



American Society for Metabolic & Bariatric Surgery

Endorsed by Executive Council June 17, 2007

American Society for Metabolic and Bariatric Surgery

POSITION STATEMENT ON SLEEVE GASTRECTOMY AS A BARIATRIC PROCEDURE

Clinical Issues Committee

Preamble.

The following position statement is issued by the American Society for Metabolic and Bariatric Surgery in response to numerous inquiries made to the Society by patients, physicians, hospitals, health insurance payers, the media, and others, regarding the relatively new bariatric surgical procedure commonly known as the 'sleeve (vertical) gastrectomy'. In this statement, available data regarding the safety, efficacy, and durability of the sleeve gastrectomy procedure as a treatment option for certain patients are summarized and suggestions made regarding its reasonable utilization based upon current knowledge, expert opinion, and published peer-reviewed scientific evidence available at this time. The intent of issuing such a statement is to provide objective information about the procedure and its possible role as an accepted alternative procedure in the treatment of morbidly obese patients. The statement is not intended as and should not be construed as stating or establishing a local, regional or national standard of care for any bariatric procedure. The statement will be revised in the future as additional evidence becomes available.

Position Statement on Sleeve Gastrectomy as a Bariatric Procedure

The bariatric procedure commonly called "sleeve (vertical) gastrectomy" is a form of unbanded gastroplasty involving subtotal gastric resection for creation of a long lesser curve-based gastric conduit (Figure 1). This procedure may be viewed as a modification of the widely-accepted bariatric procedure of vertical banded gastroplasty and is the gastric component of the more established malabsorptive procedure of biliopancreatic diversion (BPD) with duodenal switch. Sleeve gastrectomy is a resectional form of the Magenstrasse and Mill procedure, an unbanded long lesser curve gastroplasty without resection (Figure 2), after which durable 5 year weight loss has been reported in the morbidly obese at 5 years.¹ The mechanism of weight loss and resultant comorbidity improvement seen following sleeve gastrectomy may be related to gastric restriction or to neurohumoral changes observed following the procedure due to the gastric resection or some other unidentified factor(s).

There are currently 15 published reports in the peer-reviewed literature describing short-term outcomes in 775 patients after sleeve gastrectomy.²⁻¹⁶ A single study provides data up to 3 years after the procedure and no follow-up beyond 3 years has been reported.⁷ The reports describe surgical treatment of patients with preoperative body mass index ranging from 35 to 69 kg/m² and excess weight loss ranging from 33% to 83%.

Comorbidity resolution 12 to 24 months after sleeve gastrectomy has been reported in 345 patients³⁻⁶ demonstrating resolution rates of diabetes, hypertension, hyperlipidemia, and sleep apnea after sleeve gastrectomy are comparable to results of other restrictive procedures.

Similar to other forms of gastroplasty, perioperative risk for sleeve gastrectomy appears to be relatively low, even in high risk patients. Published complication rates range from zero to 24% with an overall reported mortality rate of 0.39%. Only a single prospective randomized trial⁷ is published which compares sleeve gastrectomy to a more widely accepted bariatric procedure. In that trial, sleeve gastrectomy was found to be at least as effective and durable as adjustable gastric banding at one and three years following surgery.

The sleeve gastrectomy procedure has been utilized as a first-stage bariatric procedure to reduce surgical risk in high-risk patients by induction of weight loss and this may be its most useful application at the present time. Sleeve gastrectomy appears to be a technically easier and/or faster laparoscopic procedure than Roux-en Y gastric bypass or malabsorptive procedures in complex or high risk patients including the super-super-obese patient (BMI > 60 kg/m²). From a technical standpoint, there appears to be no consensus regarding the optimal dilator size that should be utilized to create the lesser curve conduit with various reports recommending diameters between 32 and 60Fr. It has been suggested that dilation of the unbanded gastric sleeve conduit may provide a mechanism of long-term weight loss failure.

