Laparoscopic Sleeve Gastrectomy with partial Antrectomy and Omental patch. Video. 6’

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Background: Laparoscopic Sleeve Gastrectomy (LSG) is, even if popular, a non-standardized bariatric technique. The results varied and there are controversial issues such as: 1) Size of the sleeve; 2) Protection against esophageal-gastric junction (EGJ) leaks; 3) The use of partial antrectomy. We 1,2 have always used, since 1997, in more than 1200 isolated or combined Open or Lap Duodenal Switch (LDS) a continue inverting Lembert-type sero-serosa suture to cover the staple-line. Gagner 3 reported the first operation in 2000.

Technique: The operation is performed by three surgeons (S) and 6 ports (P). A 12 mm optic port is introduced on the right upper quadrant at the nipple-line (P·1) and it is used to enter the stapling devices and sutures, a 10 mm (P·2) at midline and 4 ports of 5 mm one on the right axillary line (P·3) and another two opposite to 1 and 3, and one more at the xiphoid (P·6) to retract the liver with a Nathanson retractor (Fig.1).

Fig.1. Ports positions

We operate with STORZ ports. Surgeon A (S·A) is on the right side of the patient and moves on P·2 and P·3. The S·B is between the patient’s legs and work with P·1 and P·4. The S·C is on the patient’s left side and uses P·5 and P·6. Each surgeon stays in his same position in all operations, to improve coordination and save time. A stay silk suture is passed by the right costal margin into the abdomen, around the round ligament of the liver and out again and tied to itself to keeps traction on the ligament and the liver to the right.

S·B uses the ultrasound on P·4 with his right hand and a coagulating clamp on his left hand on P·1 to control any bleeding, which is coagulated. Any bleeding is controlled by coagulation but not with the ultrasound since more bleeding can occur.

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S·A and S·C pull from the stomach and the omentum to open the space and allow S·B a clean dissection of the greater curvature vessels. The S·B initiates the division of the vessels opposite to the incisure angularis and proceeds liberating the greater curvature up to the left crus of the diaphragm, while the S·A pulls from the stomach and “feels” that the liberation is complete. The adhesions from stomach to pancreas are also divided. S·C proceeds now from the left side of the patient at P·4 and P·5 to free the greater curvature down to the pylorus and 2 cm of the proximal duodenum to allow full mobility of the pylorus. The stomach and greater curvature move freely while being held only by the lesser curvature.

There is a technical alternative of cutting and dividing the stomach before liberating the greater curvature 4 as in a Gastric bypass. But we think this is not acceptable since the surgeon has no control on the adhesions to the pancreas and of any bleeding in the area.

S·A holds and pulls the pylorus at the greater curvature with his left hand to the right. The anesthetist passes a 12 mm diameter semi rigid RUSCH oro-gastric tube (OGT) by the mouth: The S·C with two clamps on P·4 and P·5 guide the bougie towards the pylorus, and then holds and press it towards the lesser curvature. S·A passes the AMT Covidien GIA Tri-staplers of 4.5 cm in length and fires twice sequentially very close to the OGT. The anesthetist moves the OGT to be sure it is not stapled or cut! The rest of the stomach up to the EGJ is divided with 6 cm long AVM cartridges. The dissection and division of the stomach is practically bloodless. If any spotting occurs, it is controlled with the mono / bipolar coagulation but not with the ultrasound! The anesthetist removes the OGT and then passes a regular NG tube of 6 mm diameter into the antrum. In this way 85% of the stomach has been removed.

Then a continue inverting Lembert-type sutures the staple-line and we have used in >920 DS patients with
the following advantages: 1) any suture-line bleeding is controlled; 2) it is cheaper than any foreign body protectors; 3) it should control leaks; 4) if leak occurs we use now a "omental patch" on the suture-line and the omentum covers it; and 5) it prevents torsion or rotation of the sleeve due to lack of support on the staple-line side of the tube. A Blake drain is placed on the retro-gastric space before starting suturing with the aim of: 1) draining any serous fluid and 2) check for possible leaks, daily, for 7 days with the oral intake of methylene blue.

The omentum that was separated from the greater curvature is used as "omental patch" beginning at the highest possible level and sutured with a non-absorbable Surgiprol 2/0 on a C-22 needle. We use sequentially 2 sutures because the stapler-line is too long. Three knot and a clip are placed at the end of the suture to prevent sliding, and it serves as a radiological marker. Each suture takes large bites of the omentum, the posterior wall and then the anterior gastric wall, and run every 2 passes. We use the Cushieri 5 knot at both sutures end and use a clip for radiological monitoring of the size of the sleeve. The use of that needle and suture saves at least 15 minutes in operating time.

The duodenum is occluded and a leak test is done with 60 c/c of methylene blue that generally overflows up to the mouth. The stomach is removed without a bag by P·1 and the fascia opening is closed with suture of Maxon. The Blake drain comes out by P·3 and then is fixed with a suture to the skin and removed on the 7POD

See http://www.youtube.com/watch?v=4zzMb76oCbg in this case being done in a 215 Kg and BMI-68 male.

Anesthesia monitoring is non-invasive 6. The patient empties his bladder just before going to the OR and no urine catheter is necessary. We measure SO2, TA and Pulse. Patients are taken in the Recovery room and then moved to the ward.

Gastrografin radiologic control is done next day followed immediately by barium swallow since Cortés 7 has shown that barium is more reliable to detect sleeve leaks. We aim for an esophageal lumen larger than the gastric diameter, as seeing in Fig.2 radiology pictures.

Fig.2. Antrectomy and 4 different sleeve x-rays studies

Results: The mean OR time is 54’ (42-76). We have had no leaks in 63 cases since we have used this technique of omental patch. %EBMIL is 76% (64-121%) at 1 year.

Conclusions: a) The use of the omental patch on the suture-line is cheaper than other protectors and may decrease the rate of leaks and b) A very narrow tube covered with omentum may decrease morbidity and mortality and the weight loss is excellent.

References:
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