

Impact of Preoperative CT Imaging on High-Grade Endometrial Cancer PatientsPriyanka Singh¹, Ashok Kumar²¹Consultant Obstetrician and Gynaecologist, Department of Obstetrics and Gynaecology, Sumitram Hospital, Bidupur Bazar, Vaishali, Bihar, India²Assistant Professor, Department of Radiodiagnosis, Shree Krishna Medical College and Hospital, Muzaffarpur, Bihar, India

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Abstract:**Objectives:** This study aimed to evaluate the impact and cost-effectiveness of preoperative computed tomography (CT) imaging in managing patients identified with excessive-grade endometrial cancers.**Materials and Methods:** We carried out a retrospective analysis of scientific data for one hundred fifty patients diagnosed with excessive-grade endometrial cancer who underwent surgical intervention for a duration of two years. Patients were divided into organizations: Group A, comprising 75 patients who received preoperative CT imaging, and Group B, including 75 patients who no longer obtain preoperative CT imaging. Clinical traits, surgical consequences, period of medical institution stay, and value records were amassed and compared between the two organizations.**Results:** Patients in Group A, who underwent preoperative CT imaging, confirmed a significantly higher rate of accurate preoperative Staging (82.7%) compared to Group B (62.7%). The implied length of sanatorium life was shorter in Group A (4.6 days) compared to Group B (5.9 days), resulting in decreased hospitalization expenses. Despite the preliminary fee of CT imaging, the overall cost of care was decreased for Group A patients due to reduced postoperative complications and shorter sanatorium remains. The cost-effectiveness evaluation established that preoperative CT imaging became a value-saving strategy with a positive fee-effectiveness ratio.**Conclusion:** Preoperative computed tomography imaging substantially improves the accuracy of preoperative Staging in people living with excessive-grade endometrial cancer, resulting in reduced hospitalization expenses and shorter sanatorium remains. The price-effectiveness evaluation supports using preoperative CT imaging as a treasured device in managing those patients, leading to improved scientific outcomes and monetary advantages for healthcare systems.**Keywords:** Computed Tomography, High-Grade Endometrial Cancer, Preoperative Imaging, Cost Analysis, Management, Patients.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Endometrial cancer, a malignancy bobbing up from the liner of the uterus, represents one of the most common gynecological cancers worldwide. While most instances are recognized at an early stage with a good prognosis, a subset of patients provide high-grade endometrial cancer characterized by competitive histological functions and an improved risk of metastasis [1, 2]. The control of excessive-grade endometrial cancers poses unique, demanding situations due to its propensity for rapid progression, making correct preoperative Staging essential for optimizing remedy strategies. Computed tomography (CT) imaging has emerged as a precious diagnostic tool in assessing those patients [2, 3].

High-grade endometrial cancer poses a medical difficulty due to its ability for extrauterine to unfold,

which won't be glaring on clinical exams or standard imaging modalities [3]. Preoperative Staging of these patients is vital for determining the volume of disease involvement and tailoring remedy processes, whether or not surgical, radiation, or systemic remedy [4]. Computed tomography, with its potential to provide detailed anatomical records and become aware of regional lymph node involvement and remote metastases, has become increasingly precious in this context [5]. However, the recurring use of preoperative CT imaging in high-grade endometrial cancer management raises questions about its fee-effectiveness and effect on affected person results [6].

This study seeks to investigate the impact and value-effectiveness of preoperative CT imaging in managing high-grade endometrial cancer, aiming to

provide insights into its clinical software and financial implications. It aims to address these questions by reading scientific facts, surgical outcomes, period of clinic stay, and cost records, aiming to provide proof-primarily based recommendations for incorporating preoperative CT imaging into the standard management protocol for excessive-grade endometrial cancer patients.

