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Reduction of Soft Tissue Attachments in Re-Operative Lap Band® Surgery with SurgiWrap®

INTRODUCTION

The world of bariatric surgery has accepted the safety and efficacy of the Lap Band® as a surgical alternative for weight loss^{1,2} with attendant improvement or cure of obesity related medical co-morbidities.^{3,4} Re-operation for Lap Band migration occurs in 1-20% of implanted devices.^{5,6,7} The incidence of band movement has been directly related to surgical technique and operating surgeon experience with insertion of the Lap Band system.^{8,9} Re-operative surgery is a reality that every bariatric surgeon must prepare for with the Lap Band.

Migration of the band produces symptoms ranging from pain, reflux and obstruction. The developments of these symptoms accompanied by radiographic evidence of a band slip mandates re-operation for repositioning of the band. The initial placement of the Lap Band under the left lobe of the liver triggers an intense inflammatory reaction between the capsule of the left lobe of the liver and the serosa of the stomach. Extensive dissection is required to release these attachments. The placement of SurgiWrap® bioresorbable sheet between the liver and the stomach reduces soft tissue attachments (STAs) in this area.

This case shows the efficacy of a bioresorbable sheet (SurgiWrap® MAST Biosurgery, San Diego, Calif) to reinforce soft tissues and reduce STAs to the device between the capsule of the liver and the gastric serosa, thus minimizing STAs in re-operative Lap Band surgery.

CASE PRESENTATION

A twenty year old Caucasian female presents to her bariatric surgeon 2 years after successful placement of a laparoscopically inserted adjustable gastric band, Lap Band, with a complaint of unrelenting heartburn and unrelenting nocturnal eructation. During her initial surgery a 10 centimeter Lap Band was used

and a 0.02mm sheet of SurgiWrap was placed between the left hepatic lobe and the Lap Band. Progressive band adjustments yielded a final volume of 1.5mm. The patient experienced a successful weight loss of 75 pounds and a transition from a pre-operative BMI of 55 to 39. A modified upper gastrointestinal barium swallow showed the Lap Band to be in good position and at a good angle in comparison to the vertebra. No obstruction or slip was evident. An abdominal CAT scan revealed no evidence of unexplained fluid collection or obstruction. Clinical laboratory evaluations showed no evidence of infection or active inflammation. Complete decompression of the band did not relieve her symptoms. An elective esophago-gastro-duodenoscopy after complete decompression of the band revealed no esophagitis, esophageal ulceration, gastritis, gastric erosion or obstruction. Maximal proton pump inhibitor therapy, coupled with propulsive agents, failed to provide relief of symptoms.

The patient was taken to the operating room for laparoscopic evaluation of the Lap Band because of unrelenting symptoms. During diagnostic laparoscopy the left lobe of the liver was elevated with a 5mm laparoscopic visceral retractor.

Photograph 1 shows thin flimsy STAs between the capsule of the liver and the serosa of the stomach. These STAs were taken down with an ultrasonic dissector without difficulty. No bleeding was encountered. The sutures securing the band in place were easily identified, divided and removed. The Lap Band was inspected in its entirety. The Lap Band was resealed and secured with imbricating sutures of the stomach over the band with non-absorbable sutures.

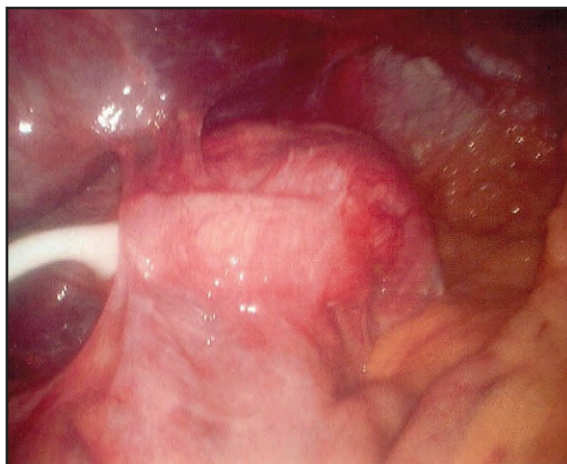
After securing the band, a new sheet of 0.02mm SurgiWrap was placed between the liver and the Lap Band. The sheet of SurgiWrap was folded, grasped

with a laparoscopic grasper, and inserted into the peritoneum via a 10mm port. The SurgiWrap was guided on to the anterior surface of the stomach. The sheet has memory that allows it to open spontaneously, facilitating its placement in the peritoneum. A corner of the sheet was positioned against the intra-abdominal esophagus with the rest of the sheet lying directed caudad. The 5mm visceral retractor was removed allowing the left lobe of the liver to rest upon the sheet of SurgiWrap. A surgical clip was used to hold the sheet in place.

