MedCrave
Step into the World of Research

Obstetrics & Gynecology International Journal

Research Article

Open Access

CrossMark

Obesity and endometrial malignancies: correlation at our institution

Abstract

Introduction: Obesity is a public health problem with high prevalence and constitutes a modifiable risk factor associated with the development of premalignant and malignant endometrial pathology, including both atypical endometrial hyperplasia and endometrial carcinoma.

General objective: To analyze the relationship between body mass index (BMI) and premalignant and malignant endometrial pathology.

Specific objectives: To calculate the prevalence of endometrial pathology in patients with and without obesity, and to compare BMI between patients with and without endometrial pathology.

Materials and methods: A retrospective cross-sectional analytical study analyzing the relationship between BMI and endometrial biopsy results (obtained via endometrial sonohysteroscopy, medical abortion, and linear endometrial biopsy) in patients diagnosed with postmenopausal bleeding (PMB) and abnormal uterine bleeding (AUB) between January 2022 and 2025. Medical records from the gynecology department at Juan A. Fernández Hospital were analyzed.

Inclusion criteria: patients with AUB or PMB and abnormal ultrasound findings who underwent evaluation for endometrial pathology and for whom the pathological anatomy results were available. Exclusion criteria: asymptomatic patients with abnormal ultrasound findings or incomplete medical records. Biopsy results were categorized as "negative" (non-pathological findings) and "positive" for those showing malignant or premalignant pathology (carcinoma or atypical hyperplasia). The prevalence of endometrial pathology was calculated by comparing the biopsy positivity rate between patients with and without obesity; the median BMI was compared between patients with and without pathology. For statistical analysis, the chi-square test was used for the first objective, and the Mann-Whitney U test for the second. Statistical significance was set at $p < 0.05$.

Results: A total of 120 patients were included, with a median age of 54 years (range 26– 81 years), of whom 48% (n=58) had a BMI > 30 and 52% (n=62) had a BMI < 30.

Of these, 50% (n=60) tested positive for endometrial pathology and the other 50% (n=60) tested negative.

The prevalence of endometrial pathology in patients with a BMI > 30 was 67.2% (n = 39), while in patients with a BMI < 30 it was 33.8% (n = 21) (p = 0.000259)

The median BMI in patients with a positive biopsy was 33.15, and in patients with a negative biopsy it was 28.04 (p=0.000228)

Conclusion: Obese patients had a significantly higher prevalence of endometrial pathology compared to non-obese patients. Higher BMI was significantly associated with premalignant and malignant endometrial conditions.

Keywords: obesity, endometrial pathology, endometrial carcinoma, atypical endometrial hyperplasia

Volume 17 Issue 2 - 2026

Pizarro G,[1] Leroux F,[2] Saczuk S,[2] Lopez Della Vecchia D,[3] Zurita D[4]

[1]Jefe de Unidad Ginecología y Mastología Hospital Juan A. Fernández, Buenos Aires, Argentina
[2]Medico de planta Ginecologia. Hospital Juan A. Fernández, Buenos Aires, Argentina
[3]Jefe de Division Ginecologia Hospital Juan A. Fernández, Buenos Aires, Argentina
[4]Jefe de Departamento Quirúrgico Hospital Juan A. Fernández, Buenos Aires, Argentina

Correspondence: Giselle M Pizarro, División Ginecología y Mastología, Jefa de Unidad de Ginecología, Hospital Juan A. Fernández, Ciudad Autónoma de Buenos Aires, Argentina

Received: April 07, 2026 | **Published:** April 22, 2026

Abbreviations: BMI, body mass index; PMB, postmenopausal bleeding; AUB, abnormal uterine bleeding; ENFR, National Survey of Risk Factors; DC, dilation and curettage; MVA, manual vacuum aspiration

Introduction

Endometrial cancer is the most common gynecological malignancy in developed countries and ranks second in incidence in Argentina, after cervical cancer. The incidence is 8 cases per 100,000 women, with a mortality rate of 2 per 100,000 women per year.[1] Although the prognosis is generally favorable when detected in early stages, its incidence is on the rise, causing growing concern in the healthcare sector.[2] This increase has been attributed to factors such as an aging population, changes in lifestyle, and, especially, the sustained rise in obesity.[3]