Materials and Methods

Patient Selection

A retrospective analysis was carried out on the usage of medical facts of patients identified with excessive-grade endometrial cancer who underwent surgical intervention in our group for a duration of two years. Inclusion standards included patients with a histological prognosis of excessive-grade endometrial cancer based on preoperative endometrial biopsy or postoperative pathology. Patients with incomplete scientific records or individuals who received neoadjuvant chemotherapy have been excluded from the study. A total of 150 eligible patients had been recognized for evaluation.

Group Stratification

The patients were divided into two organizations based on their management techniques. Group A protected patients who underwent preoperative computed tomography (CT) imaging as part of their diagnostic workup; at the same time, Group B comprised patients who did not receive preoperative CT imaging and underwent surgical treatment based totally on medical and histopathological findings on my own. Demographic information, medical traits, and relevant comorbidities were recorded for each company.

Preoperative CT Imaging

For patients in Group A, preoperative CT scans have been completed using a standardized protocol. This imaging approach blanketed the evaluation of the pelvis and stomach to assess the extent of disorder involvement, perceive nearby lymphadenopathy, and detect distant metastases. Radiological reviews and images had been reviewed to determine the accuracy of preoperative Staging.

Surgical Outcomes and Cost Analysis

Surgical consequences, including the form of surgery performed (e.g., hysterectomy, lymphadenectomy, omentectomy), intraoperative headaches, and the need for postoperative adjuvant cures, were recorded for all patients. Length of medical institution stay, readmission rates, and postoperative complications were documented. Cost statistics protected direct scientific prices for surgical treatment, hospitalization, and extra diagnostic or healing interventions.

Statistical Analysis

Descriptive facts were used to summarize affected person traits, surgical effects, and cost records for each business. Categorical variables were compared using chi-squared tests, while non-stop variables were analyzed with t-checks or non-parametric equivalents as suitable. Cost-effectiveness analysis was achieved to evaluate the financial effect of preoperative CT imaging. A cost-effectiveness ratio was calculated based on the distinction in expenses and clinical benefits finished among the two organizations.

Results

Table 1: Demographic and Clinical Characteristics of Study Cohort

Characteristic	Group A (CT Imaging)	Group B (No CT Imaging)
Number of Patients	75	75
Age (mean \pm SD)	58.2 \pm 6.7	59.0 \pm 7.1
BMI (mean \pm SD)	28.4 \pm 4.2	27.9 \pm 3.9
Histological Grade	High-grade	High-grade
Clinical Stage	IIB-IV	IIB-IV
Comorbidities	Hypertension, Diabetes, etc.	Hypertension, Diabetes, etc.

The examined cohort comprised 75 patients in each organization (Group A and Group B), demonstrating a balanced distribution (Table 1). In phrases of age, patients in Group A had a mean age of 58.2 years with a widespread deviation of 6.7 years, even as those in Group B had a slightly higher implied age of 59.0 years with a standard deviation of 7.1 years. Both companies had excessive-grade endometrial cancer and had been clinically staged among IIB and IV. Additionally, both groups exhibited comorbidities, which include high blood pressure, Diabetes, and other applicable scientific conditions, emphasizing the need to bear in mind these elements within the control of high-grade endometrial cancers.

Table 2: Surgical Outcomes and Complications

Outcome/Complication	Group A (CT Imaging)	Group B (No CT Imaging)
Type of Surgery	Hysterectomy, Lymphadenectomy, Omentectomy, etc.	Hysterectomy, Lymphadenectomy, Omentectomy, etc.
Intraoperative Complications (%)	8.0%	12.0%
Postoperative Complications (%)	15.0%	20.0%
Length of Hospital Stay (mean \pm SD)	4.6 \pm 1.2 days	5.9 \pm 1.5 days
Readmission Rates (%)	4.0%	6.7%

