

A Rare Case of Endometrial Ossifying Cartilaginous Metaplasia

Shalini Malhotra ¹, Desh Deepak Idnani ², Asiyeh E. Davoodi ³, Tatsiana Palkhouskaya ⁴, Muna Kashwani ⁵

Review began 06/13/2026

Review ended 07/08/2026

Published 07/12/2026

© Copyright 2026

Malhotra et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI: 10.7759/cureus.112514

1. Obstetrics and Gynecology, Al Qassimi Hospital, Sharjah, ARE 2. Anatomical Pathology, Al Qassimi Hospital, Sharjah, ARE 3. Internal Medicine, Emirates Health Services, Sharjah, ARE 4. Obstetrics and Gynecology, Emirates Hospital, Dubai, ARE 5. Obstetrics and Gynecology, Al Qassimi Women's and Children's Hospital, Sharjah, ARE

Corresponding author: Shalini Malhotra, peacesk2000@yahoo.com

Abstract

Endometrial ossification, also described as endometrial osseous metaplasia (EOM), is a rare benign condition characterized by the presence of bone tissue within the endometrium. Its exact etiopathogenesis remains unclear, although the metaplasia of endometrial stromal cells into osteoblast-like cells has been proposed as the most accepted mechanism. Clinically, it may present with infertility, abnormal uterine bleeding, or pelvic discomfort and, in rare situations, may mimic more serious gynecological pathology.

We report the case of a 60-year-old postmenopausal woman who presented with persistent vaginal bleeding, vaginal discharge, and a protruding vaginal mass causing discomfort. She had a long history of recurrent postmenopausal bleeding (PMB) and previously diagnosed benign endometrial polyps managed with hysteroscopic polypectomy. Imaging revealed a markedly thickened, inhomogeneous endometrium with multiple polypoidal lesions and calcifications, raising suspicion for endometrial malignancy with possible cervical involvement. Due to persistent symptoms, suspicious imaging findings, and the patient's multiple comorbidities, a robotic total hysterectomy with bilateral salpingo-oophorectomy was performed. Histopathological examination unexpectedly revealed the ossifying cartilaginous metaplasia of the endometrial stroma involving the endometrium and an endometrial polyp, with no evidence of malignancy. The patient had an uneventful recovery and remained asymptomatic on follow-up.

This case highlights how a rare benign diagnosis can present in a complex clinical scenario mimicking malignancy. The awareness of such entities is important to avoid misdiagnosis and to emphasize the crucial role of histopathology and multidisciplinary management in achieving safe, patient-centered care.

Categories: Obstetrics/Gynecology, Radiology, Pathology

Keywords: endometrial osseous metaplasia, endometrial polyp, endometrial stromal metaplasia, endometrial thickening, postmenopausal bleeding, robotic hysterectomy, uterine calcification, uterine metaplasia, vaginal bleeding, vaginal mass

Introduction

Menopause is defined as the permanent cessation of menstruation resulting from the loss of ovarian function, which leads to a decline in the production of biologically active estrogen and a corresponding rise in follicle-stimulating hormone levels [1].

In developed countries, the median age at menopause is typically between 50 and 52 years [2], whereas in Asia, the reported median age ranges from 42.1 to 49.5 years [3].

The age at menopause is influenced by several factors, including race, ethnicity, demographic characteristics, lifestyle, and genetic predisposition [2].

Postmenopausal bleeding (PMB) is defined as any vaginal bleeding that occurs 12 months or more after the last menstrual period [1].

During the postmenopausal period, the endometrium is typically atrophic, and any unexpected uterine bleeding warrants careful evaluation to identify potential underlying causes, including gynecological malignancies [4].

Although postmenopausal bleeding is most commonly caused by the atrophy of the vaginal mucosa or endometrium, it may rarely be associated with vulvar, vaginal, or cervical malignancies, including uterine sarcomas, and can also occur in relation to ovarian pathology [1].

Metaplasia refers to the transformation of one differentiated cell type into another within the same tissue and has been described in various organs, including the endometrium [5].

How to cite this article

Malhotra S, Idnani D, Davoodi A E, et al. (July 12, 2026) A Rare Case of Endometrial Ossifying Cartilaginous Metaplasia. Cureus 18(7): e112514. DOI 10.7759/cureus.112514

Endometrial osseous metaplasia (EOM) is an uncommon condition characterized by the presence of bone formation within the endometrium. It is believed to arise from the transformation of endometrial stromal cells into osteoblast-like cells, although its exact pathogenesis is still not well understood. Clinically, EOM can present with infertility, abnormal uterine bleeding, or pelvic pain, highlighting the importance of early identification and proper management [6,7].

