IECC 2026 Conference
The 5th International Electronic Conference on Cancers
10–12 June 2026 | Online
MDPI

Endometrioid Adenocarcinoma of the Endometrium with Mucinous Differentiation: An Anatomopathological Case Report

Manal KHARKHACH, asmae AISSAOUI

Pathology departement, University hospital Mohammed VI, faculty of medicine and pharmacy, Mohamed 1 university, Oujda 60000, Morocco

INTRODUCTION & AIM

Endometrial carcinomas are the most common gynecologic cancers in developed countries. Endometrioid adenocarcinoma makes up about 80% of these cases and shows a lot of different forms. One of its variants, mucinous differentiation, is recognized but rather rare. It can create challenges in diagnosis and classification. Recognizing this differentiation is crucial to prevent mixing it up with primary mucinous endometrial carcinomas or mixed tumors, which may have different outcomes and treatment options. We present a case of endometrioid adenocarcinoma with mucinous differentiation, emphasizing its histopathological and immunohistochemical characteristics.

METHOD

We present the case of a 63-year-old woman who came in with pelvic pain and abnormal uterine bleeding. Magnetic resonance imaging (MRI) showed a large cervical uterine mass measuring 53 × 34 × 28 mm. The mass had peripheral ring enhancement, suggesting a stage IIB uterine tumor.
An endometrial biopsy was done and found endometrioid adenocarcinoma. The report noted that mucinous metaplasia could not be definitively ruled out.

The patient then had a total hysterectomy with bilateral salpingo-oophorectomy. The surgical specimen was sent for histopathological examination.

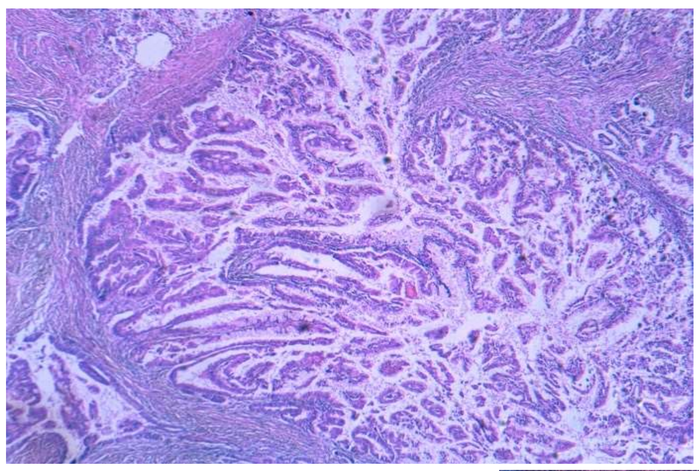
RESULTS & DISCUSSION

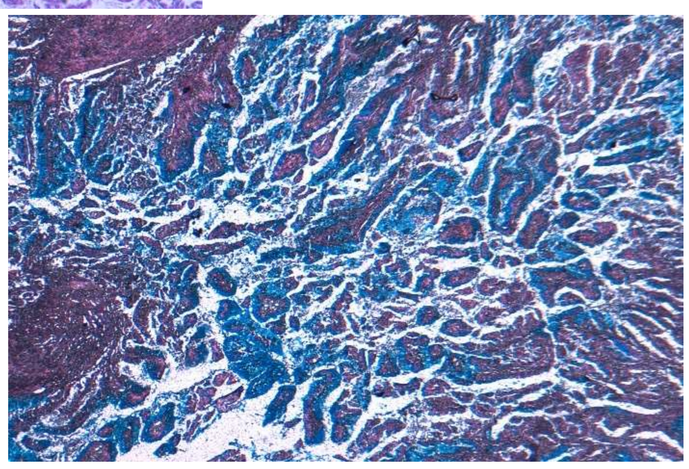
Macroscopic Examination

The gross examination of the surgical specimen showed an irregular and thickened endometrial lining with a poorly defined tumor that was infiltrating the uterine wall. Myometrial invasion involved over half of the myometrial thickness.

Histopathological Findings

Microscopic examination revealed a malignant tumor originating from the endometrium with deep myometrial invasion of more than 50%. The tumor mainly consisted of complex glandular and papillary structures, which were sometimes joined together. The tumor cells displayed moderate to severe cytologic atypia. The cytoplasm was abundant, clear to eosinophilic, and often contained vacuoles with intracellular mucin. Alcian blue staining confirmed the presence of mucin, showing both intracytoplasmic and luminal mucinous material. According to the FIGO grading system, the tumor was classified as grade 2.





