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Original Article

Three-port Laparoscopic Sleeve Gastrectomy: Feasibility and Short Outcomes in 25 Consecutives Super-obese Patients☆

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ABSTRACT

Introduction: The aim of this paper is to propose our technique, namely three-port laparoscopic sleeve gastrectomy (TPLSG), to define the feasibility and expose the short-outcomes, as an alternative between the standard laparoscopic approach and the single incision (SILSG) for such patients.

Material and methods: We conducted a prospective study of 25 patients: 12 male and 13 female, reporting a mean BMI of 53 kg/m^2 (range: 50–72) and a mean age of 38 years (range: 29–55). To evaluate the feasibility of our technique we have always been respecting 3 preoperatives conditions: BMI≥50 kg/m^2; preoperative abdominal US or CT to measure the liver and determine the hepato-splenic characteristics; and ''intent to treat by 3 ports'' (2 of 5 mm and one 12 mm in diameter). The short outcomes follow-up include: operative time, conversion, transfusions, fistula, reinterventions and parietal herniation at one and three months after surgery.

Results: Hepatomegaly was present in 19 (76%) patients, and it is greater on the left hepatic lobe in 9 (36%) patients. The mean operation time was 72 min (range: 50–110). No perioperative complications were observed. Conversion to four ports procedure was necessary in one patient. The mean hospital stay was 3 days (range: 2–5). No mortality and 30th POD morbidity rate were reported. No patient developed an incisional hernia to date.

Conclusion: The TPLSG reduces the ports in number and in size and subsequently the parietal trauma; it also an instrumental triangulation, making surgery safe and reproducible.

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Gastrectomía vertical laparoscópica a través de 3 puertos: viabilidad y resultados a corto plazo en en una serie de 25 pacientes con hiperobesidad

Palabras clave:
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Trauma parietal
Criterios de valoración

RESUMEN

Introducción: El objetivo de este trabajo es presentar nuestra técnica de gastrectomía vertical laparoscópica a través de 3 puertos (GVLTP) como alternativa a la técnica laparoscópica convencional, por un lado, y a la de incisión única por otro; también describimos su viabilidad y presentamos los resultados a corto plazo.

Material y métodos: Se realizó un estudio prospectivo con 25 pacientes: 12 hombres y 13 mujeres, con un IMC medio de 53 kg/m^2 (intervalo: 50–72) y una edad media de 38 años (intervalo: 29–55). Para evaluar la viabilidad de nuestra técnica, hemos respetado siempre 3 condiciones preoperatorias: IMC $\geq$ 50 kg/m^2. Tomografía computarizada o ecografía abdominal para medir el hígado y determinar las características hepatoesplénicas. «Intención de tratar» con 3 puertos (2 de 5 mm y uno de 12 mm de diámetro). Los criterios de valoración del seguimiento a corto plazo incluyen: tiempo perioperatorio, cambio a otra técnica, transfusiones, fístulas, reintervenciones y hernia parietal al mes o a los 3 meses después de la cirugía.

Resultados: Existía hepatomegalia en 19 (76%) pacientes, y en 9 (36%) era mayor en el lóbulo hepático izquierdo. El tiempo medio de intervención fue de 72 min (intervalo: 50–110). No se observaron complicaciones perioperatorias. En un paciente fue necesario cambiar a un procedimiento de 4 puertos. La estancia hospitalaria media fue de 3 días (intervalo: 2–5). La tasa de morbimortalidad a los 30 días de la operación fue cero. Ningún paciente ha desarrollado hernia incisional hasta la fecha.

Conclusión: La GVLTP reduce el número y tamaño de puertos y, posteriormente, el trauma parietal; además, como utiliza la triangulación instrumental, la cirugía es segura y reproducible.

Introduction

The first laparoscopic sleeve gastrectomy (LSG) was done in 1999 by Gagner. Initially, it was used as a restrictive component of a more complex intervention. It later became an independent procedure when it was demonstrated that it could reduce morbidity and mortality in cases of super morbid obesity (defined by a body mass index [BMI] ranging between 50 and 60 kg/m^2) when compared with other procedures, such as biliopancreatic diversion with duodenal switch (BPD-DS) and Roux-en-Y gastric bypass (RYGB).[1–3]

Lately, LSG is being used more frequently as a definitive procedure for the treatment of morbid obesity, and acceptable short-term results have been achieved.[4,5]

The current accepted indications for LSG include: primary weight loss procedure in super obese patients who often present hepatomegaly, initial stage of two-staged approach for weight loss (RYGB or BPD-DS in 2 stages) and patients with BMI$\geq$40 kg/m^2, in addition to a serious medical condition or other important comorbidities.[6–10] LSG could be useful in cases of adolescents with morbid obesity, in patients who present distorted anatomy (multiple abdominal adherences, *situs inversus*), a history of inflammatory bowel disease or intestinal lymphoma.[11–14]

LSG reduces the volume of the stomach and the production of ghrelin. This mechanism seems to explain the physiopathology of LSG in terms of weight loss and the sensation of hunger.[15–19]

An extensive multicenter meta-analysis recently established that the morbidity and effectiveness of LSG is between that of the laparoscopic adjustable gastric band (LAGB) and the RYGB.[5]

The rate of conversion to open surgery which has been reported in extensive reviews is less than 0.9%. The 30-day postoperative morbidity (POM 30) and the 30-day rate of reintervention are 5% and 3%, respectively. The short-term surgical complications are mainly due to leaks and hemorrhages (2.2% and 6%, respectively). Stenosis (4%) and delayed gastric emptying are the most frequent late complications. The POM 30 and 1-year mortality rate associated with LSG are 0.1% and 0.2%, respectively.[5,20,21]

The standard approach in LSG requires between 4 and 7 trocars.[9,13,22] Recently, single-incision laparoscopic sleeve gastrectomy (SILSG) has been used successfully, with positive postoperative results and fewer wound complications.[8,9,23–27]

The objective of this paper is to present the new three-port laparoscopic sleeve gastrectomy (TPLSG) (12-5-5) technique as a feasible, reproducible, effective and economic alternative to the standard laparoscopic approach on one hand, and SILSG on the other, taking into consideration the short-term favorable results obtained in the ongoing prospective study with 25 super obese patients with hepatomegaly.

In order to evaluate the viability of our technique, we have respected one preoperative condition: ''intention to treat with 3 ports: two 5 mm and one 12 mm in diameter''.