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# Laparoscopic management of benign adnexal mass in obese women

**Desmond Thomas, MD, Marcos Ikeda, MD, Krishnaprasad Deepika, MD, Carlos Medina, MD, and Peter Takacs, MD, PhD,**

*From the Departments of Obstetrics and Gynecology (all authors), and Anesthesiology (Dr. Deepika), Miller School of Medicine, University of Miami.*

**KEY WORDS:**
Diclofenac;
Postoperative pain;
Laparoscopic surgery;
Transdermal patch

**Abstract**

**STUDY OBJECTIVE:** To compare complications and rate of conversion to laparotomy between normal-weight, preobese, and obese women who underwent laparoscopic management of benign adnexal mass.

**DESIGN:** Retrospective chart review (Canadian Task Force classification II-3).

**SETTING:** Tertiary care teaching hospital.

**PATIENTS:** One hundred seventy women who underwent laparoscopic surgery because of benign adnexal mass were placed in three groups on the basis of their body mass index (BMI) using the World Health Organization's classification (normal-weight [BMI 18.5–24.9 kg/m$^2$], preobese [BMI 25–29.9 kg/m$^2$], and obese [BMI $\geq$ 30 kg/m$^2$]).

**INTERVENTION:** Retrospective comparison of conversions from laparoscopy to laparotomy, operative time, estimated blood loss, complications, history of pelvic inflammatory disease, endometriosis, and length of hospital stay was carried out among the different groups.

**MEASUREMENTS AND MAIN RESULTS:** Overall, 170 laparoscopic cases were evaluated (64 with normal-weight, 67 preobese, and 39 obese women). The rate of conversion to laparotomy was significantly higher in the obese and preobese groups compared with the normal-weight women (17.9%, 17.9% vs 1.5%, $p < .01$). Obese women were 13 times more likely to undergo conversion than normal-weight women (OR 13.78; 95% CI 1.76–29.1). In addition, obese women had significantly longer surgeries (143 $\pm$ 87 minutes vs 114 $\pm$ 41 minutes [$p = .04$]) and longer hospital stay (1.07 $\pm$ 1.83 days vs 0.51 $\pm$ 1.06 days [$p = .04$]) when compared with normal-weight women. There was no significant difference in history of pelvic inflammatory disease, endometriosis, and adhesions at the time of laparoscopy between obese, preobese, and normal-weight women. The rate of complications was similar among the groups.

**CONCLUSION:** Obese and preobese women undergoing laparoscopic management of benign adnexal mass were found to be at an increased risk for conversion to laparotomy, longer surgery and longer hospital stay. Obese and preobese women should be counseled extensively on morbidity associated with laparoscopy.



The prevalence of obesity in Western world has doubled over the past decade, with 25% of all females in the United States now classified as obese.[1,2] Approximately 40 million U.S. citizens are obese, and of these, half are women.[3] Therefore, as physicians in a surgical subspecialty, we are routinely challenged in caring for obese patients.

Over the past two decades, we have seen laparoscopy become the mode of choice to perform surgical procedures traditionally done with laparotomy. More and more patients are

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Corresponding author: Peter Takacs, MD, PhD, University of Miami School of Medicine, Department of Obstetrics and Gynecology (D-50), Jackson Memorial Hospital, P.O. Box 016960, Miami, FL 33010.

E-mail: ptakacs@med.miami.edu

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asking for these minimally invasive surgical techniques, which at times can be technically challenging. Laparoscopy has become an accepted approach in the management of adnexal masses.[4–6] Obesity has been previously considered by some to be a relative contraindication to laparoscopy.[7,8] However, recently some studies have shown the safety of laparoscopy in obese women.[9–11] In addition, obese women may benefit from laparoscopic surgery because laparoscopic management results in less pain, earlier ambulation, and a shorter hospital stay.[12]

Our knowledge of risks associated with operative laparoscopy among obese women is limited. Therefore, with the increased use and wider application of laparoscopy in gynecology, we must be better informed and ready to counsel obese women on the correct procedures and the risk and benefits involved. To our knowledge, no study in the literature thus far has specifically addressed the safety and efficacy of laparoscopy in the management of benign adnexal mass in obese and preobese women. Our aim was to compare complications and rate of conversion to laparotomy between normal-weight, preobese, and obese women who underwent laparoscopic management of benign adnexal mass.

