



Gynecologic laparoscopy in patients aged 65 or more: feasibility and safety in the presence of increased comorbidity



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ABSTRACT

Objectives: To evaluate the feasibility, operative outcome and postoperative complications of laparoscopic gynaecologic surgery in patients aged 65 or more, with increased comorbidity and obesity. **Study design:** The medical records of patients aged 65 or more with uterine or ovarian disease admitted to minimally invasive gynecologic surgery units from January 2009 to December 2011 were retrospectively analyzed in an observational cohort study. Surgical outcomes of the laparoscopic cohort ($n = 65$) were compared with the outcomes of those who had laparotomy ($n = 67$) at general gynecologic surgery units, and evaluated with respect to indication for surgery, medical comorbidity and obesity. Laparoscopic surgery was attempted in women who accepted minimally invasive management and who had no absolute contraindications to laparoscopy. Surgical inclusion criteria were benign and malignant uterine and adnexal pathologies; benign uterine pathologies when uterine size was less than 18 weeks' gestation or myoma smaller than 10 cm; malignancies in apparent early-stage disease. There was no attempt to use laparoscopy for tumor debulking and cytoreductive surgery. Exclusion criteria were patients with emergency operations or a concomitant urogynecologic procedure. Data were analyzed using Student's t -test, the Mann-Whitney U test, χ^2 testing and the Fisher exact test.

Results: Patients undergoing laparoscopy had a significantly shorter hospital stay ($p < 0.001$), less intraoperative bleeding ($p < 0.001$), less postoperative hemoglobin decline ($p < 0.001$), less need for blood transfusions ($p = 0.007$) and a generally lower incidence of complications compared to women who had laparotomy, regardless of medical comorbidity. Obese patients who had laparoscopy had significantly less intraoperative bleeding and a smaller postoperative hemoglobin drop; no adjunctive complication was observed. In patients over 70 (80 cases) the laparoscopic group (39 cases) maintained significantly less intraoperative bleeding ($p < 0.001$) and a smaller hemoglobin drop ($p < 0.001$) with respect to laparotomy, with few postoperative complications.

Conclusions: According to the results of the study, laparoscopic surgery appears feasible and safe in elderly patients, regardless of medical comorbidity and obesity.

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1. Introduction

The latest National Institute of Statistics (ISTAT) census, carried out in Italy in 2011, estimated that 20.3% of the country's population was over 65 [1]. A growing number of elderly women require surgical consultation and intervention. Some randomized controlled trials and prospective and retrospective studies have demonstrated the advantages of laparoscopy over open surgery in

elderly people in terms of intraoperative bleeding, post-operative complications, pain and hospitalization [2,3], but in gynecology, available data are limited. A previous study confirmed these findings in women who underwent open and laparoscopic adnexectomy, with a significantly shorter postoperative stay in the second group [4]. Ghezzi et al. [5] also reported better outcomes in terms of hospital stay, need for blood transfusion and postoperative complications in women aged 70 or more undergoing laparoscopy for gynaecologic diseases.

Since laparoscopy has become the gold standard for the treatment of many gynaecologic conditions, the purpose of this observational study was to evaluate the operative outcome and postoperative complications in a cohort of women aged 65 or more undergoing laparoscopy and to compare the feasibility and surgical

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outcome of laparoscopic and laparotomic gynaecologic surgery in elderly women, and those with increased comorbidity. There is little documented evidence detailing morbidity after laparoscopic hysterectomy in patients with increased medical comorbidity, obesity and previous abdominal surgery, and no detailed literature about the laparoscopic approach in these elderly women [6–14]. Although the definition of ‘elderly’ is somewhat arbitrary, the present manuscript will focus on patients aged 65 or more because most developed world countries have accepted this chronological age as a definition of ‘older person’.

2. Material and methods

The medical records of patients aged 65 or more with uterine or ovarian disease admitted to minimally invasive gynecologic surgery units at the Polytechnic University of Marche, Ancona, and the University of Padova from January 2009 to December 2011 were retrospectively analyzed in an observational multi-institutional cohort study (II-2 Canadian Task Force Classification of Study Design). The study was approved by the institutional review board (RE: IRB-03-2012 Polytechnic University of Marche, Ancona, Italy).

Laparoscopic surgery was attempted in most women who had no absolute contraindications to laparoscopy, and who accepted minimally invasive management.

Specifically, surgical inclusion criteria were benign and malignant uterine and adnexal pathologies (uterine fibroids, endometrial or cervical cancer, adnexal masses); benign uterine pathologies when the uterine size was less than 18 weeks of gestation or myoma smaller than 10 cm; malignancies in apparent early-stage disease, defined as organ-confined cancer with no evidence of gross metastatic disease based on the preoperative imaging studies or on laparoscopic inspection. There was no attempt to use laparoscopy for tumor debulking and cytoreductive surgery. No patient was refused laparoscopic surgery for reasons of tumor size, obesity, previous surgical history, or foreseen difficulty of resection. Contraindications for laparoscopy were the following: anesthetic contraindication to pneumoperitoneum, limited vaginal access or/and a bulky uterus where vaginal removal might require morcellation, and the presence of gross adenopathies at magnetic resonance imaging (MRI).