Discussion

Immunohistochemical analysis demonstrated a wild-type p53 expression pattern and an MSI-H/dMMR phenotype, characterized by retained expression of MSH2 and MSH6, weak and heterogeneous MLH1 staining, and complete loss of PMS2 expression. Tumor cells also showed diffuse CK7 positivity and positive progesterone receptor expression.
Mucinous differentiation in endometrioid adenocarcinoma is defined by the presence of tumor cells containing intracellular mucin without a predominance of pure mucinous architecture. The main differential diagnosis is primary mucinous carcinoma of the endometrium, which is characterized by a predominance of mucinous cells comprising more than 50% of the tumor. In the present case, the endometrioid glandular architecture, the absence of an exclusive mucinous component (less than 50% of tumor cells), and the immunohistochemical profile supported the diagnosis of endometrioid adenocarcinoma with mucinous differentiation. From a prognostic standpoint, recent evidence suggests that mucinous differentiation itself does not significantly affect the prognosis of endometrioid carcinomas when compared with tumors of similar stage and histologic grade. The principal prognostic factors remain the depth of myometrial invasion, histologic grade, and molecular profile. In the present case, deep myometrial invasion represents a recognized adverse prognostic factor.
A major advance in endometrial cancer classification was achieved in 2013 with the introduction of a reliable and reproducible molecular classification based on genomic sequencing. Following its incorporation into clinical practice and adoption by the World Health Organization in 2020, the molecular classification developed by The Cancer Genome Atlas (TCGA) and implemented through the ProMisE (Proactive Molecular Risk Classifier for Endometrial Cancer) algorithm identified four distinct prognostic subgroups: POLE-ultramutated, MSI/dMMR, NSMP (no specific molecular profile), and p53-abnormal (copy-number high).The molecular profile observed in this case, consisting of wild-type p53 expression and dMMR status, is generally associated with an intermediate prognosis. This molecular subgroup accounts for approximately 25–30% of endometrial carcinomas.

Most cases are sporadic, whereas endometrial cancers associated with Lynch syndrome represent only a small proportion of dMMR tumors. The estimated 5-year overall survival for this subgroup is approximately 70%.Regarding therapeutic implications, the presence of a dMMR molecular profile in association with unfavorable histopathological features, particularly deep myometrial invasion (>50%) and suspected lymphovascular space invasion, places the patient within an intermediate- to high-risk category according to ESGO/ESTRO/ESP recommendations.

The dMMR status currently has predictive as well as prognostic significance. For localized disease, adjuvant radiotherapy (external beam radiotherapy and/or brachytherapy) remains the cornerstone of treatment, while chemotherapy alone has limited efficacy in this setting. However, dMMR tumors demonstrate remarkable responsiveness to immune checkpoint inhibitors in advanced or recurrent disease. Consequently, therapeutic management should be determined through multidisciplinary team discussion.
During our review of the literature, several limitations were identified, notably the predominantly retrospective nature of published series on endometrioid carcinomas with mucinous differentiation and the rarity of this histologic subtype, resulting in relatively small study populations. These limitations underscore the need for future studies incorporating comprehensive molecular sequencing data, including POLE mutation analysis, to further refine prognostic stratification.

CONCLUSIONS

Endometrioid adenocarcinoma with mucinous differentiation is an uncommon histologic variant that may pose diagnostic challenges. Its distinction from primary mucinous carcinoma of the endometrium is crucial and relies on a comprehensive assessment of morphologic, immunohistochemical, and molecular features. The integration of molecular classification into routine practice has refined prognostic stratification and therapeutic decision-making. In the present case, the association of a dMMR molecular profile with deep myometrial invasion highlights the importance of a multidisciplinary approach to ensure appropriate management and surveillance.

REFERENCES/ACKNOWLEDGMENT

(Musa et al., 2012; Gungorduk et al., 2015; Worley et al., 2014; Saatli et al., 2022; Ardighieri et al., 2020; Köbel et al., 2019; Concin et al., 2021; Giacomuzzi Moore et al., 2023; Saharti & Altaf, 2024; Wang et al., 2024; ESGO/ESTRO/ESP, 2025; Yan et al., 2026).