



TITLE- “Comparative Analysis of FIGO 2009 vs. 2023 staging, post-RALH for Endometrial Carcinoma”

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Background

The use of AI and robotic surgery in healthcare has increased exponentially over the last decade, particularly in India. The growing adoption of robotics in gynecological surgery is mainly due to seven degrees of robotic arm movements, 3D vision, a shorter learning curve, and the most precise surgery. This study compares the 2009 vs. 2023 International Federation of Gynecology and Obstetrics (FIGO) staging of endometrial Carcinoma (EC) and the five-year survival rate following robotic surgery [1].

Objective

To evaluate the clinical implications of the 2023 FIGO staging revision on surgical staging, histopathological classification, and survival outcomes in patients undergoing robotic-assisted laparoscopic hysterectomy (**RALH**) for endometrial carcinoma.

Material and Methods

This single-institution retrospective study included all robot-assisted laparoscopic surgeries for endometrial cancer conducted in the Department of Obstetrics and Gynaecology at the Postgraduate institute of medical education and research PGIMER, Chandigarh , India, between August 2015 and August 2023.

Data was collected retrospectively regarding demographic profiles (age and BMI) and histopathology reports to compare old vs. new FIGO staging for endometrial Carcinoma (EC). Disease recurrence, the subsequent need for chemotherapy and radiation therapy, and five-year survival data were collected. All the histopathological reports were analyzed for types of cancer, size of the tumor, myometrial invasion, grades of disease, lymphovascular space invasion (LVSI), and lymph node metastasis status. Clinical data were summarized using descriptive statistics, means $\pm$ standard deviations (SD), and percentages. Moreover, a comparison was made between the 2009 and 2023 FIGO staging of endometrial cancer.

Results

During the study period, a total of 117 cases of endometrial cancer patients, operated on by robot-assisted minimally invasive surgery (RA- MIS), were analyzed. The age of the patients ranged from 40 to 80 years, with a median age of 59.2. The BMI ranged from 21.6 to 44.9, with a median BMI of 33.8. According to the histopathological analysis, Type 1 Endometrial Cancer (EC) was found in 88.89% of cases and the remaining 11.11% were Type II EC. Myometrial invasion <50% was 62.96%, and >50% was 37.04%. As for the grade of disease, 42.06% of the cases were Grade I EC, 44.86% were Grade II, and only 12.15% were Grade III. LVSI was seen in 20.37% of the cases and was absent in 79.63%. Regarding lymph node tumor metastasis, 13.64% of pelvic lymph nodes were reportedly involved. As for patients' radiotherapy (RT) and chemotherapy (CT) status, 67.59% did not receive any CT or RT, 15.74% received RT, 0.93% received CT, and 15.74% received both RT and CT. Regarding FIGO staging of EC, IA stage cases were maximum, i.e., 56.48 % as per FIGO 2009 staging, and IA2 stage cases were maximum, i.e., 49.10% as per FIGO 2023 staging. As per FIGO 2009 staging, only 3.70 % of the cases were stage II, but as per FIGO 2023 staging, IIA and IIC combined to 8.34 % of the cases. Application of the FIGO 2023 criteria resulted in stage migration in 12 cases (11.1%), primarily due to the introduction of Stage IIC, accounting for 5.6% of cases. Downstaging occurred in 0.9% of the cohort. In this analysis the major and minor complications were two thermal ureteric injury , two primary port site infection, one port site hernia and one ICU admission. The overall five-year survival was 65.9%.

Discussion

The 2009 FIGO staging came about as an improvement to the 1988 FIGO staging as the survival prognostic value of the 2009 FIGO staging system was found to be more effective than the 1988 FIGO staging system for cases with early-stage endometrioid type endometrial cancer [2]. Furthermore, lymph node metastasis is one of the most important prognostic factors, and stratification into pelvic lymph node invasion (stage IIIC1) and para-aortic lymph node invasion (stage IIIC2) improved the predictive value of the 2009 FIGO classification [3]. Regardless, many advances in the understanding of the pathologic and molecular features of endometrial cancer have occurred since the FIGO staging was last updated in 2009. Substantially more outcome and biological behavior data regarding the several histological types are now available. The updated 2023 staging of endometrial cancer includes the various histological types, tumor patterns, and molecular classification to reflect better the improved understanding of the complex nature of the several types of endometrial Carcinoma and their underlying biological behavior [4]. In our study application of the FIGO 2023 criteria resulted in stage migration in 12 cases (11.1%), primarily due to the introduction of Stage IIC, accounting for 5.6% of cases. Down staging was 0.9% of the cohort. Another study by Vuppu et al. most stage shifts among stage I cases; based on aggressive histology, 33.8% ($n = 65/192$) of cases in stage IA and IB upstaged to stage IIC (2023) but no difference in stage wise 3 years survival rate [5]. Major complication rate was ~5.1%, consistent with published robotic surgery literature.

Conclusion

This study has shown that robotic surgery is safe not only for early-stage endometrial cancer patients but also for frail patients due to advanced age, high BMI, and concomitant diseases. The analysis of the current study showed endometrial cancer Stage II disease was upgraded more than two times as per FIGO2023 compared to FIGO 2009 staging. So, to conclude, the FIGO 2023 staging revision, incorporating molecular and histopathological factors, led to significant stage migration, particularly identifying patients with aggressive tumor features. This reclassification has substantial implications for surgical planning and adjuvant therapy decisions especially in guiding adjuvant therapy for patients reclassified into higher-risk groups based on molecular or histologic features.

References

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