Patients with emergency operations or a concomitant urogynecologic procedure such as urethral suspension, vaginal repair, or sacrocolpopexy were excluded because these types of procedures have differing intraoperative and postoperative considerations.

Women with documented severe cardiopulmonary disease were refused a laparoscopic approach only after consultation with a senior member of the anesthesiology team. Cardiopulmonary disease was defined as a history of cardiac failure, myocardial infarction, unstable angina, or pulmonary obstructive disease poorly controlled or contraindicating prolonged placement in the Trendelenburg position.

The laparoscopic cohort was compared with subjects who did not routinely undergo laparoscopy at general gynecologic surgery units at the same medical centers (laparotomic group), who were recruited consecutively, during the same period, and with the same inclusion criteria for surgical indications, procedures and age.

Both types of surgery (laparoscopy and laparotomy) were performed by senior gynecologist surgeons. Each surgeon belongs to a specific unit which electively performs only “open” or “minimally invasive” surgery. Laparoscopic procedures were performed by a senior gynecologist surgeon and a fellow with an extensive background in laparoscopy. Similarly, laparotomy procedures were performed by a senior gynecologist and a fellow belonging to the gynecological laparotomy team.

All women were counseled about the strategy before undergoing surgery and gave their approval. Written informed consent for use of personal data was obtained from each woman.

Preoperative variables specifically included American Society of Anesthesiologists physical status classification system (ASA score), body mass index (BMI), diabetes, hypertension, dyslipidemia and/or cardiovascular diseases, thyroid diseases, history of malignancy, previous pregnancies, menopausal age and abdominal surgical history. A detailed description of the surgical laparoscopic and laparotomic techniques used in the treatment of the various diseases has been presented elsewhere [15–17]. Operative time, intraoperative bleeding, postoperative hemoglobin and hematocrit decline, preoperative and postoperative leukocyte difference, and time of discharge were evaluated. Operative complications were defined as bowel, bladder, ureteral or vascular injuries, and included laparotomy conversion. Operative time was defined as the interval from incision to the placement of the dressing. Intraoperative bleeding was recovered in graduated containers that were checked at the end of surgery.

Postoperative outcome included readmission to the hospital and reoperation for a condition related to the prior surgical procedure. Postoperative complications were defined as any adverse events resulting from the procedure and occurring within 30 days from surgery. Anemia was defined as hemoglobin levels lower than 7.5 g/dl. Fever was defined as body temperature $\geq 38^\circ\text{C}$ on two consecutive measurements at least six hours apart, excluding the first day after surgery. The duration of hospital stay was defined as the period going from the time of admission to the time of discharge.

2.1. Statistical analysis

Data were analyzed using Student’s *t*-test, the Mann–Whitney *U* test, χ^2 testing and the Fisher exact test. Continuous parametric variables were expressed as mean (\pm standard deviation), and nonparametric variables were expressed as median and range. A *p* value < 0.05 was considered statistically significant.

3. Results

The main demographic and clinical characteristics of the study population are shown in Table 1. The mean age was 70.2 years (range: 65–87 years), and increased medical comorbidity and obesity were observed in 71.2% and 21.2% of patients, without significant differences between the laparoscopic cohort and the laparotomic group.

Surgical outcomes, also according to indications to surgery, are shown in Table 2. Similar operative time was observed in both groups. Patients undergoing laparoscopy had a significantly shorter hospital stay, a significantly lower intraoperative bleeding, a smaller postoperative hemoglobin drop, less need for blood transfusion and a generally lower incidence of complications, compared to women who had laparotomy.

Complications among patients undergoing laparoscopic surgery included vaginal cuff dehiscence ($n = 1$), palpitations in the absence of increased cardiac enzymes or electrocardiogram (ECG) pathological signs ($n = 1$), and pelvic pain, specifically at the site of insertion of the left trocar in the absence of hematoma ($n = 1$); no conversion to laparotomy was made.

Complications observed among the laparotomic group were postoperative and included wound infection with dehiscence ($n = 2$), vaginal cuff dehiscence ($n = 2$), subcutaneous hematoma ($n = 5$), deep venous thrombosis ($n = 1$) and hemoperitoneum ($n = 1$), which required re-laparotomy. In patients over 70 (80 cases), the laparoscopic group (39 cases), maintained significantly less intraoperative bleeding (28.7 ± 49.2 vs 253.1 ± 133.4 ml;

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