Long-term (> 5 yr) weight loss and comorbidity resolution data for sleeve gastrectomy have not been reported at this time. Weights regain or a desire for further weight loss in a super-super-obese patient may require the procedure to be revised to a gastric bypass or biliopancreatic diversion with duodenal switch. Detailed informed consent including information about the possibility of long-term weight regain and the potential need for

subsequent conversion to another procedure is suggested before the sleeve gastrectomy is planned for an individual patient. Decisions to perform this procedure should also be in compliance with ethical guidelines published by the ASMBS¹⁷.

The ASMBS recognizes performance of sleeve gastrectomy may be an option for carefully selected patients undergoing bariatric surgical treatment, particularly those who are high risk or super-super-obese, and that the concept of staged bariatric surgery may have value as a risk reduction strategy in high-risk patient populations. It is suggested that surgeons performing sleeve gastrectomy prospectively collect and report outcome data for this procedure in the scientific literature. In addition, it is suggested that surgeons performing sleeve gastrectomy inform patients regarding the lack of published evidence for sustained weight loss beyond 3 years and provide them with information regarding alternative procedures with published long-term (≥ 5 years) data confirming sustained weight loss and comorbidity resolution based upon available literature at this time.

Sleeve Gastrectomy Position Statement and Standard of Care

This Position Statement is not intended to provide inflexible rules or requirements of practice and is not intended, nor should it be used, to state or establish a local, regional, or national legal standard of care. Ultimately, there are various appropriate treatment modalities for each patient, and the surgeon must use their judgment in selecting from among the different feasible treatment options.

The American Society for Metabolic and Bariatric Surgery cautions against the use of this position statement in litigation in which the clinical decisions of a physician are called into question. The ultimate judgment regarding appropriateness of any specific procedure or course of action must be made by the physician in light of all the circumstances presented. Thus, an approach that differs from the position statement, standing alone, does not necessarily imply that the approach was below the standard of care. To the contrary, a conscientious physician may responsibly adopt a course of action different from that set forth in the position statement when, in the reasonable judgment of the physician, such course of action is indicated by the condition of the patient, limitations on available resources or advances in knowledge or technology. All that should be expected is that the physician will follow a reasonable course of action based on current knowledge, available resources, and the needs of the patient, in order to deliver effective and safe medical care. The sole purpose of this position statement is to assist practitioners in achieving this objective.

Sleeve Gastrectomy--Outcomes

Author	Patients (n)	Preoperative BMI	Follow-up	Postoperative BMI	%EWL	Complication Rate	Comments
Lee et al. (2007) ²	216	49	2 yrs	27.7 (2 yrs)	59% (1 yr)	7.4%	32 Fr Bougie, 0 mortality
Cottam et al.(2006) ³	126	65.3	1 yr	49	46%	13%	46-50 Fr Bougie, 0 mort
Hamoui et al.(2006) ⁴	118	55	2 yrs	NR	47.3%	15.3%	97% Open, 1 mort
Moon Han et al. (2005) ⁵	60	37.2	1 yr	28	83.3%	2.9%	48 Fr Bougie, 1 mort
Silecchia et al (2006) ⁶	41	57.3	1 yr	40.8	NR	12.1%	48 Fr Bougie, 0 mort
Himpens et al. (2006) ⁷	40	39	3 yrs	Median decrease 27.5	66%	5%	34 Fr Bougie; RCT v band, 0 mort
Baltasar et al. (2005) ⁸	7 7 16	61-74 >40 35 – 43	4 – 27 mo 4 – 16 mo 3 – 27 mo	NR NR NR	56.1% 33.6 – 90% 62.3%	6.7% (2/30)	32 Fr Bougie, 1 mort
Roa et al. (2006) ⁹	30	41.2	6 mo	32	52.8	13.3%	52 Fr Bougie
Langer et al (2006) ¹⁰	23	48.5	18 mos	NR	57%	NR	48 Fr Bougie, one sleeve dilation at 1 yr
Melissas et al. (2007) ¹¹	23	47.2	1 yr	31.1	NR	21.7%	34 Fr Bougie 19 lap/4 open, 0 mort
Almogly et al. (2004) ¹²	21	57.5	18 mo	NR	61.4%	23.8%	0 mort
Milone et al. (2005) ¹³	20	69	6 mo	53	35%	5%	60 Fr Bougie, 0 mort
Mognol et al. (2005) ¹⁴	10	64	1 yr	41	51%	0%	32 Fr Bougie, 0 mort
Langer et al. (2005) ¹⁵	10	48.3	6 mo	NR	61%	0%	Decr ghrelin comp to band, 0 mort
Regan et al. (2003) ¹⁶	7	63	11 mo	50	33%	3 complications	60 Fr Bougie, 0 mort
SUMMARY: 15 studies	775	35 -69	6 mo – 3 yr	27.7 - 53	33 – 83%	0 – 24%	3 perioperative mortalities (3/775) 0.39%