Obesity is one of the most significant and modifiable risk factors for the development of endometrial cancer. In addition to its role as an energy reserve, adipose tissue acts as an active endocrine organ that influences hormonal metabolism. In overweight women, there is an increase in the peripheral conversion of androgens to estrogens due to the action of aromatase present in adipose tissue, creating an environment of chronic hyperestrogenism without the protective action of progesterone.[4] This continuous hormonal stimulation of the endometrium promotes hyperplastic processes that can progress to malignant transformation.[5]

In Argentina, the prevalence of overweight and obesity has risen steadily in recent decades, affecting all age groups and having the greatest impact on the most vulnerable segments of the population. The prevalence of overweight stood at 36.3%, remaining stable compared to previous editions of the National Survey of Risk Factors (ENFR) from 2013 and 2005. In contrast, obesity showed a prevalence of 25.3%, representing an increase of 21.6% compared to 2013 and 73.3% compared to 2005.[6] This epidemiological context reinforces the need to address obesity not only as a metabolic or cardiovascular risk factor but also as a key determinant in cancer prevention.

Although the endometrioid histological subtype of endometrial cancer is the one most closely linked to obesity, it has recently been discovered that the incidence of more aggressive non-endometrioid subtypes (such as serous, clear cell, and carcinosarcoma) also increases with rising body mass index (BMI). It is estimated that for every five-unit increase in BMI, there is a 50% increase in the risk of developing endometrial cancer.[7]

Objectives

A. General objective: To analyze the relationship between body mass index (BMI) and premalignant and malignant endometrial conditions (atypical endometrial hyperplasia and endometrial carcinoma).

B. Specific objectives:

a) To calculate the prevalence of endometrial pathology in patients with and without obesity.

b) To compare BMI in patients with and without endometrial pathology.

Materials and methods

A retrospective cross-sectional analytical study was conducted analyzing medical records and the database of the Juan A. Fernández General Acute Care Hospital during the period from January 2022 to January 2025. By explicitly adopting a retrospective design, we acknowledge that data were originally collected for clinical purposes. This clarification is intended to improve methodological transparency regarding the nature of data acquisition and its possible inherent limitations.

Inclusion criteria: patients with a diagnosis of abnormal uterine bleeding (AUB) or postmenopausal bleeding (PMB) with abnormal ultrasound findings (endometrial thickness ≥5 mm in postmenopausal women, endometrial polyp, cystic hyperplasia, or others), who underwent endometrial evaluation via hysteroscopy with endometrial biopsy by dilation and curettage (DC), manual vacuum aspiration (MVA), and/or linear endometrial biopsy, and for whom pathological results were available.

Exclusion criteria: Asymptomatic patients, symptomatic patients with normal ultrasound findings, or those with incomplete medical records were excluded.

The study population was characterized by age, weight, height, BMI (>/< 30), presenting symptoms (AUB or PMB), type of biopsy performed (DC, MVA, linear biopsy), and its pathological result (positive or negative).

Biopsy results were categorized as "negative" for those showing non-pathological findings or benign pathology (polyps, cystic atrophy, proliferative endometrium, etc.) and "positive" for those showing malignant or premalignant pathology: endometrial carcinoma or atypical endometrial hyperplasia.

The prevalence of endometrial pathology was calculated by comparing the biopsy positivity rate between patients with and without obesity, the latter defined as a BMI > 30. Additionally, the median BMI was compared between patients with and without pathology.

For statistical analysis, the chi-square test was used to address the first objective, while the Mann-Whitney U test was used for the second (prior assessing of the normality of continuous variables was performed with Shapiro -Wilk). Statistical significance was set at $p < 0.05$. Analyses were performed using Microsoft Excel and SPSS Statistics v26.0.

Results

From January 2022 to January 2025, the study included 120 patients. The characteristics of the study population are shown in Table 1.

