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Bypass gástrico laparoscópico Y de Roux para el tratamiento de la obesidad mórbida

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Laparoscopic Roux-en-Y gastric bypass for the treatment of morbid obesity

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Resumen

La obesidad es una enfermedad endémica. Ya ha sido comprobado que el enfoque clínico hacia la obesidad mórbida falla en el 95% de los casos.

La laparoscopia ha demostrado que está relacionada a una respuesta metabólica atenuada y posee un periodo postoperatorio más fácil.

De agosto de 1999 a septiembre del 2000, 316 pacientes consecutivos fueron sometidos a una laparoscopia Roux-en-Y con desviación gástrica con un índice de masa corporal (IMC) medio de 45. El promedio de complicaciones fue bajo, con 4 fistulas gastroyeyunales, las cuales fueron tratadas clínicamente. La duración de estadía en el hospital fue alrededor de 36 horas. Los demás 196 casos fueron todos realizados usando el método antecólico antegástrico, el cual recientemente ha demostrado ser un procedimiento más rápido con los mismos resultados en lo que respecta al promedio de complicaciones. Después de 24 meses la pérdida de exceso de peso fue alrededor de un 85%, y la mayoría de las co-morbosidades sanaron.

No hay duda de que la laparoscopia Roux-en-Y con desviación gástrica, cuyas siglas en inglés son LRYGB (Laparoscopic Roux-en-Y gastric bypass) no es el futuro para el tratamiento quirúrgico de la obesidad mórbida, pero sí el mejor método actual con resultados igualmente excelentes al compararlo con la operación abierta tradicional.

Palabras clave: Y de Roux, obesidad mórbida, bypass gástrico.

The surgical treatment of obesity has seen major advances in the past decades.^{1,2} Several studies of open bariatric procedures have shown considerable improvement in morbidity and mortality rates, with good long-term weight loss and co-

Abstract

Obesity is an endemic disease. It was already proven that the clinical approach to morbid obesity fails in 95% of cases.

Laparoscopy has shown that is related to a milder metabolic response and a smoother post operative period.

From August 1999 to September 2001, 316 consecutive patients were submitted to a laparoscopic Roux-en-Y gastric bypass, with a mean Body Mass Index (BMI) of 45. The average complications rate was low, with 4 gastrojejunal fistulas that were all managed clinically. The length of hospital stay was around 36 hours. Our last 196 cases were all performed through an antecolic antegastric approach, which has shown lately to be a swifter procedure with the same results mainly regarding complications rate, after 24 months the excess weight loss was around 85% and most of co morbidities were cured.

There is no doubt that the LRYGB is not the future for the surgical treatment of morbid obesity, but the best present approach and equally excellent results when compared to the traditional open operation.

Key words: Roux-en-Y, gastric bypass, morbid obesity.

morbidity resolution.³⁻⁷ Some surgeons, have even reported that the results of the conventional open technique are so adequate that any improvement would be of little significance. It is important not to forget that the same was, said about open cholecystectomy in the late 1980's and early 1990's until it was completely replaced by the laparoscopic approach.

The laparoscopic treatment of morbid obesity (Laparoscopic Roux-en-Y Gastric Bypass -LRYGB) was first described in the mid 1990's⁸ following the wake of laparoscopic cholecystectomy. Because of the complexity of this procedure in morbidly obese patients, the transition to common practice has been slow. But, the potential benefits of the laparoscopic access must be even greater than those demonstrated for cholecystectomy. It's important to stress that the LRYGB is not the future, but the present of the surgical approach, to severe obesity.

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RATIONALE OF LAPAROSCOPY IN BARIATRIC SURGERY

The major advantage of the laparoscopic approach is the reduction of per operative morbidity. Compared to laparotomy, the laparoscopic approach is significantly less invasive, and therefore, able to reduce morbidity and recovery time.

The metabolic stress response of surgery, which is related to the magnitude of tissue injury, has been widely studied, being less intense during laparoscopic procedures.^{9,10} The same has been shown about immune function, which is less impaired after laparoscopy.¹¹ Pulmonary function is also better preserved¹² and postoperative ileus is less common,¹³ resulting in lower postoperative complications rates and shorter hospital stay. Laparoscopy has drastically reduced the rates of wound-related complications, such as hematomas, infection, dehiscences, and hernias.¹⁴ Finally, some retrospective studies involving laparoscopic and open cholecystectomy include evidence that operative mortality, especially in high-risk patients, may be reduced by the laparoscopic approach.^{14,15}

Morbidly obese patients, who already have a larger number of associated diseases, are at a higher risk than nonobese patients for perioperative complications and mortality. Despite the good results of open bariatric procedures, the well-documented benefits of laparoscopic surgery in nonobese patients may be even greater in severely obese patients who are at a higher risk for cardiopulmonary, infectious, and wound-related morbidity.¹⁶⁻²⁰ There are few studies comparing open *versus* laparoscopic non-bariatric surgeries for morbidly obese patients. A retrospective study comparing laparoscopic cholecystectomy to open cholecystectomy in morbidly obese patients demonstrated significant reduction in morbidity and mortality in high-risk diabetic patients.²¹

In summary, there is strong evidence that the laparoscopic approach for the treatment of obesity has several potential benefits for severely obese patients, supporting the effort to develop and improve those techniques.

LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (LRYGB)

The laparoscopic Roux-en-Y gastric bypass was initially described by Wittgrove et al⁸ and follows the conventional open technique. Creation of a gastric pouch (15 to 20 mL) completely isolated from the distal stomach; a retrogastric and transmesocolic or antegastric and antecolic Roux-en-Y limb (75 to 250 cm); gastrojejunostomy (1.2 cm); and jejunojejunostomy. There are several possibilities for the gastrojejunostomy, such as the use of a circular stapler (EEA, Autosuture, Norwalk, CT, USA), the use of a linear stapler (Endo

GIA 2, Autosuture, Norwalk, CT, USA) or it can be hand-sewn.