Comorbidity Resolution after Sleeve Gastrectomy

Author	Patients (n)	Follow-up	T2DM	HTN	Hyper-lipidemia	Sleep Apnea	DJD/ joint pain	GERD	Peripheral Edema	Depression
Cottam et al. (2006) ³	126	1 yrs	81% R 11% I	78% R 7% I	73% R 5% I	80% R 7% I	85% R 6% I	70% R 8% I	91% R 3% I	67% R 9% I
Hamoui et al.(2005) ⁴	118	2 yrs	47% R 22% I	15% R 16% I	--	--	--	--	--	--
Moon Han et al. (2005) ⁵	60	1 yr	100% R	93% R 7% I	45% R 30% I	100% R	76% R 24% I	80% R 20% I	--	--
Silecchia et al (2006) ⁶	41	18 mo	79.6% R 15.4% I	62.5% R 25% I	--	56.2% R 31.2% I	--	--	--	--

T2DM, Type 2 diabetes mellitus; HTN, hypertension; DJD, degenerative joint disease; GERD, gastroesophageal reflux; R, Resolved; I, Improved.

References

1. Johnston D, Dachtler J, Sue-Ling HM, et al. The Magenstrasse and Mill operation for morbid obesity. *Obes Surg* 2003; 13(1):10-6.
2. Lee CM, Cirangle PT, Jossart GH. Vertical gastrectomy for morbid obesity in 216 patients: report of two-year results. *Surg Endosc* 2007.
3. Cottam D, Qureshi FG, Mattar SG, et al. Laparoscopic sleeve gastrectomy as an initial weight-loss procedure for high-risk patients with morbid obesity. *Surg Endosc* 2006; 20(6):859-63.
4. Hamoui N, Anthonie GJ, Kaufman HS, Crookes PF. Sleeve gastrectomy in the high-risk patient. *Obes Surg* 2006; 16(11):1445-9.
5. Moon Han S, Kim WW, Oh JH. Results of laparoscopic sleeve gastrectomy (LSG) at 1 year in morbidly obese Korean patients. *Obes Surg* 2005; 15(10):1469-75.
6. Silecchia G, Boru C, Pecchia A, et al. Effectiveness of laparoscopic sleeve gastrectomy (first stage of biliopancreatic diversion with duodenal switch) on co-morbidities in super-obese high-risk patients. *Obes Surg* 2006; 16(9):1138-44.
7. Himpens J, Dapri G, Cadiere GB. A prospective randomized study between laparoscopic gastric banding and laparoscopic isolated sleeve gastrectomy: results after 1 and 3 years. *Obes Surg* 2006; 16(11):1450-6.
8. Baltasar A, Serra C, Perez N, et al. Laparoscopic sleeve gastrectomy: a multi-purpose bariatric operation. *Obes Surg* 2005; 15(8):1124-8.
9. Roa PE, Kaidar-Person O, Pinto D, et al. Laparoscopic sleeve gastrectomy as treatment for morbid obesity: technique and short-term outcome. *Obes Surg* 2006; 16(10):1323-6.
10. Langer FB, Bohdjalian A, Felberbauer FX, et al. Does gastric dilatation limit the success of sleeve gastrectomy as a sole operation for morbid obesity? *Obes Surg* 2006; 16(2):166-71.
11. Melissas J, Koukouraki S, Askoxylakis J, et al. Sleeve gastrectomy: a restrictive procedure? *Obes Surg* 2007; 17(1):57-62.
12. Almogly G, Crookes PF, Anthonie GJ. Longitudinal gastrectomy as a treatment for the high-risk super-obese patient. *Obes Surg* 2004; 14(4):492-7.
13. Milone L, Strong V, Gagner M. Laparoscopic sleeve gastrectomy is superior to endoscopic intragastric balloon as a first stage procedure for super-obese patients (BMI \geq 50). *Obes Surg* 2005; 15(5):612-7.
14. Mognol P, Chosidow D, Marmuse JP. Laparoscopic sleeve gastrectomy as an initial bariatric operation for high-risk patients: initial results in 10 patients. *Obes Surg* 2005; 15(7):1030-3.
15. Langer FB, Reza Hoda MA, Bohdjalian A, et al. Sleeve gastrectomy and gastric banding: effects on plasma ghrelin levels. *Obes Surg* 2005; 15(7):1024-9.
16. Regan JP, Inabnet WB, Gagner M, Pomp A. Early experience with two-stage laparoscopic Roux-en-Y gastric bypass as an alternative in the super-super obese patient. *Obes Surg* 2003; 13(6):861-4.
17. ASBS Code of Ethics