Table 1 Characteristics of the study population

Characteristics	Outcome
Age: Median (range)	54 (26–81 years)
BMI	
BMI > 30	48% (n=58)
BMI < 30	52% (n=62)
Symptoms and menopausal status	
AUB (Pre-Perimenopause)	34.16% (n=41)
PMB (Postmenopause)	65.83% (n=79)
Biopsy	
MVA	31.66% (n=38)
Linear biopsy	19.16% (n=23)
DC	48.33% (n=58)
Pathologic findings	
Carcinomas	42.5% (n=51)
Atypical hyperplasia	7.5% (n=9)
Negative	50% (n=60)

AUB, abnormal uterine bleeding; PMB, postmenopausal bleeding; MVA, manual vacuum endouterine aspiration; DC, dilation and curettage

Half of the patients (50%, n=60) had positive biopsy results for endometrial pathology. Among patients with endometrial carcinoma (n=51), 66% (n=34) were obese. Endometrioid carcinoma was the most common histological subtype: 76.5%, (n=39).

The prevalence of endometrial pathology in patients with a BMI > 30 was 67.2% (n=39), while in patients with a BMI < 30 it was 33.8% (n=21) (*p=0.000259*) (Figure 1).

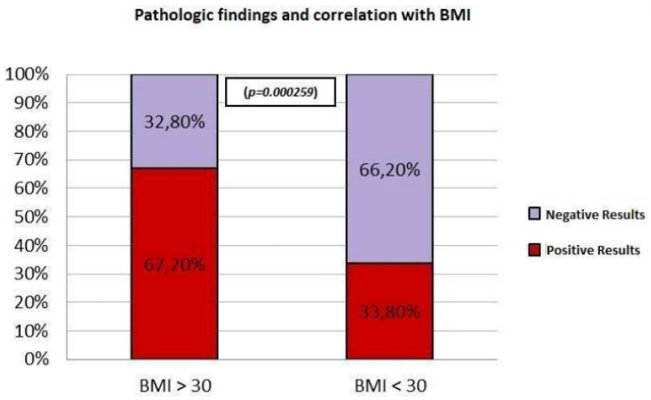

Figure 1 Prevalence of endometrial pathology in patients with a BMI > 30 and in patients with a BMI < 30.

Citation: Pizarro G, Leroux F, Saczuk S, et al. Obesity and endometrial malignancies: correlation at our institution. *Obstet Gynecol Int J.* 2026;17(2):71–74. DOI: 10.15406/ogij.2026.17.00826

Of all patients with a positive test result, 39 had a BMI > 30 (65%) and 21 had a BMI < 30 (35%). Among patients with negative results, only 19 (31.7%) had a BMI > 30 and 41 (68.3%) had a BMI < 30. The median BMI in patients with a positive biopsy was 33.15, and in patients with a negative biopsy it was 28.04 (*p=0.000228*) (Table 2).

Table 2 Relationship between BMI and biopsy results

Biopsy Result	n	BMI > 30 n (%)	BMI < 30 n (%)	Median BMI	p-value
Positive	60	39 (65.0)	21 (35.0)	33.15	0.000228
Negative	60	19 (31.7)	41 (68.3)	28.04	

Discussion

The objective of this study was to establish the relationship between obesity and premalignant and malignant endometrial pathology in our study population.

The prevalence of obesity in patients with AUB/PMB reaches approximately 50%. In an observational study published on the Mexican population that evaluated risk factors for endometrial cancer, a prevalence of obesity of 44.3% was reported,[8] which is similar to our results, where of 120 patients, 48% (n=58) had a BMI > 30. This figure remains within similar ranges across various existing publications in the literature.[9–11]

A systematic review published in 2016 reported that 57% of endometrial cancers in the United States were associated with obesity, which is similar to our finding of a 66% prevalence of obesity among patients with endometrial carcinoma.[7]

One of the findings of our study was the high prevalence of endometrial pathology across the entire study population (50%). This figure is controversial, as the literature reports prevalence rates ranging from 6% to 30%.[12–14] This discrepancy likely stems from potential selection bias**.** Due to limited resource availability at our institution, biopsies were prioritized for patients presenting with high-risk factors or highly suspicious ultrasound findings. Consequently, the observed prevalence reflects a high-risk hospital subpopulation rather than the general population of symptomatic women. In a published study analyzing the role of ultrasound in the diagnosis of endometrial pathologies and their histopathological correlation, a prevalence of malignant/premalignant pathology of 22.84% was found.[12] This figure is lower than that of our study, which could be attributed to the fact that the cited publication did not distinguish between symptomatic and asymptomatic patients, with a large percentage of asymptomatic patients having ultrasound findings; in contrast, asymptomatic patients were excluded from our analysis.