The studies focusing laparoscopic gastric bypass,²²⁻²⁴ in contrast of the ones analyzing vertical gastropasty or adjustable gastric banding,²⁵⁻²⁷ generally include patients with high body mass index (BMI), even over 70 kg/m².

Operative time is usually from 1 to 4 hours, increasing with the BMI and decreasing with the experience of the surgical team. The conversion rate in experienced hands is around 5%.

Morbidity (early and late) and mortality following this procedure are acceptable, considering the number and severity of diseases associated with this group of patients. Fistulas, especially of the gastrojejunostomy, which initially seemed to be frequent, tend to decrease with a higher number of cases. The length of hospital stay is usually from 40 hours to 3 days.

Around 65% to 85% of excess body weight loss is achieved with follow-up of 24 months, and cure or significant improvement of weight-associated diseases is often accomplished.

A striking difference from the open technique is that incisional and cardiopulmonary complications are seldom mentioned.

Our approach at the Center for the Surgical Treatment of Morbid Obesity-Hospital São Camilo, involves the creation of a gastric pouch of 15 to 20 mL, jejunojejunostomy with a linear stapler (Endo GIA II, Autosuture, Norwalk, CT, USA), variable Roux-en-Y limb, and antecolic gastrojejunostomy also with a linear stapler device. Routine intraoperative endoscopic test of the gastrojejunostomy is performed with moderate insufflation of the gastric pouch. If a leak is detected, immediate closure is mandatory. All of our patients are drained with a Jackson-Pratt drain.

Our series include 316 patients from August 1999 to September 2001. Most of our patients were females (67%), with a mean BMI of 45 kg/m² (35 to 67), and a mean of two comorbidities. Our mean operative time is 65 minutes, ranging from 45 minutes to 8 hours (first cases). Initially, we performed a retrogastric and retrocolic approach (120 cases), but because of two intestinal obstructions due to slippage of the jejunal limb through the mesocolon, we now prefer an antecolic Roux-en-Y limb (196 cases).

Two cases had to be converted to open procedures: one due to equipment malfunction (camera) and the other because of multiple adhesions (prior abdominal surgeries). In our series, we have four fistulas from the gastrojejunostomy. All were treated clinically, not requiring reoperation. This is the main reason why we drain all patients. There were five early gastrojejunostomy stenoses (5th week). Three of them occurred in association with the circular stapler device (18 cases). We now prefer the linear stapler (298 cases). The stenoses were treated successfully with endoscopic dilatation, with one minor perforation, managed clinically. All of the pa-

tients reported severe discomfort and pain during the endoscopy.

It is important to say that we have not observed any major wound-related complications. The mean length of hospital stay is 40 hours.

In two cases, we had the opportunity to perform a hand-assisted surgery (Handport, Smith&Nephew, Andover, MA, USA), with good results. We have also laparoscopically removed 27 adjustable gastric bands, with 9 conversions to LRYGB. And we must say the procedure requires time, patience and experience.

Our follow-up shows mean loss of excess body weight of 44% in the first 6 months, 76.6% after 12 months, and 82.4% after 18 months.

For BMI over 55 kg/m², usually we prefer the long limb gastric bypass. We consider unnecessary the placement of a ring around the gastric pouch, as described by Fobi, since there are no studies reporting greater weight loss. In the contrast, there are several reports of complications related to the Silastic or the Polypropylene ring.

TECHNIQUE OF LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS (LRYGB).

The patient is placed in supine, with the surgeon standing on the right and the assistant on the left.

We use a 30 degree scope and start with the creation of the Roux limb. We consider of utmost importance the division of the mesentery (with stapler or ultrasonic dissection) which will make possible the creation of a tension-free gastrojejunostomy. As mentioned earlier, the length of the Roux limb is related to the BMI. For patients with BMI from 50 to 55, we perform 100 cm biliopancreatic limbs, increasing the malabsorptive component of this operation with a longer alimentary limb.

After the jejunojejunostomy, the gastric pouch is created with blue loaded staplers. We have used, as part of a prospective study, transoperative endoscopy to measure the size of the gastric pouch.

TRANSMESOCOLIC APPROACH

A window is created in the transverse mesocolon, anterior and lateral to the ligament of Treitz, identifying the posterior gastric wall. The Roux-en-Y limb, with a Penrose drain attached (helps in its further identification), is positioned retrocolic and retrogastric.

ANTECOLIC APPROACH

Recently, we have been using the antecolic approach for the Roux limb, with a shorter operative time and avoiding the possibility of an internal hernia, through the mesocolon defect. If necessary, the greater omentum may be divided for the creation of a tension-free gastrojejunostomy.

GASTROJEJUNOSTOMY

The linear stapler is inserted through enterotomies into the pouch and the jejunum to create an end-to-side anastomosis. The remaining enterostomy is closed using another linear stapler or a running suture. The gastrojejunostomy is endoscopically tested for leakage. A drain is placed posterior to the anastomosis.

CONCLUSIONS

Early results of laparoscopic Roux-en-Y gastric bypass have shown that is a feasible operation, with excess weight loss similar to the open procedure, and associated with the advantages of laparoscopy.

The potential benefit of laparoscopy to reduce the morbidity of this procedure may exceed that of laparoscopic cholecystectomy and laparoscopic fundoplication over their open counterparts.

It is, however a technically challenging operation requiring a steep learning curve, and, therefore complications may occur in the early stages. It is so far a promising surgery and it is becoming the preferred option for the surgical treatment of obesity.

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