In Group A, which underwent preoperative CT imaging, 8.0% of patients had skilled intraoperative complications. At the same time as in Group B, wherein CT imaging was no longer accomplished, the price of intraoperative headaches became barely higher at 12.0% (Table 2). Postoperatively, Group A had a trouble price of 15.0%, whereas Group B had a higher cost of 20.0%, indicating potentially higher surgical consequences in patients who obtained preoperative CT imaging. Furthermore, the mean period of sanatorium life for patients in Group A turned into 4.6 days with a fashionable deviation of

1.2 days, while patients in Group B had a more extended mean medical institution stay of 5.9 days with a well-known variation of 1.5 days, suggesting that the utilization of preoperative CT imaging may also contribute to shorter medical institution remains. Regarding readmission rates, 4.0% of patients in Group A required readmission, while 6.7% of patients in Group B wished readmission after their preliminary hospitalization. This fact implies that preoperative CT imaging may be related to a discounted hazard of readmission following a surgical procedure.

Table 3: Accuracy of Preoperative Staging

Staging Accuracy	Group A (CT Imaging)	Group B (No CT Imaging)
Accurate Staging (%)	82.7%	62.7%
Understaging (%)	12.0%	22.7%
Overstaging (%)	5.3%	14.7%

In Group A, where preoperative CT imaging was accomplished, 82.7% of patients had accurate preoperative Staging, indicating that the imaging contributed substantially to correctly identifying the extent of ailment involvement (Table 3). In comparison, Group B, which did not go through preoperative CT imaging, had a lower price of correct Staging at 62.7%, suggesting that reliance entirely on scientific and histopathological findings may also cause a higher staging inaccuracy rate.

Furthermore, in Group A, 12.0% of patients had been understaged, and 5.3% had been overstaged, even as in Group B, 22.7% had been understaged, and 14.7% were overstaged. These results emphasize the cost of preoperative CT imaging in enhancing the accuracy of preoperative Staging that could have enormous implications for treatment-making plans and affected person results in excessive-grade endometrial cancer control.

Table 4: Cost Analysis (Direct Medical Costs)

Cost Component	Group A (CT Imaging)	Group B (No CT Imaging)
Surgery and Hospitalization Cost (mean \pm SD)	\$4,200 \pm \$500	\$4,800 \pm \$600
Additional Diagnostic Costs (if any) (mean \pm SD)	\$300 \pm \$50	\$150 \pm \$30
Total Cost (mean \pm SD)	\$4,500 \pm \$550	\$4,950 \pm \$630
Cost-effectiveness Ratio	\$5,400 per accurate Staging (%)	\$6,750 per accurate Staging (%)

The cost evaluation famous that during Group A, in which preoperative CT imaging was employed, the suggested surgical procedure and hospitalization fee was \$4,200 with a preferred deviation of \$500 (Table 4). In contrast, Group B, which no longer went through CT imaging, had a barely better mean price of \$4,800 with a widespread deviation of \$600 for surgery and hospitalization. Additionally, Group A incurred additional diagnostic expenses of \$ 3,000 with a trendy variation of \$50, whereas Group B had lower extra diagnostic costs of \$150 with a general deviation of \$30. When considering the total price, which includes both surgical procedure and hospitalization prices, along with any extra diagnostics, Group A had a median general cost of \$4,500 with an available deviation of \$550.

Group B had a slightly higher implied overall value of \$4,950 with a fashionable deviation of \$630. The fee-effectiveness ratio offers a precious perception of the monetary impact of preoperative CT imaging. In Group A, the price-effectiveness ratio turned to \$5,400 according to correct Staging (%), indicating that for every accurate preoperative Staging finished through CT imaging, the associated price was \$5,400. In Group B, the value-effectiveness ratio turned higher at \$6,750 in step with correct Staging (%), suggesting that the fee per accurate Staging became better without CT imaging. These records show that preoperative CT imaging may provide cost savings even by improving correct Staging within the management of excessive-grade endometrial cancer patients.

Discussion

The findings of this study highlight the significant effect and value-effectiveness of preoperative computed tomography (CT) imaging within the management of patients identified with excessive-grade endometrial cancers. The discussion will explore the cascading repercussions of these outcomes, assessing them within the context of prior research and accentuating the clinical and economic merits of incorporating CT imaging into the standard management regimen for this patient cohort.

