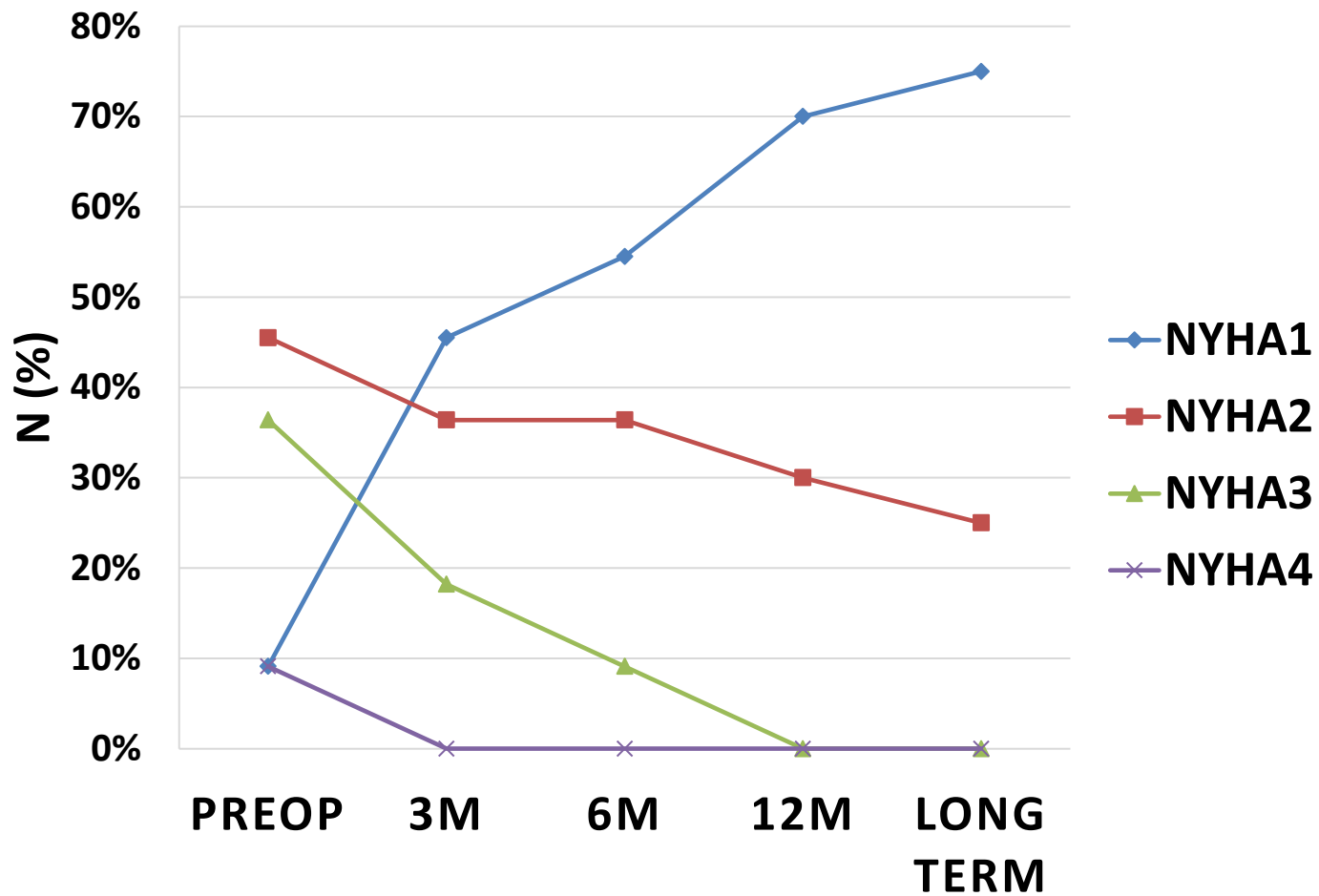
11 Patients with LVAD

Table 1. Preoperative Patient Characteristics & Demographics

Gender, N (%)	
Male	4 (36.4%)
Female	7 (63.6%)
Ethnicity, N (%)	
Caucasian	6 (54.5%)
African American	2 (18.2%)
Hispanic	3 (27.3%)
Smoking History, N (%)	6 (54.5%)
Age, mean years (SD)	44.7 (12.2)
BMI, mean kg/m² (SD)	45.6 (6.0)
NYHA Score, N (%)	
1	1 (9.1%)
2	5 (45.5%)
3	4 (36.4%)
4	1 (9.1%)
ESHF Etiology, N (%)	
Non-Ischemic	9 (81.8%)
Ischemic	2 (18.2%)
Time (LVAD-BS), mean months (SD)	25.5 (9.4)



NYHA CLASSIFICATION



Outcomes

6 (54.6%) – Successfully bridged to heart transplantation

2 (18.2 %) – Decannulated due to improved function and do not require cardiac transplantation

Note- both were young women with post partum cardiomyopathy

2 (18.2%) – Actively listed

1 – still losing weight.



