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VIDEO SUBMISSION

Minimal Invasive Internal Liver Retractor in Conventional and Trans-umbilical Single-Incision Laparoscopic Sleeve Gastrectomy: Video Report

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Abstract
Background Sleeve gastrectomy (SG) is a safe and efficient procedure with comparable results between conventional and single-incision approach in selected patients. However, the critical point in both approaches is the retraction of the hypertrophic and fatty left lobe of the liver which increases technical difficulties and limit the exposure of the hiatus. Traditional liver retractors require an additional sub-xiphoid incision for insertion and cause post-operative pain as well as iatrogenic liver injuries. Various techniques have been described to allow adequate liver retraction through smaller incisions or fewer ports without compromising patient safety. However, some disadvantages of these methods are the need for incision of the liver ligament or diaphragmatic crura puncture rendering the device difficult to reposition.
Materials and Methods Two morbidly obese patients underwent a SG by conventional laparoscopy and by trans-umbilical single-incision using a novel minimal invasive internal liver retractor: the Versa Lifter Band®.
Results This soft and flexible internal retractor was fully repositionable and adjustable intraoperatively. The time required to complete the liver retraction was 4 min 12 s in conventional surgery and 5 min 23 s in single-incision approach. Liver retraction was always satisfying resulting in limited intra-operative difficulties without the need of additional retractors/ports or conversion in both patients. No adverse outcomes occurred during the intra and post-operative periods without rise in aspartate aminotransferase and alanine-aminotransferase serum levels.
Conclusion In our preliminary experience, this internal liver retractor was easy to handle and provided an effective and safe retraction with good exposure of the surgical field and improved ergonomy in single incision as well as reduced port laparoscopic SG.

Keywords Liver retractor · Bariatric · Single port · Trans-umbilical · Sleeve

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Introduction

Laparoscopic sleeve gastrectomy (SG) is a safe and efficient bariatric procedure [1] with comparable results between conventional and single-incision approach in selected patients [2]. However, the critical point in both approaches is the retraction of the hypertrophic and fatty left lobe of the liver which

increases technical difficulties and limit the exposure of the hiatus. Traditional liver retractors are effective but require an additional sub-xiphoid incision for insertion and cause post-operative pain [3] as well as iatrogenic liver injuries [4]. Various techniques have been described to allow adequate liver retraction through smaller incisions or fewer ports without compromising patient safety. However, some disadvantages of these methods are the need for incision of the liver ligament or diaphragmatic crura puncture rendering the device difficult to reposition [3, 5–9].

Materials and Methods

In this multimedia video, we present the cases of two morbidly obese patients operated of a SG by conventional laparoscopy (body mass index (BMI) 53 kg/m^2) and by trans-umbilical single-incision (BMI 54.2 kg/m^2) using a novel minimal invasive internal liver retractor: the Versa Lifter Band®.

Results

This soft and flexible internal retractor was fully repositionable and adjustable intraoperatively. The time required to complete the liver retraction was 4 min 12 s in conventional surgery and 5 min 23 s in single-incision approach. Liver retraction was always satisfying resulting in limited intra-operative difficulties without the need of additional retractors/ports or conversion in both patients. The procedures last 52 and 62 min, respectively, without intra-complication related to the device. No adverse outcomes occurred during the post-operative period without rise in aspartate aminotransferase and alanine-aminotransferase serum levels.

Conclusion

In our preliminary experience, this internal liver retractor was easy to handle and provided an effective and safe retraction with good exposure of the surgical field and improved ergonomy in single incision as well as reduced port laparoscopic SG.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

Grant Information None

Statement of Informed Consent and Compliance to Ethics Standards Informed consent was obtained from all individual participants included in the study. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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