

Clinical Science

Patients' perceptions of laparoendoscopic single-site surgery: the cosmetic effect

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Abstract

BACKGROUND: Laparoendoscopic single-site (LESS) surgery can be performed without apparent scarring, while maintaining the salutary benefits of conventional laparoscopic surgery. The purpose of this study was to compare patients' preoperative and postoperative perceptions of LESS surgery.

METHODS: Before and after undergoing LESS surgery, 120 patients were given questionnaires; their responses were assimilated and analyzed.

RESULTS: Of 120 patients, 62% were female (age, 52 ± 16.6 y), and 54% had prior abdominal surgery. Preoperatively, women and older patients reported heightened appearance dissatisfaction. Preoperatively, most patients would not accept more risk, pain, surgery/recovery times, and/or costs than associated with standard laparoscopy. Postoperatively, patients reported increased satisfaction in their overall and abdominal region appearance. Satisfaction was noted by 92%; satisfaction was related significantly to scar appearance and cosmesis.

CONCLUSIONS: Preoperatively, patients were most concerned with safety; postoperatively, patients' concerns shifted to cosmetic outcome. LESS surgery provides an opportunity for improved patient satisfaction.

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Minimally invasive surgery is evolving from traditional multi-incision laparoscopy to laparoendoscopic single-site (LESS) laparoscopy and natural orifice transluminal endoscopic surgery (NOTES). This continuum of surgical evolution has followed patients' hopes for better cosmesis, while maintaining efficacy and safety. Through randomized prospective trials, minimally invasive techniques have been linked to numerous advantages for patients.^{1,2} For example, laparoscopic cholecystectomy imparts less postoperative

pain, shorter hospital stay, and quicker return to work relative to conventional open cholecystectomy.² During the late 1980s laparoscopic surgeries became widely adopted across the United States, spanning several disciplines including general surgery, urology, obstetrics and gynecology, and thoracic surgery. An appreciation for this historical account provides surgeons with a secure foundation as they embark on a new era of laparoscopic surgery. As well, this historical description recounts the sometimes increased morbidity associated with the advent of laparoscopy.

New technology has allowed us to broaden the field of conventional laparoscopic surgery. Recognizing the success of standard laparoscopy over conventional open surgeries, newer less-invasive techniques have been conceived and

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implemented in an attempt to provide patients with superior outcomes. These techniques largely include surgeries undertaken through a single umbilical incision (LESS surgery) or through a natural orifice (NOTES).^{3–13}

The purpose of this study was to determine patients' preoperative perceptions of LESS surgery and to compare how these perceptions changed after undergoing LESS surgery. We hypothesized that patients would approach upcoming surgeries with trepidation and seek safety (ie, low risk) while postoperatively, having survived the surgical experience, they would be more tolerant of costs, morbidity, and prolonged recovery time in achieving superior cosmesis.

Methods

Participants

In this study the participants were 120 patients scheduled to undergo LESS surgeries at a large university-affiliated hospital in the southeastern United States. The patients underwent either a LESS cholecystectomy, a LESS Heller myotomy with anterior fundoplication, a LESS hiatal/paraesophageal hernia repair and fundoplication (Nissen or Toupet), a LESS inguinal hernia repair, or a LESS distal pancreatectomy and splenectomy. Before and after their LESS surgeries, all patients were given validated questionnaires to complete with unbiased guidance and Institutional Review Board approval.

Measures

Body image. Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation Subscale (MBSRQ-AE).^{14–16} The MBSRQ-AE is a widely used measure of overall appearance satisfaction and evaluation. The 7-item scale consists of questions such as “My body is sexually appealing” and “I dislike my physique.” Participants were asked to match their agreement with these statements on a Likert scale from 1 (definitely disagree) to 5 (definitely agree) (Table 1). A high score on the appearance evaluation subscale indicates greater appearance satisfaction. In a sample of more than 2,000 males and females, the appearance evaluation has an internal consistency of .88 and a test-retest reliability of .81.¹⁵ The MBSRQ-AE was given both preoperatively and postoperatively.

Visual analog scales (VAS) were used to measure the level of participant body image dissatisfaction both preoperatively and postoperatively. The specific scales used in this study measured overall appearance dissatisfaction and dissatisfaction with the appearance of the abdomen. The postoperative survey also included a cosmesis scale assessing scar satisfaction. Participants were asked to mark their level of dissatisfaction on a 100-mm line, with the left-most point indicating “no dissatisfaction with the appearance of my abdomen” or “no overall appearance dissatisfaction,”

and the right-most point indicating “extreme dissatisfaction with the appearance of my abdomen” or “extreme overall appearance dissatisfaction” (Table 1). The distance from the left-most point on the line measured in millimeters indicates the level of dissatisfaction.¹⁷ Concurrent validity has been established, and the VAS scales have been used widely because assessments can be repeated within a short time period without participants remembering their previous responses.¹⁷

LESS surgery perception. Specific questions to assess patients' perceptions of LESS surgery were created for the purposes of this study. Patients were queried preoperatively about their perception of LESS surgery by using a combination of associated risk and reward scenarios and by ranking the importance of postoperative outcomes (eg, less pain, improved appearance of scar, quicker return to full activity, and less pain medication) (Table 1).

Postoperative cosmesis and recovery. Questions assessing cosmesis and patients' recovery experience were compiled for the purposes of this study to evaluate postoperative adjustment and scar satisfaction after LESS surgery (Table 2). Questions from the Body Image Scale¹⁸ and the Body Image Questionnaire¹⁹ were selected and an assessment of scar cosmesis was obtained (Table 2). The psychometrics of both the Body Image Scale and the Body Image Questionnaire have been established in patient populations.

Procedure research design and analyses

Patients undergoing LESS surgery were approached preoperatively and postoperatively and asked to complete the study questionnaires. They were informed of the optional nature of participation and, as necessary, they were given unbiased guidance. Data subsequently were entered into the statistical program SPSS 17.0 (IBM Corporation, Armonk, NY). Frequency data were evaluated and a series of exploratory Pearson correlations were computed to determine if significant relationships exist between demographic variables (eg, age, sex, BMI), body image, and indicators of LESS surgery perception (eg, risk, cost, and so forth). Paired samples *t* tests were used to examine a preoperative to postoperative change in body image. An α level of .05 was used for all statistical tests.

Results

Sample demographic data and body image perception

A total of 120 men and women underwent LESS surgery and completed questionnaires before and after their surgeries. The patients did well; there were no deaths and no major morbidities. Their mean age was 52 years (standard devia-

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