On the other hand, a study published in 2014 that described a risk scoring model for predicting endometrial cancer in symptomatic postmenopausal patients with abnormal ultrasound findings reported that the prevalence of malignant pathology was 31%.[14] Unlike our study, this one did not include premenopausal patients, and the proportion of obese patients was lower than in our population.

Regarding our finding, we consider a possible selection bias, as patients with more suspicious ultrasound findings and risk factors were likely biopsied more urgently than those with findings of moderate suspicion, due to limited resource availability. This could explain the high rate of pathology found in the studied population compared to that reported in the literature.

Regarding the prevalence of malignant/premalignant endometrial pathology, we found a significantly higher incidence in obese patients compared to non-obese patients (67% vs. 33%). This finding is consistent with the published literature, where the prevalence of endometrial pathology in obese patients was 68% and 31% in non-obese patients.[13] A retrospective study evaluating the correlation between BMI, PMB/AUB, and endometrial pathology reported a prevalence of endometrial pathology in obese women of 66%.[10] A study by Reeves et al.[16] reported a prevalence of endometrial cancer in obese patients of 51%. As in our analysis, it was found that the incidence of endometrial cancer is significantly higher in obese patients compared to non-obese patients.

The literature describes a correlation between endometrial pathology and increasing BMI values,[7] with this value constituting an independent prognostic factor for the development of premalignant and malignant endometrial pathology.[10,15,16] In a meta-analysis published by Zhang et al., it is reported that obesity increases the relative risk of developing endometrial cancer by 2.54 times (CI 2.11–3.06).[15]

In our analysis, we found a significant difference when comparing the median BMI values in patients with and without endometrial pathology (BMI 33 vs. 28, respectively). This finding is consistent with the results published by Kaur et al, who reported median BMIs of 32 vs. 26 in patients with and without endometrial pathology, respectively.[13] Additionally, Kumarasamy et al also described a median BMI of 34 in patients with endometrial carcinoma.[10] These findings are consistent with those reported in this publication.

Our findings have important clinical implications for gynecological practice. Given the strong association between obesity and endometrial pathology, clinicians should maintain a high index of suspicion for premalignant and malignant conditions in obese patients presenting with abnormal uterine bleeding. This supports a lower threshold for endometrial sampling in obese patients with AUB/PMB and suggests that BMI could serve as a valuable risk stratification tool in clinical decision-making. Additionally, these results highlight the importance of integrating weight management counseling as part of preventive care for gynecological malignancies. However, given resource limitations that may necessitate prioritization of high-risk patients, obesity status could help guide clinical resource allocation in settings with constrained diagnostic capacity.

Among the limitations of our study are the small number of patients included and its retrospective, single-center design. Furthermore, we did not analyze data regarding other associated risk factors, such as diabetes, hypertension, waist circumference, nulliparity, family history, hormonal or pharmacological treatment, or chronic anovulation. Ultrasound findings were also not categorized in detail due to significant inter-operator variability; only patients with abnormal ultrasound findings, as determined by the treating physician, were included.

It is important to highlight the absence of adjustment for potential confounding factors in our analysis. While a strong correlation between BMI and endometrial pathology was observed, we did not control for other metabolic or reproductive variables, such as diabetes, hypertension, nulliparity, or hormonal history. The lack of multivariate adjustment means that these associations should be interpreted with caution, as unmeasured variables may have influenced the results. We emphasize the importance of conducting a more comprehensive categorization of the population in future publications to rule out possible interactions between the results and confounding factors. Therefore, BMI should be considered an associated factor with premalignant and malignant endometrial pathology in this population, rather than an independent predictor, given the absence of adjustment for potential confounders such as hypertension and diabetes.

