Smaller incisions minimize tissue trauma, decrease wound complications, reduce risk of hernia, and improve cosmesis.[1] Previous studies combined numerous procedures and a variety of needlescopic instruments.[2,3] Prior use of needlescopic instruments reported increased operative time and technical complications.[2,4] These studies also relied on a few senior surgeons to perform these procedures.[2,4] Additionally, weak instrument shafts, traumatic tissue handling of the end effectors, and conversion rates were unfavorable.[2,4]

Duke University School of Medicine

Technical Feasibility, Outcomes, and Patient Satisfaction After Needlescopic and Laparoscopic Bariatric Surgery

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Background

"Needlescopic surgery" includes "percutaneous", "micro"- or "mini-laparoscopic surgery with instrument with an outer diameter ≤ 3mm. Smaller incisions minimize tissue trauma, decrease wound complications, reduce risk of hernia, and improve cosmesis. Previous studies using needlescopic instruments reported increased operative time and technical complications from weak instrument shafts, traumatic tissue handling of the end effectors, and high conversion rates. Furthermore, needlescopic surgery was considered "impossible or dangerous" to perform in obese patients. **This study compares the safety and feasibility of reduced trocar needlescopic surgery compared to conventional laparoscopy in patients with morbid obesity undergoing bariatric surgery.**

Objectives

1) Evaluate feasibility of needlescopic instruments in patients with morbid obesity
2) Compare 30-day outcomes between needlscopic and laparoscopic approach
3) Assess body image with the Multidimensional Body-Self Relations Questionnaire (MBSRQ) and Patient Scar Assessment Questionnaire (PSAQ)

Methods

Study Type: Single-institution non-blinded randomized control study

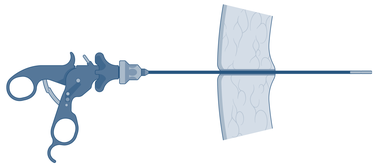
Inclusion Criteria: 18 years and older with a BMI ≥35kg/m^2 to BMI ≥ 40kg/m^2 and undergoing Roux-en-Y gastric bypass (LRYGB) or sleeve gastrectomy (LSG) between February to December 2017.

Primary End Point: Operative time

Secondary End Point: Conversion rate, estimated blood loss, complication rates, length of stay, and readmission rate. Patient satisfaction was measured at preop, 3 weeks, and 3 months on the MBSRQ and PSAQ

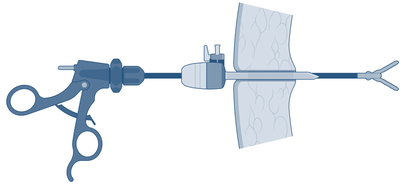
Results

Needlescopic (NEED) group



13 patients

conventional laparoscopic surgery (LAP) group

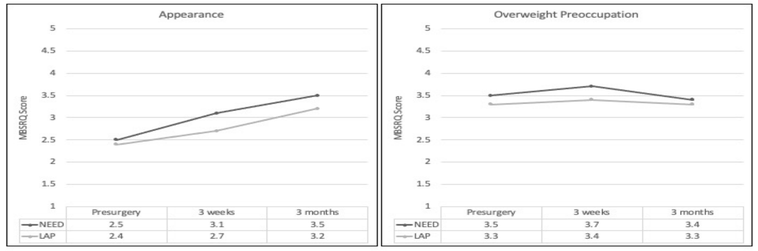


17 patients

	Total (n=30)	NEED (n=13)	LAP (n=17)	p-value
Gender				
Female	29 (96.7%)	13 (100.0%)	16 (94.1%)	0.37
Male	1 (3.3%)	0 (0.0%)	1 (5.9%)	
Age (years)				0.63
Mean (SD)	48.2 (11.2)	49.4 (12)	47.4 (10.7)	
Median	47.5	51	45	
Range	(19-66)	(19-62)	(26-66)	
BMI (kg/m^2)				0.84
Mean (SD)	40.9 (2.5)	40.8 (3)	41 (2.1)	
Median	41.4	41.4	41.4	
Range	(36-44.2)	(36-44.2)	(37.9-44.4)	
Procedure				
LSG	8 (26.7%)	4 (30.1%)	4 (23.5%)	0.72
LRYGB	22 (73.3%)	9 (69.2%)	13 (76.5%)	
Operative time (minutes)				0.48
Mean (SD)	193.9 (62.2)	209.5 (66.1)	181.9 (58.1)	
Median	196	196	187	
Range	(32-355)	(127-355)	(32- 265)	

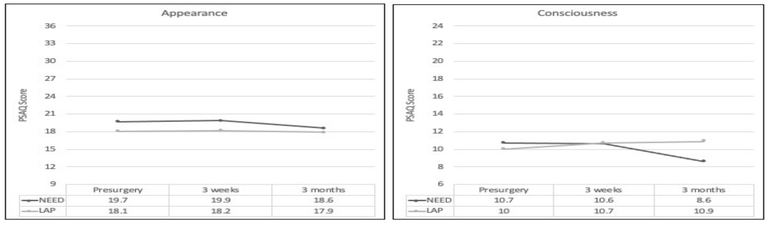
There were no conversions to laparoscopy or 30-day mortality. EBL, LOS, SSI, and readmission were similar between the groups

Figure 1. Body image scores on Multidimensional Body-Self Relations Questionnaire (MBSRQ) by treatment group



The MBSRQ is scored on a Likert scale of 1 (completely disagree) to 5 (completely agree) and higher scores correlate with satisfactory body image.

Figure 2. Body image scores on Patient Scar Assessment Questionnaire (PSAQ) by treatment group



PSAQ Appearance subscale includes 9 questions with a score range of 9 to 36. The Consciousness subscale has 6 questions with a score range of 6 to 24. A higher score is associated with worse cosmesis

Conclusion

- Needlescopic surgery is a safe and feasible technique for bariatric surgery in patients with morbid obesity.
- More research is necessary to understand the association between body image and cosmesis after bariatric surgery.

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