A post-operative barium swallow showed prompt passage of contrast through the band channel. The patients' symptoms resolved completely after surgery requiring no medical therapy. Band inflation was resumed 4 weeks after re-operation.

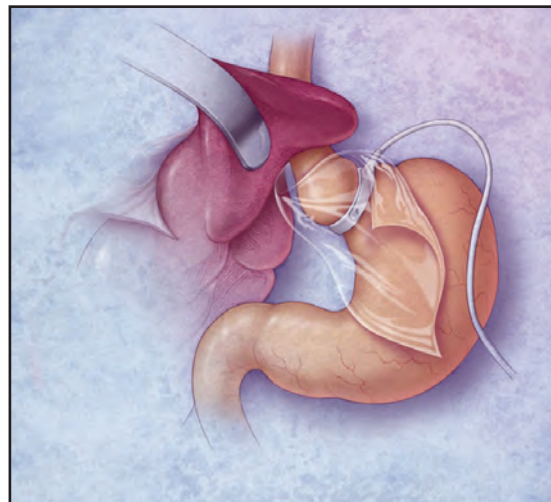
DISCUSSION

The Lap Band has a history of successful weight loss in bariatric surgery. Reports have demonstrated the need for re-operation directly related to band migration and its components. Depending on the volume in a busy bariatric practice, the surgeon using the Lap Band can expect to have 1-20 patients return for re-operative surgery for every 100 Lap Bands placed. Re-operation can be challenging with intense inflammatory STAs forming between the capsule of the liver and the serosa of the stomach. The use of a



bioresorbable sheet such as SurgiWrap reduces STAs to the device thereby, thus facilitating re-exploration. SurgiWrap is a polylactide polymer of lactic acid (70:30 Poly[L-lactide-co-D,L-lactide] produced as a thin, transparent solid sheet. Its presence in the human body retains its original strength for approximately eight weeks before a hydrolytic reaction converts it to water and carbon dioxide. The bioresorbable sheet is easily inserted via a laparoscopic port for deployment into the

peritoneum. The sheet retains a memory to allow self-expansion without sticking to the instruments or adjacent anatomy. The SurgiWrap sheet is sufficiently rigid to endure manipulation with laparoscopic instruments and it resists tearing.



SurgiWrap has an established track record for reduction of STAs in operations requiring a second look or return to the operating room for completion of a second stage, such as take downs of a diverting loop ileostomy.⁹ Its use in bariatric surgery has been documented and recommended, as many bariatric operations may require re-operation or a second stage for completion.¹⁰

References

1. O'Brien P, Brown W, Smith A, et al. Prospective study of a laparoscopically placed, adjustable gastric band in the treatment of morbid obesity. *Br J Surg* 1999;86:113-118.
2. Chapman AE, Kiroff G, Game P, et al. Laparoscopic adjustable gastric banding in the treatment of obesity; a systematic literature review. *Surgery* 2004;135:326-351.
3. Dixon JB, O'Brien PE. Changes in comorbidities and improvements in quality of life after LAP-BAND placement. *Am J Surg* 2002;184:S51-S54.
4. Ponce J, Haynes B, Paynter S, et al. Effect of Lap-Band-induced weight loss on type 2 diabetes mellitus and hypertension. *Obes Surg* 2004;14:1335-1342.
5. Zinzindohoue F, Chevalier J, et al. Laparoscopic gastric banding: A minimally invasive surgical treatment for Morbid Obesity: Prospective study of 500 consecutive patients. *Ann Surg* 2003;237:1-9.
6. Ponce J, Paynter S, Fromm R. Laparoscopic adjustable gastric banding: 1014 consecutive cases. *J Am Coll Surg* 2005;201:529-535.
7. O'Brien PE, Dixon JB. Pars flaccida versus perigastric pathways for the placement of the Lap Band system [abstract]. *Obes Surg* 2003;13:211.
8. Peterli R, Donadini A, et al. Re-operations following laparoscopic adjustable gastric banding. *Obes Surg*, 2002;12:851-6.
9. Faerden A, Reierstein O. The efficacy in minimizing soft tissue attachment using PLA Sheet bioresorbable sheet in temporary diverting loop ileostomy. Clinical Data Series in Bioresorbable Technology. MAST Biosurgery, Inc.
10. Williams N. Prevention of tissue attachment through the use of SurgiWrap® surgical film. 2005; vol.1 no.1.