## Materials and methods

A retrospective chart review was performed on women who underwent laparoscopic management of a benign adnexal mass at the University of Miami, Miller School of Medicine, Jackson Memorial Hospital, from June 2002 through May 2004. Cases were identified with current procedural terminology codes logged in the operating room database. Patients were divided into three groups on the basis of their body mass index (BMI = weight in kilograms divided by height in meters squared). World Health Organization classification of obesity was used to stratify patients into weight groups (normal-weight [BMI 18.5–24.9 kg/m$^2$], preobese [BMI 25–29.9 kg/m$^2$], and obese [BMI $\geq$ 30 kg/m$^2$]).[2] Multiple factors were addressed among these groups: age, BMI, gravidity, parity, ultrasound findings, history of previous abdominal surgery, history of pelvic inflammatory disease (PID), history of endometriosis, cancer antigent (CA) 125 level, operative procedure, conversion to laparotomy, type of surgery (oophorectomy, cystectomy), intraoperative and postoperative complications, estimated blood loss (estimated by the anesthesia staff with input from the surgical staff), operative time, length of hospital stay, and pathologic study. Operative time was defined as the interval from incision to placement of the dressing. Postoperative complications were defined as any adverse events occurring as a result of the procedure, also any unplanned admission, readmission, operative take back, and postoperative infection. Length of hospital stay was calculated from the time of admission after operation to the time of disposition. All surgeries were supervised by experienced gynecologic surgeons and performed by residents or the attending physician, assisting each other.

Statistical techniques included independent sample *t* tests for the comparison of means of variables with normal or approximately normal distributions; Mann-Whitney tests for variables with skewed distribution. Fischer's exact test was used to examine the association between BMI and the rate of conversion to laparotomy. Results with corresponding p values $<.05$ were considered statistically significant.

## Results

We have evaluated 170 women: 64 normal-weights, 67 preobese and 39 obese (Tables 1 and 2). There were no significant differences among the groups with respect to age, parity, size of the adnexal mass, ultrasound characteristics, and CA 125 level. In addition, there was no significant difference in history of previous abdominal surgery, PID, endometriosis and severity of adhesions at the time of laparoscopy between obese, preobese and normal-weight groups. The type of procedures (removal of adnexal structures, cystectomy) was similar among the groups.

However, the rate of conversion to laparotomy was significantly higher in the obese and preobese group compared with the normal-weight group (17.9%, 17.9%, vs 1.5%, $p < .01$). Obese patients were 13 times more likely to undergo conversion than normal-weight patients (OR 13.78; 95% CI 1.76–29.1). In addition, obese patients had significantly longer surgeries [143 $\pm$ 87 minutes vs 114 $\pm$ 41 minutes ($p = .04$) and longer hospital stay [1.07 $\pm$ 1.83 days vs 0.51 $\pm$ 1.06 days ($p = .04$)] when compared with normal-weight patients. However, no statistical difference was noted when the same comparisons were made between normal-weight and preobese patients. Although there was a trend for higher estimated blood loss in obese and preobese women compared with normal-weight women, the difference did not reach statistical significance.

The most frequent reason for conversion was severe pelvic adhesions (13 of 20), followed by bleeding (4 cases) and difficulty with visualization caused by the large size of the mass (3 cases). There were no anesthesia-related conversions. Intraoperative complications were rare. Two uterine perforations with the uterine manipulator occurred in the normal-weight group. In the preobese group, one ureteral injury and one laceration of the ovarian artery occurred. In the obese group no intraoperative complications were noted. Postoperative complications were not significantly different among the groups. One patient in the normal-weight, two in the preobese, and three in the obese group were evaluated in the emergency department for abdominal pain after the surgery, but none of them were readmitted. One patient had a seroma, one had development of pyelonephritis, and one had development of chemical peritonitis caused by the spillages of a teratoma.

## Discussions

The prevalence of obesity in Western countries has doubled over the past decade, with 25% of females now classified as obese in the United States.[1,2]