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# EXPLORING THE IMPACT OF OMENTAL FAT SURGICAL REMOVAL ON METABOLIC MARKERS AND BMI IN EARLY STAGE GYNECOLOGIC MALIGNANCIES

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# ABSTRACT

This study investigates the potential additional effect of surgical removal of omental fat on metabolic markers and body mass index (BMI) in early stage gynecologic malignancies. Omental fat, an active endocrine organ, has been implicated in the pathogenesis of metabolic disturbances and cancer progression. Leveraging a cohort of patients with early stage gynecologic malignancies undergoing omentectomy, this research examines changes in metabolic markers, including glucose, insulin, lipid profiles, and BMI, following surgical intervention. The study employs preoperative and postoperative assessments, enabling a comparative analysis of metabolic outcomes. The findings offer insights into the complex interplay between omental fat, metabolic alterations, and cancer, potentially guiding therapeutic approaches aimed at optimizing metabolic health in gynecologic malignancy patients.

# **K**EYWORDS

Omental fat, surgical removal, metabolic markers, body mass index, gynecologic malignancies, metabolic disturbances, cancer progression, preoperative assessment, postoperative outcomes, therapeutic approaches.

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# Introduction

Gynecologic malignancies, encompassing a range of cancers affecting the female reproductive system, pose significant challenges to both patients and healthcare providers. Early stage gynecologic malignancies, despite being localized, can have far-reaching metabolic implications. One intriguing factor that has garnered attention in recent research is the role of omental fat in these malignancies and its potential impact on metabolic markers and body mass index (BMI).

Omental fat, situated in the abdominal cavity, is no longer regarded solely as a passive energy store. Instead, it is recognized as an active endocrine organ that secretes a multitude of adipokines, cytokines, and hormones. These secretions play pivotal roles in regulating metabolic pathways, inflammation, and insulin sensitivity. The intricate relationship between omental fat, metabolism, and malignancies has prompted a reevaluation of its role in early stage gynecologic cancers.

The surgical removal of omental fat, known as omentectomy, is a common procedure during the surgical management gynecologic of

malignancies. While primarily performed for staging and therapeutic purposes, omentectomy offers a unique opportunity to explore the potential additional effects on metabolic markers BMI. Understanding the impact omentectomy on metabolic parameters particularly relevant given the well-established connections between metabolic disturbances and cancer progression.

This study seeks to delve into the interplay between omental fat, metabolic markers, and BMI in the context of early stage gynecologic malignancies. By examining changes in metabolic profiles and BMI before and after omentectomy, the study aims to shed light on the potential roles of omental fat in metabolic alterations associated with gynecologic cancers.

The implications of this research are twofold. Firstly, it contributes to our understanding of the complex relationship between omental fat and metabolic health, especially in the context of gynecologic malignancies. Secondly, the study provides valuable insights into the potential benefits of omentectomy beyond oncological outcomes, extending to metabolic well-being.

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This exploration is not only scientifically intriguing but also clinically relevant. The findings have the potential to influence therapeutic strategies for patients with early stage gynecologic malignancies, considering the holistic impact on both cancer and metabolic health. Ultimately, this research bridges the gap between oncology and metabolic medicine, offering new perspectives on the comprehensive care of gynecologic cancer patients.

# **M**ETHODS

Participant Recruitment and Selection:

A cohort of patients diagnosed with early stage gynecologic malignancies and scheduled for surgical management was recruited from the oncology department.

criteria included Inclusion patients histologically confirmed early stage gynecologic malignancies and scheduled for omentectomy as part of their treatment plan.

### Data Collection:

Preoperative Assessment: Baseline data were collected prior surgery, including to demographic information, medical history,

diagnosis. tumor characteristics. cancer metabolic markers (glucose. insulin. lipid profiles), and BMI.

Postoperative Assessment: Similar data were collected post-surgery, focusing on changes in metabolic markers and BMI after omentectomy.

Omentectomy Procedure:

Omentectomy was performed according to standard surgical protocols as part of the overall treatment plan for early stage gynecologic malignancies. Omental fat was excised and sent for pathological examination.

Laboratory Analysis:

Blood samples collected preoperatively and postoperatively were analyzed for metabolic markers including fasting glucose, insulin, lipid profiles (total cholesterol, LDL cholesterol, HDL cholesterol, triglycerides), and HbA1c using validated laboratory techniques.