Time Frames

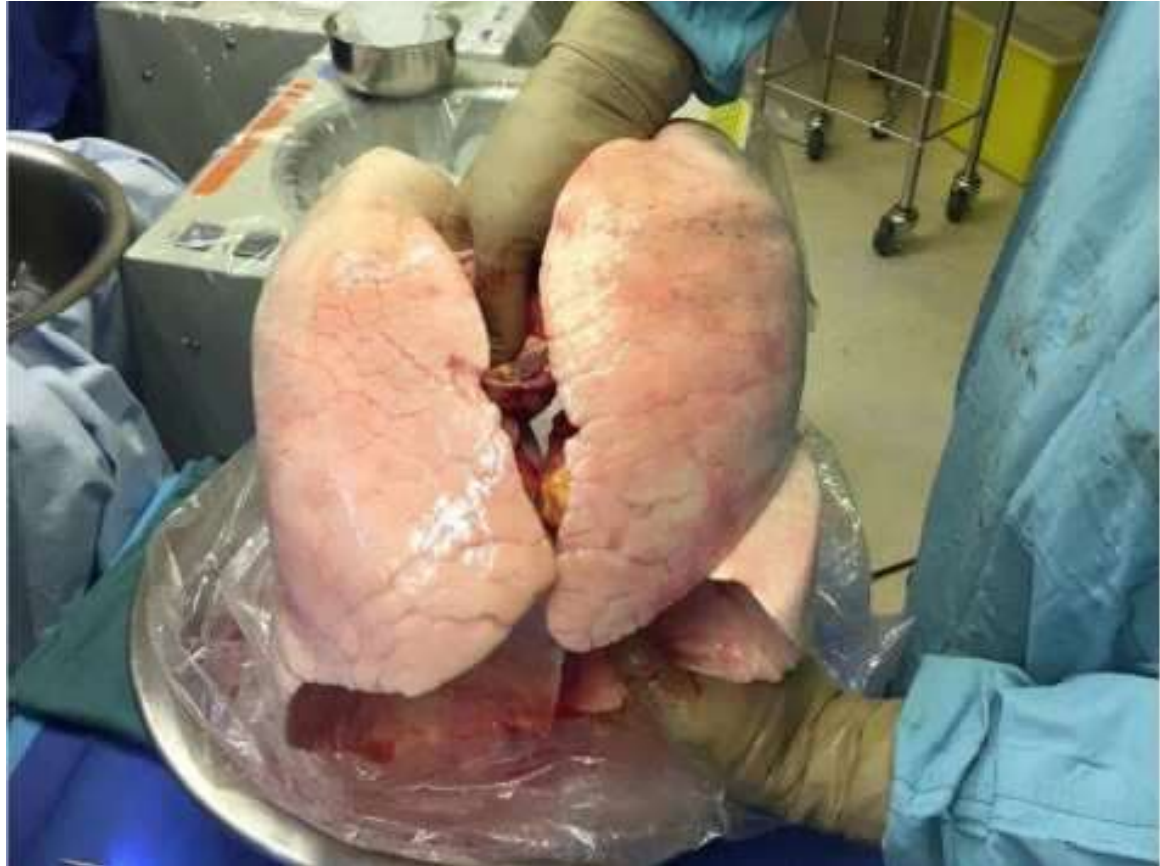
	Time (mo)
Init Enc to Bari Surg	25.5 \pm 9.4
Bari Surg to Listing	8.6 \pm 3.7
Bari Surg to TXP/DeCann	12.8 \pm 8.5



Complication > 30 d

- Gangrenous Cholecystitis (2)
 - 36 days
 - 2 years
- Mycophenolate Gastropathy-(2 years) after TXP- had a sleeve ulcerations, anemia, and food intolerance.





Pre-transplant impedance measures of reflux are associated with early allograft injury after lung transplantation

Wai-Kit Lo, MD, MPH,^{a,b,c} Robert Burakoff, MD, MPH,^{a,c}
Hilary J. Goldberg, MD,^{c,d} Natan Feldman, MD,^a and
Walter W. Chan, MD, MPH^{a,c}

> [J Heart Lung Transplant](#). 2015 Jan;34(1):26-35. doi: 10.1016/j.healun.2014.09.005.
Epub 2014 Sep 10.

Increased Acid Exposure on Pretransplant Impedance-pH Testing Is Associated With Chronic Rejection After Lung Transplantation


Lo, Wai-Kit MD, MPH^{*†‡}; Moniodis, Anna MD^{‡§}; Goldberg, Hilary J. MD^{‡§}; Feldman, Natan MD^{*}; Chan, Walter W. MD, MPH^{*‡}

Author Information ☺

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Bariatric surgery in patients with interstitial lung disease

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25 patients

17 gastric bypass

7 sleeve

7 were potential transplant patients if lost weight

3 improvement that no longer needed transplant

1 lost to follow up

1 worsening of co-morbidities excluded from transplantation

1 was transplanted – 88 months after



Complications

Perioperative outcomes	SG (n=7)	RYGB (n=17)	Gastric banding (n=1)
Revisional procedures, % (n)	0	13 (2)	0
Surgical technique, % (n)			
Laparoscopy	100 (7)	88 (15)	100 (1)
Robot			
Lapar			
Operati			
Estimat			
Length			
Postope			
30-day			
Pulmonary complications	0	0	0
Anastomotic leak	0	6 (1)	0
Marginal ulcer	0	6 (1)	0
Anastomotic stricture	0	12 (2)	0
Reoperations, % (n)	0	6 (1)	0
Readmissions, % (n)	0	0	0
Mortality, % (n)	0	0	0

There were definitely more complications in their gastric bypass cohorts, however since the #1 reason lung transplant patients are rejected if they are in a normal weight range is GERD then most would say we should not do a reflux-o-genic operation like the sleeve.

Conclusions

Bariatric Surgery is Safe, Effective and has Long term sustainable results

There are significant improvements in cardiac and pulmonary function after bariatric surgery.

Bariatric Surgery can be effectively used to help patients achieve a weight lost that will allow listing for transplant.

If a patient is being considered for lung transplant, gastric bypass is recommended because of the reflux associated with a sleeve.



enerative



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