Citation: Pizarro G, Leroux F, Saczuk S, et al. Obesity and endometrial malignancies: correlation at our institution. *Obstet Gynecol Int J.* 2026;17(2):71–74. DOI: 10.15406/ogij.2026.17.00826

Conclusion

We observed that obese patients had a significantly higher prevalence of endometrial pathology than non-obese patients (67.2% vs. 33.8%).

The median BMI in the group of patients with confirmed endometrial pathology was significantly higher than in the group with negative biopsies (33.15 vs 28.04).

Our findings suggest that obese patients at our institution have a significantly higher prevalence of endometrial pathology compared to non-obese patients. However, given the retrospective nature of the study and the specific characteristics of the sample, these results should be interpreted with caution and cannot be generalized to the broader population or used to establish definitive causality.

Acknowledgments

None.

Funding

None.

Conflicts of interest

Authors has no conflicts of interest to declare.

References

1. Ministry of Health of the Argentine Nation, National Cancer Institute. Cancer statistics in Argentina. 2026.
2. Siegel RL, Miller KD, Fuchs HE, et al. Cancer statistics, 2024. *CA Cancer J Clin*. 2024;74(1):12–49.
3. Bray F, Ferlay J, Soerjomataram I, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2021;71(3):209–249.
4. Key TJ, Pike MC. The role of oestrogens and progestogens in the epidemiology and prevention of breast cancer. *Eur J Cancer Clin Oncol*. 1988;24(1):29–43.
5. Setiawan VW, Yang HP, Pike MC, et al. Type I and II endometrial cancers: have they different risk factors? *J Clin Oncol*. 2013;31(20):2607–2618.
6. Ministry of Health of Argentina. 4th National Survey of Risk Factors (ENFR). 2019.
7. Onstad MA, Schmandt RE, Lu KH. Addressing the role of obesity in endometrial cancer risk, prevention, and treatment. *J Clin Oncol*. 2016;34(35):4225–4230.
8. Fonseca Velázquez SJ, López Martínez R, Sosa Bustamante GP, et al. Body mass index and triponderal index in abnormal uterine bleed. *Rev Med Inst Mex Seguro Soc*. 2023;61(suppl 2):S135–S140.
9. Ko EM, Walter P, Clark L, et al. The complex triad of obesity, diabetes, and race in type I and II endometrial cancers: prevalence and prognostic significance. *Gynecol Oncol*. 2014;133(1):28–32.
10. Kumarasamy A, Shakuntala PN, Renuka R. Correlation of body mass index and abnormal uterine bleeding in premenopausal women. *Int J Reprod Contracept Obstet Gynecol*. 2020;9(11):4640–4647.
11. Mavrelos D, Athanasopoulos N, Saso S, et al. Risk assessment for endometrial cancer in women with abnormal uterine bleeding: a prospective study. *Int J Gynaecol Obstet*. 2021;152(3):390–396.
12. Tîrnovanu MC, Cojocaru E, Tîrnovanu VG, et al. The role of ultrasound in diagnosing endometrial pathologies: adherence to IETA group consensus and preoperative assessment of myometrial invasion in endometrial cancer. *Diagnostics*. 2025;15(7):891.
13. Kaur SB, Singh S, Singh A. Correlation of body mass index with endometrial pathology in perimenopausal women with AUB: a prospective study. *J Midlife Health*. 2025;16(1):19–25.
14. Giannella L, Mfuta K, Setti T, et al. A risk-scoring model for the prediction of endometrial cancer among symptomatic postmenopausal women with endometrial thickness > 4 mm. *Biomed Res Int*. 2014;2014:130569.
15. Zhang Y, Liu H, Yang S, et al. Overweight, obesity, and endometrial cancer risk: results from a systematic review and meta-analysis. *Int J Biol Markers*. 2014;29(1):e21–e29.
16. Reeves GK, Pirie K, Beral V, et al. Cancer incidence and mortality in relation to body mass index in the Million Women Study: a cohort study. *BMJ*. 2007;335(7630):1134.