Figure 1. Sleeve Gastrectomy

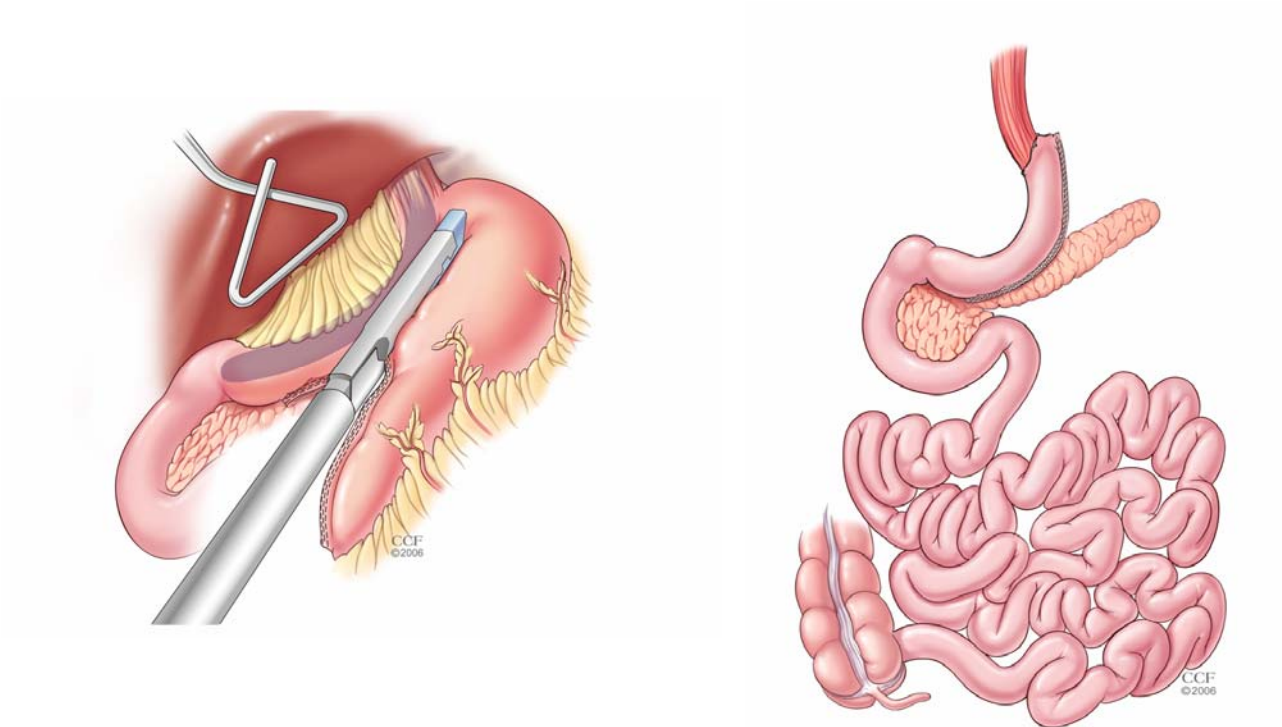


Figure 2. Magenstrasse and Mill