We hereby report a case of recurrent postmenopausal bleeding with endometrial polyps that recurred, suspected on imaging to be malignant with cervical neoplasia. After a total hysterectomy and bilateral salpingo-oophorectomy, it was confirmed to be the benign and rare diagnosis of endometrial ossifying stromal metaplasia.

This case report aims to establish how a rare benign diagnosis can appear in the most complicated clinical situations and thus must not be forgotten. Histopathology services are the backbone of great institutions. An efficient multidisciplinary team can deliver safe patient-led care in the most challenging scenarios.

Case Presentation

A 60-year-old postmenopausal woman presented with persistent mild vaginal bleeding and vaginal discharge that was bothersome, apart from a vaginal mass that was causing discomfort on sitting. She did not give a history of any weight loss or symptoms suggestive of malignancy.

The patient had delivered two children vaginally, the last one 41 years ago. She had a history of right oophorectomy in the past done for a cyst but no other surgeries.

Despite being menopausal for 14 years, the patient experienced postmenopausal bleeding for seven years. Four years after the onset of bleeding, she was diagnosed with endometrial polyps and underwent hysteroscopic polypectomy with endometrial biopsy. Histopathological examination revealed a benign endometrial polyp with cystic atrophic endometrium. Although the bleeding recurred several months after the procedure, the patient did not seek further gynecological evaluation until she developed increasing discomfort while sitting. Repeat ultrasound suggested endometrial hyperplasia and possible multiple endometrial polyps. She was then referred to Al Qassimi Women's and Children's Hospital for further management as she had a BMI of 42 (height, 1.53 m; weight, 98 kg) with multiple cardiac problems and recurrent endometrial polyps and postmenopausal bleeding.

The patient was explained and counselled in detail about the differential diagnosis with recurrent endometrial polyps, explaining the urgent need to rule out any malignancy by imaging and Pap smear with endometrial sample and possible polypectomy. Beginning with examination in the clinic, a challenging speculum examination was done with a difficult Pap smear due to a mass 2 cm in diameter protruding from the external os into the introitus, followed by Pipelle sampling. This was because the patient totally declined a hysteroscopy, endometrial biopsy, and possible polypectomy and only allowed outpatient sampling.

Transvaginal ultrasonography revealed a bulky, anteverted uterus with a coarse, inhomogeneous myometrium and small intramural fibroids. The cervix was dilated, containing a large, soft tissue lesion with cystic and degenerative changes, as well as mild internal vascularity, protruding toward the endocervical canal. The endometrium was markedly thickened and inhomogeneous, with multiple polypoidal echogenic lesions, cystic changes, and prominent calcifications. The left ovary was normal. The possibility of endometrial malignant lesions with cervical neoplasia was highlighted (Figures 1-5). The histopathology results of endometrial sampling revealed an endocervical polyp without atypia, with no endometrial tissue identified (Figures 6-8).

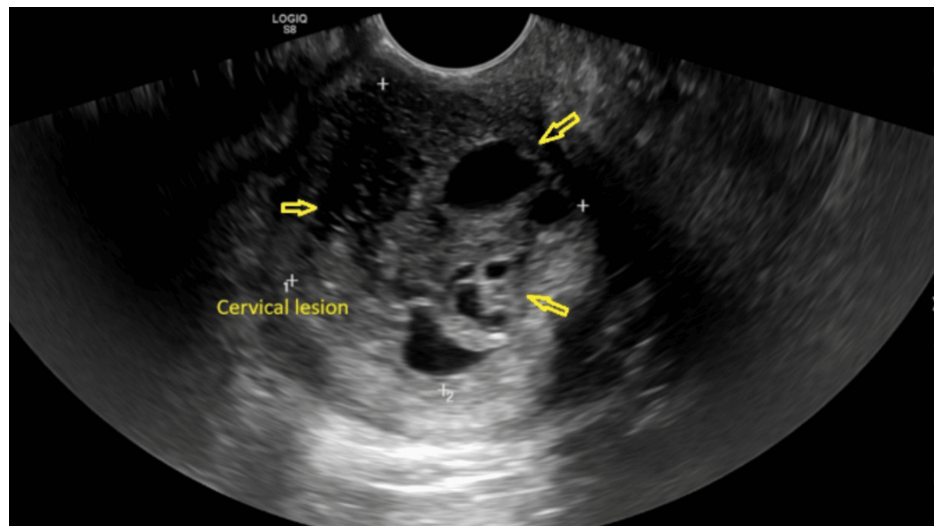


FIGURE 1: Patient's transvaginal ultrasound showing multiple cervical lesions (yellow arrows).