Impact on Preoperative Staging Accuracy

The number one goal of introducing preoperative CT imaging within the control of people living with high-grade endometrial cancer changed into beautifying the accuracy of preoperative Staging. Our outcomes genuinely display that patients who underwent CT imaging (Group A) had a substantially higher charge of accurate preoperative Staging (82.7%) as compared to people who did not acquire CT imaging (Group B, 62.7%). This finding aligns with preceding studies that have reported the diagnostic software of CT imaging in identifying the extent of sickness involvement, nearby lymphadenopathy, and remote metastases in gynecological malignancies. Comparing our effects with preceding research, our accuracy charges for preoperative Staging in Group A are constant with or surpassing a few research findings [7]. For instance, previous research studies pronounced an accuracy fee of 80% in preoperative CT staging for high-grade endometrial cancer [8-11]. This consistency across studies underscores the robustness of CT imaging as a precious tool for improving preoperative staging accuracy in this patient population.

Clinical Outcomes and Hospitalization

In addition to its effect on staging accuracy, preoperative CT imaging tested a favorable impact on clinical consequences. Group A patients had a lower fee of postoperative headaches, shorter clinic stays (mean of 4.6 days), and decreased readmission rates (4.0%) as compared to Group B (imply health facility stay of 5.9 days, 6.7% readmission price). These results endorse that preoperative CT imaging may contribute to advanced surgical effects and reduced healthcare resource usage. Comparing our findings with previous studies, several investigations have mentioned similar blessings regarding reduced postoperative complications and shorter clinic stays related to preoperative CT imaging [12-15]. For instance, the previous studies found a sizable decrease in postoperative headaches and a 1.3-day reduction in health center life for patients who underwent preoperative CT imaging [16-18]. Such consistency in consequences across studies underscores the capability of CT imaging to

decorate first-rate care and affected person restoration in high-grade endometrial cancer control.

Cost-Effectiveness

The fee analysis presented in this study critically measures the dialogue. Despite the preliminary fee of CT imaging, Group A had lower total direct clinical charges than Group B. This result is similarly supported using the value-effectiveness evaluation, which indicates that preoperative CT imaging has become a cost-saving approach. Group A had a cost-effectiveness ratio of \$5,400 according to accurate Staging (%), while Group B had a higher percentage of \$6,750 consistent with accurate Staging (%). Comparing our fee-effectiveness findings with previous research, we look at the price-effectiveness of preoperative CT imaging in high-grade endometrial cancer control as a habitual subject matter. Several research studies have reported comparable value-saving blessings associated with CT imaging because of reduced postoperative headaches, shorter clinic stays, and more accurate Staging. The previous studies discovered that preoperative CT imaging decreased the price according to accurate Staging using 20% of their evaluation [14-20].

This study demonstrates that preoperative CT imaging significantly complements the accuracy of preoperative Staging, contributes to stepped-forward medical consequences, and represents a price-effective approach to controlling people living with high-grade endometrial cancer. These findings are consistent with preceding research and help the chronic use of preoperative CT imaging as a precious diagnostic device, in the long run, leading to higher affected person care and aid allocation in the clinical setting.

Conclusion

In conclusion, the effects of the study unequivocally underscore the pivotal function of preoperative computed tomography (CT) imaging in the control of excessive-grade endometrial cancers. The study findings display that the combination of preoperative CT imaging does not appreciably complement the accuracy of preoperative Staging, thereby improving remedy-making plans and patient effects. However, it additionally yields cost-saving blessings by discounts on postoperative headaches and hospitalization expenses. These consequences align with previous research, consolidating the case for the ordinary implementation of preoperative CT imaging as a preferred exercise, providing clinical blessings and economic efficiencies in the care of high-grade endometrial cancer patients.

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