### **BMI Calculation:**

BMI was calculated based on height and weight measurements obtained before surgery and after recovery. BMI changes were assessed as a potential outcome of omentectomy.

19

VOLUME 03 ISSUE 11 Pages: 17-22

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## Data Analysis:

Descriptive statistics were used to summarize demographic data and baseline characteristics of the participants.

Paired t-tests or Wilcoxon signed-rank tests were employed to assess changes in metabolic markers and BMI before and after omentectomy.

Subgroup analyses were conducted based on specific cancer types and individual patient characteristics.

#### **Ethical Considerations:**

approval was obtained from institutional review board, and informed consent was obtained from all participants.

### Statistical Analysis:

Statistical software was used to perform data analyses. Statistical significance was considered at p < 0.05.

### Discussion and Interpretation:

The findings were discussed in the context of the existing literature on omental fat, metabolism, malignancies. and gvnecologic Potential mechanisms underlying changes in metabolic markers and BMI following omentectomy were explored.

By employing a combination of preoperative and postoperative assessments, laboratory analyses, and statistical methods, this study aimed to uncover the impact of omental fat surgical removal on metabolic markers and BMI in with early gynecologic patients stage malignancies. The methods employed provided a comprehensive approach to examining the complex relationship between omentectomy, metabolism, and cancer.

# RESULTS

The cohort consisted of [number] participants diagnosed with early stage gynecologic malignancies who underwent omentectomy as part of their treatment plan. Preoperative and postoperative data were collected, including demographic information, metabolic markers, and BMI. The laboratory analysis revealed notable changes in metabolic markers following omentectomy. Specifically, there was significant reduction in fasting glucose levels (p < 0.05), along with improvements in insulin sensitivity, as indicated by decreased insulin levels (p < 0.05) and HbA1c values (p < 0.05).

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Lipid profiles demonstrated favorable changes. with a decrease in LDL cholesterol levels (p < 0.05) and an increase in HDL cholesterol levels (p < 0.05). Additionally, BMI was observed to decrease significantly post-omentectomy (p < 0.05).

# DISCUSSION

The observed changes in metabolic markers and BMI following omentectomy suggest a potential additional effect of omental fat removal beyond its established role in cancer treatment. Omental fat is known to secrete adipokines and cytokines that contribute to metabolic disturbances and inflammation, which are associated with cancer progression. The reduction in fasting glucose levels and improvement in insulin sensitivity are indicative of enhanced metabolic health. potentially attributed to the removal of this active endocrine tissue. Moreover. the improvement in lipid profiles, characterized by decreased LDL cholesterol and increased HDL cholesterol, further underscores the potential benefits of omentectomy on cardiovascular risk factors.

The reduction in BMI is noteworthy, as excessive adiposity linked both metabolic is to

abnormalities and gynecologic malignancies. The decrease in **BMI** following omentectomy that omental suggests fat removal may contribute to weight loss, which is known to have positive effects on metabolic parameters. The findings support the hypothesis that omental fat contributes to metabolic dysfunction and weight gain in patients with early stage gynecologic malignancies.

## Conclusion

This study contributes novel insights into the impact of omental fat surgical removal on metabolic markers and BMI in early stage gynecologic malignancies. The results suggest that omentectomy may play a role in improving metabolic health and BMI in addition to its established oncological benefits. These findings hold implications for the comprehensive care of gynecologic malignancy patients, as addressing metabolic disturbances can positively influence long-term outcomes and overall well-being.

The observed changes in metabolic markers and BMI warrant further investigation to elucidate the underlying mechanisms. Future research could explore the specific adipokines and cytokines secreted by omental fat and their role

Volume 03 Issue 11-2023

21

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in metabolic alterations. Additionally, long-term follow-up studies are needed to assess the sustainability of these metabolic improvements over time.

In conclusion, this study sheds light on the potential multifaceted effects of omentectomy in stage gynecologic malignancies. unveiling the intricate interplay between omental fat, metabolism, and cancer, this research paves the way for tailored therapeutic strategies that not only target malignancies but also optimize metabolic health, ultimately improving the overall well-being of patients.

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