



Impact of age on surgical staging and approaches (laparotomy, laparoscopy and robotic surgery) in endometrial cancer management

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Abstract

Objective: This study aims to evaluate the different surgical approaches, perioperative morbidity and surgical staging according to age in patients with endometrial cancer.

Methods: Multicentre retrospective study. Cancer characteristics and perioperative data were collected for patients surgically treated for endometrial cancer. The patients were divided into 2 groups according to their age: younger or older than 75 years.

Results: Surgery was performed on 270 women <75 years old and on 74 ≥ 75 years old. Minimally invasive surgery was performed less often in the elderly compared with their younger counterparts (58.2% vs. 74.8%; $p = 0.006$). Independently of the surgical approach, the rate of pelvic and para-aortic lymphadenectomy was lower in women older than 75 years old than their younger counterparts (52.7% vs. 74.8%; $p < 0.001$; 8.1% vs. 21.8%; $p = 0.007$ respectively). According to the guidelines, more frequent surgical understaging was seen in the elderly compared with the younger (37% vs. 15.2%; $p = 0.002$). In the comparison of complications for each surgical approach, there was no statistical difference in the ≥75-year-old age group in terms of intra- or postoperative complications between the laparotomy, laparoscopy or robotic surgery group. We found a shorter length of hospital stay for the women who underwent laparoscopy or robotic surgery compared with laparotomy ($p < 0.0001$).

Conclusion: Elderly women with endometrial cancer are often surgically understaged whereas there is no evidence of greater perioperative complications than for their younger counterparts. They should benefit from minimally invasive surgery and optimal surgical staging to the same extent as younger women.

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Keywords: Endometrial cancer; Surgical approach; Elderly; Surgical staging

Introduction

Endometrial cancer is the fourth leading cancer among women in Western countries with 54,870 new cases per

year responsible for 10,170 annual deaths in the United States of America (USA) and 7200 new cases per year in France, making it the fifth leading cause of death from cancer in women. It occurs mostly after the menopause with an average age at diagnosis of 68 years. With the ageing population, an increased incidence of endometrial cancer is observed.¹ Interestingly, the National Institute of Ageing predicts that there will be more than 150 million people

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over 65 in 2050, corresponding to 16% of the overall population with a strong trend towards an increasing percentage of female in the USA.² Surgical management of endometrial cancer is therefore set to increase in the coming years. The International Federation of Gynaecology and Obstetrics (FIGO),³ the European Society of Gynaecological Oncology (ESGO) and the European Society of Medical Oncology (ESMO)⁴ support surgical staging for patients with endometrial cancer, particularly those with high-risk types for which they recommend a surgical lymphadenectomy. Laparotomy is the traditional surgical approach but minimally invasive techniques have played an increasing role in this indication and we now know that laparoscopic surgical staging of endometrial cancer is entirely feasible for a well-trained surgeon.⁵ However, few data are available in the elderly population especially as they are under-represented in clinical trials.⁶ This lack of participation has hampered the development of standardised treatment guidelines for the elderly based on the best available evidence. Surgeons and anaesthesiologists are often reluctant to perform minimally invasive surgery (laparoscopy or robotic surgery) on the elderly because of the effects of Trendelenburg positioning and hypercapnia due to pneumoperitoneum in a population with severe cardiopulmonary and respiratory comorbidities.

The aim of this study was to evaluate the different surgical approaches, perioperative complications and surgical staging according to age in patients with endometrial cancer.

Materials and methods

Patients

A retrospective data collection was carried out on patients with endometrial carcinoma surgically treated by laparotomy, laparoscopy and robot-assisted laparoscopy in two tertiary centres (Rennes teaching hospital and Institut Paoli Calmettes in Marseille, France) between January 2006 and December 2014. Patients were divided into 2 cohorts: 1) women <75 years old, 2) women \geq 75 years old.

The endpoints were surgical staging compliance with French National guidelines⁷ and perioperative outcomes, including complications and length of postoperative hospital stay.

Data collection

Demographic and clinical data including age, body mass index (BMI), previous abdominal or pelvic surgery, American Society of Anaesthesiologists (ASA) score and comorbidities were collected. We also recorded the tumour histological subtype, grade and stage based on the 2009 International Federation of Gynaecology and Obstetrics (FIGO) classification (for patients treated from 2009 onwards).³ Operative data including surgical approach, operative time (from first skin incision to skin closure),

estimated blood loss (difference between pre- and postoperative haemoglobin levels) and operative procedure (lymphadenectomy, omentectomy) were collected. Other procedures corresponded to surgical procedures that were necessary but unrelated to surgical management of the endometrial cancer such as colectomy, appendectomy, splenectomy, cholecystectomy or adhesiolysis. We also recorded the length of hospital stay and peri- and postoperative complications according to the Clavien–Dindo classification.⁸ We defined minor complications as grade I and II complications from this classification and major complications as grade III or IV. A congruent surgical staging system was defined according to the French National Cancer Institute guidelines based on FIGO stage and histological subtype. When patients did not undergo the recommended surgery (no lymphadenectomy or omentectomy performed) they were considered as “understaged”. If they underwent more surgical procedures than recommended they were considered as “overstaged”.

Surgical technique

Open surgery, laparoscopic and robotic procedures were performed by five primary surgeons (E.L., G.H., F.F., J.L. and V.L.). All patients received per-operative prophylactic antibiotics and post-operative prophylactic thromboprophylaxis in the form of subcutaneous heparin 5000 UI.

The combination of FIGO 2009 stage, type and grade enabled stratification of the tumours into recurrence risk groups as determined by the definition of the European Society for Medical Oncology (ESMO).^{9,10} Low risk was defined as stage IA, grade 1 or 2, histological type 1; intermediate risk consisted of stage IA, grade 3 and stage IB grade 1 or 2, histological type 1; high risk encompassed stage IB, grade 3 and by extension stage \geq II histological type 1, all type 2 tumours irrespective of stage and also all those with lymphovascular emboli irrespective of type or stage (consistent with the policy of the French gynaecologic oncology tumour board). All patients underwent a total hysterectomy and bilateral salpingo-oophorectomy. Intermediate-risk patients also underwent bilateral pelvic lymphadenectomy (iliac and obturator nodes). High-risk patients underwent bilateral pelvic lymphadenectomy (iliac and obturator nodes), a para-aortic lymphadenectomy up to the left renal vessels and infracolic omentectomy.

Statistical analysis

Descriptive parameters were expressed as a mean (\pm standard deviation [SD]) (and median [range] when indicated). We compared the demographic and medical characteristics of patients in the open surgery cohort, laparoscopic cohort and robotic surgery cohort using Chi-square or Fisher's exact tests, as appropriate, for categorical or ordinal variables, and unpaired *t*-test analysis for continuous variables. Only *p* values < 0.05 were considered as

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