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**Paradigm shift in Endometrial Cancer Surgery****Rama Joshi**

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**Abstracts**

Endometrial cancer (EC) is the 6th most common cancer affecting women globally. The incidence of the disease continues to increase steadily, by approximately 1–2% per year<sup>1</sup>. GLOBOCAN 2020 India showed annual incidence of 16,413, annual death of 6385 and a 5-year prevalence of 43,484 per 100,000<sup>2</sup>. The main prognostic factors for endometrial cancer are the patient's age, histological subtype, grade, depth of myometrial invasion and the stage of the tumour. The overall 5-year survival rate is approximately 80%; however, it varies among the different histological types, stages, and grades of endometrial cancer. The 5-year survival rate in high grade types of histology is 46% compared to 93% in low grade endometrioid carcinomas<sup>3</sup>.

It is primarily treated with extrafascial hysterectomy, bilateral salpingo-oophorectomy and surgical staging. Laparoscopy has become the standard surgical approach for patients with early-stage uterine carcinoma due to the results of studies such as LAP2, which demonstrated that there was no negative effect of the MIS (minimally invasive surgery) approach on oncologic outcomes<sup>4</sup>. Another randomized trial (Laparoscopic Approach to Cancer of the Endometrium, LACE) showed no difference in overall and recurrence-free survival between the two surgical approaches<sup>5</sup>. Both studies established the superiority of the MIS approach regarding perioperative outcomes.

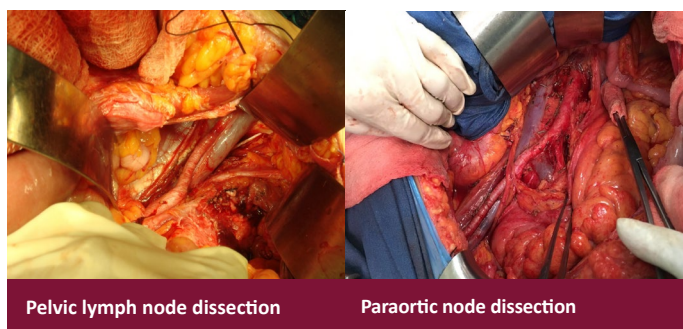
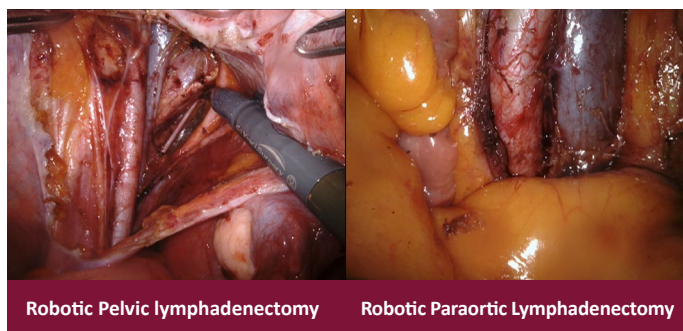
Since the completion of the LAP2 study, the proportion of endometrial cancers treated via minimally invasive surgical approaches (MIS) has risen steadily, with current levels approaching 90% at high volume centres, spurred in part by the increasing use of robot-assisted minimally invasive surgery (RA-MIS). In January 1999, the da Vinci robotic surgery system was developed, and it received initial clearance from US-FDA in 2005 for gynaecological surgeries. Robotics technology has improved laparoscopic surgical performance, technical abilities, and surgeon adoption. For example, the surgeon has superior 3-D vision, magnification, wristed instrument motion, and decreased camera motion with robotic technology.

Laparoscopic hysterectomy with pelvic and para-aortic lymph node dissection remains difficult and remains challenging in obese patients. The largest impact of robotic surgery is in the treatment of woman with endometrial cancer and obesity. Approximately 40% of women diagnosed with endometrial cancer are classified as obese with a large number of those being classified as extreme obesity. Obesity significantly increases the rate of conversion to open laparotomy when utilizing minimally invasive techniques. In GOG LAP2, the conversion rate of laparoscopic approach to laparotomy was 26% with a statistical significant increase rate of conversion for each unit of BMI. In older patients (age >63) the conversion rate approached 50% in patients with a BMI >40<sup>4</sup>. The published reports consistently show a decrease in the conversion rate of robotic approach versus traditional laparoscopic approach. The Mayo Arizona group showed a reduction in the conversion rate to 3% for robotics from 11% for laparoscopy. The lower conversion rate of robotic approach for minimally invasive technique is likely one of the reasons for the significant usage of this surgical modality in patients with endometrial cancer<sup>6</sup>.

Recent advances in robotic technology with the Da Vinci xi robotic fluorescence imaging system (Intuitive Surgical, Sunnyvale, CA) may be ultimately utilized for sentinel lymph node detection in these patients. The incidence of pelvic lymph node metastases in

patients with corpus-confined endometrial cancer who undergo lymphadenectomy varies between 5% and 18%<sup>7</sup>. Approximately 20% of patients with high risk endometrial cancer have lymph node metastases (LNMs)<sup>8</sup>. Lymph nodal status in surgical staging of uterus confined disease correlates with prognosis as well as directs adjuvant treatment based on stage of disease. Available evidence of systematic lymphadenectomy has not shown survival advantage in patients with uterus confined endometrial carcinoma. Phase III studies have compared the oncologic outcome of sentinel lymph node mapping (SLNM) - only Vs. lymphadenectomy (LAD) suggesting SLNM does not compromise survival outcome<sup>7</sup>.

### Lymphadenectomy in endometrial cancer



Multiple randomized trials have shown the accuracy of sentinel lymph node mapping in low as well as high risk groups of endometrial cancer like SENTI-ENDO<sup>9</sup>, FIRES<sup>10</sup>, SHREC<sup>11</sup> and the most recent SENTOR<sup>12</sup> trial.

Robotic surgery appears to decrease the learning curve as compared to traditional laparoscopic technique. Separate reports indicate that proficiency is achieved after 20–24 cases in the robotic approach for the treatment of endometrial cancer. This is compared to nearly 50 cases for the traditional laparoscopic technique. Surgical proficiency is achieved faster in the robotic minimally invasive approach as compared to laparoscopic and likely a significant reason that the robotic platform has been so widely accepted and utilized<sup>13</sup>.

The advantage of minimally invasive approach over traditional laparotomy has been well described in the treatment of uterine cancer. However, the wide adaptation of minimally invasive techniques at most institutions has been limited due the challenges of traditional laparoscopic technique. The robotic

platform has significantly impacted the number of patients treated with minimally invasive techniques. While there are many advantages of the robotic approach it continues to be an expensive modality when compared to traditional laparoscopy. Robotic surgery will continue to be a mainstay in the treatment of woman with uterine cancers as we identify ways to be more efficient and cost conscious while maintaining the high quality outcomes that have been reported.

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