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Robotic sleeve gastrectomy: initial experience and two-year outcomes

María de los Ángeles Mayo Ossorio[1]*, Ander Bengoechea Trujillo[1], Mercedes Fornell Ariza[1], José Manuel Pacheco García[2]

[1] *Unidad de Cirugía Bariátrica y Metabólica, Hospital Universitario Puerta del Mar, Cádiz, España*

[2] *Hospital Universitario Puerta del Mar, Cádiz, España*

E-mail: mayo.ossorio@hupm.es

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Abstract

Sleeve gastrectomy is currently the most commonly performed surgical technique for the treatment of morbid obesity. The introduction of the robotic approach has generated interest for its potential advantages, although its adoption remains under debate. This study reports the results of the first 24 patients who underwent robotic sleeve gastrectomy (RSG) at our center, with two-year follow-up. Operative times, hospital stay, complications, weight loss, postoperative pain, and quality of life were evaluated. Findings show no major complications, an average hospital stay of 48 hours, an excess weight loss of 75.5% at one year and 89% at two years, and a significant improvement in quality of life as measured by the BAROS scale. We conclude that robotic sleeve gastrectomy is a safe and effective technique, with outcomes comparable to laparoscopy and potential to consolidate as a preferred option in bariatric surgery.

Keywords:

- Robotic sleeve gastrectomy
- Bariatric surgery
- Weight loss
- Long-term outcomes
- Surgical safety

Introduction

Sleeve gastrectomy (SG) is the most widely used surgical technique for the treatment of obesity worldwide. In recent years, robotic surgery has emerged as an alternative that aims to enhance surgeon ergonomics, technical precision, and field stability (1–4). Despite initial doubts, accumulated experience suggests that robotic SG may deliver results comparable or even superior to laparoscopy in terms of safety, pain control, and the learning curve (1–5,6).

Materials and methods

A retrospective descriptive study was conducted on the first 24 patients who underwent robotic sleeve gastrectomy between June 2022 and June 2023 at Hospital Universitario Puerta del Mar (Cádiz, Spain). Demographic data, type of procedure, operative time, hospital stay, intra- and postoperative complications, percentage of excess weight loss (%EWL) at the first and second year, postoperative pain, and quality of life using the BAROS scale were collected. All procedures were performed using the Da Vinci Xi platform.

Results

Of the 51 patients who underwent robotic bariatric surgery during the study period, 24 underwent SG (17 women and 7 men) (Figure 1). The mean age was 43 years and the average BMI was 48 kg/m^2. Mean operative time, recorded using the My Intuitive application, was 75 minutes (range 35–90) (Figure 2).

Figure 1: Robotic surgical technique 2022-2023

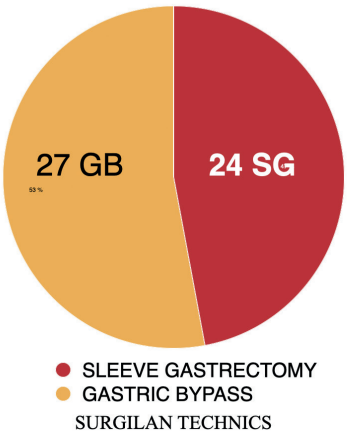
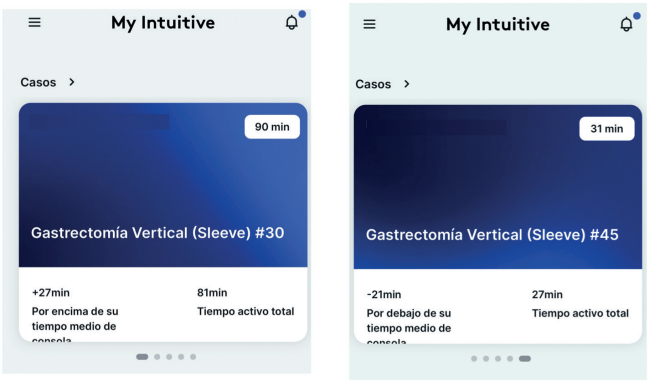
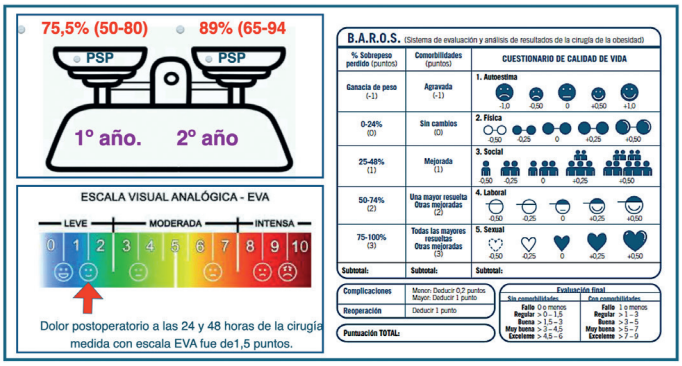


Figure 2: Operating time taken from the "My Intuitive" application



Hospital stay averaged 48 hours, and no intraoperative or postoperative complications were reported. %EWL was 75.5% at one year and 89% at two years. Postoperative pain, measured by the Visual Analog Scale (VAS), was 1.5 points at 24–48 hours. Eighty-eight percent of patients achieved a BAROS score greater than 6 at two years (Figure 3).

Figure 3: Results of PSP, pain on the VAS scale and degree of satisfaction with the BAROS scale



Discussion

Our results confirm that robotic sleeve gastrectomy is a feasible, safe, and reproducible technique, with outcomes comparable to laparoscopy regarding complications and operative times. The absence of complications in our series, together with the high rates of excess weight loss and improvement in quality of life, reinforces its effectiveness. Although the learning curve is a factor to consider, operative times stabilized rapidly. Recent studies support the notion that robotics may improve surgeon ergonomics (6) and reduce the risk of adverse events (6–11). However, multicenter studies with longer follow-up are needed to consolidate these findings.

Conclusions

The initial experience with robotic sleeve gastrectomy at our center demonstrates that it is a safe, reproducible, and effective technique, with positive outcomes in weight loss and quality of life. Its progressive adoption may consolidate it as a solid alternative to laparoscopy in bariatric surgery.

Conflict of interest statement

The authors declare no conflicts of interest related to this work.

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