The uterus is anteverted and flexed (AVF), centrally located, and bulky, measuring 10 × 5 cm.

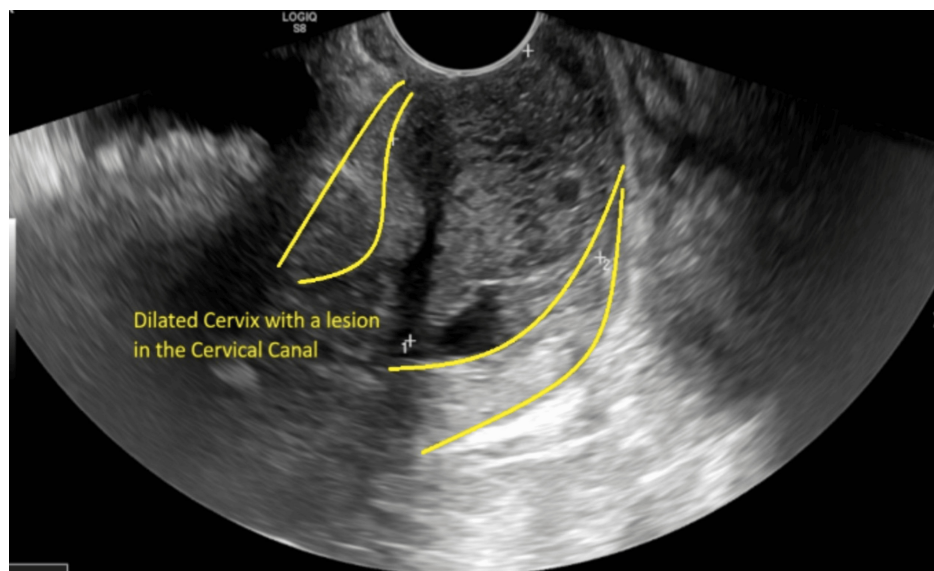


FIGURE 2: Patient's transvaginal ultrasound showing a dilated cervix with a focal soft tissue lesion (yellow lines), measuring 5 × 4.5 × 4.3 cm.

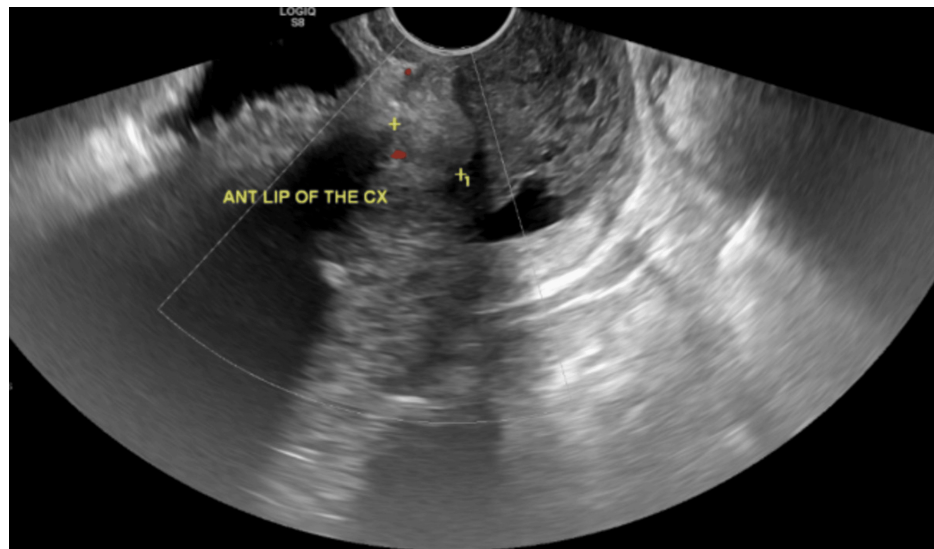


FIGURE 3: Patient's transvaginal ultrasound showing a prominent anterior cervical lip with a slightly inhomogeneous echopattern.

The dilated cervix contains a focal soft tissue lesion measuring $5 \times 4.5 \times 4.3$ cm, with large cystic/degenerative areas (up to 2.4 cm) and mild internal vascularity, protruding toward/through the endocervical canal. Findings are suggestive of a submucosal myoma with degenerative changes (FIGO type 0/1).

FIGO: International Federation of Gynecology and Obstetrics

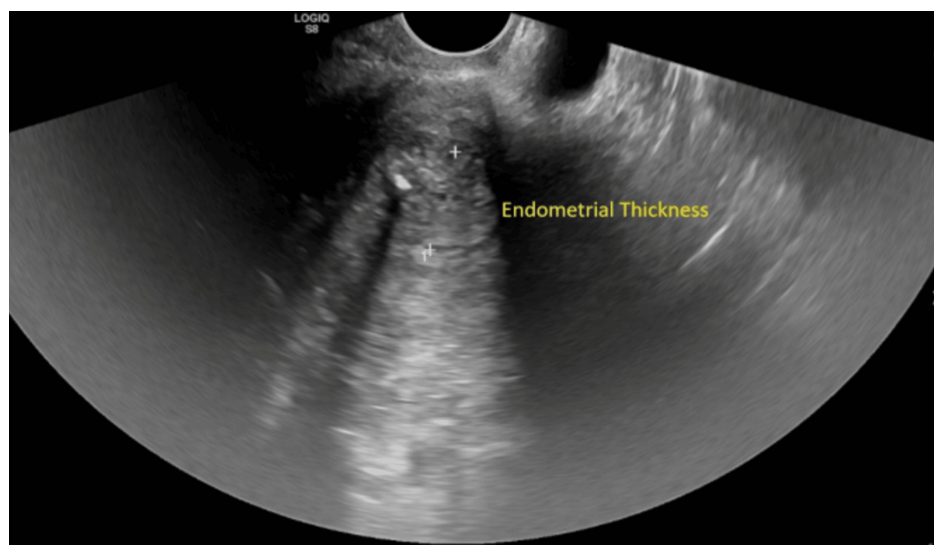


FIGURE 4: Patient's transvaginal ultrasound showing a thickened, hyperechoic, and inhomogeneous endometrium measuring approximately 20 mm in thickness, with multiple polypoidal echogenic lesions, small cystic changes, and coarse linear calcifications (largest up to 3 cm), suggestive of a complex endometrial process.

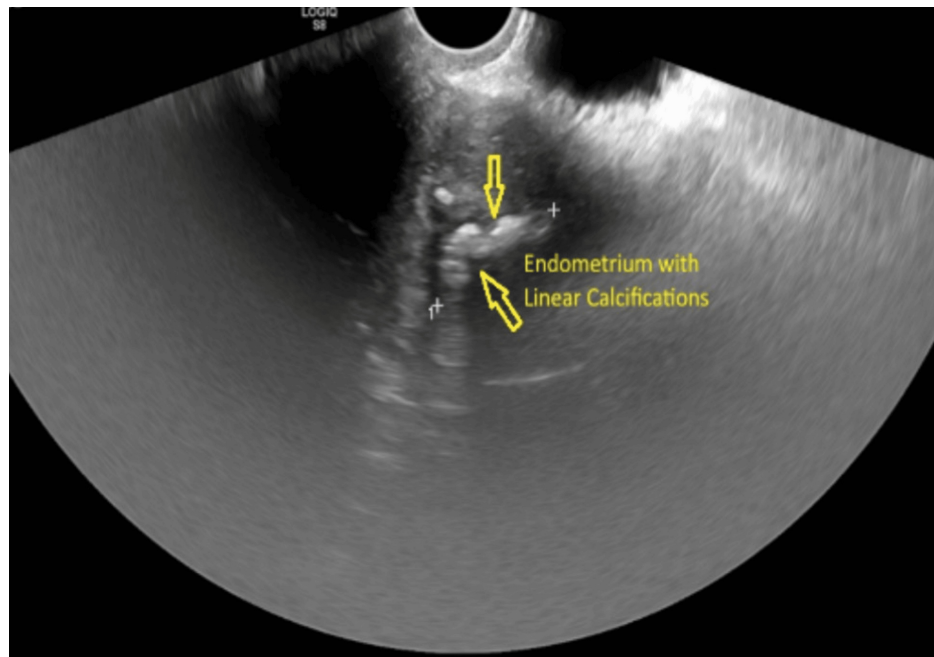


FIGURE 5: Patient's transvaginal ultrasound showing polypoidal, coin-shaped echogenic focal lesions within the endometrium, the largest measuring 2.5×1.3 cm.

Multiple small cystic changes and linear/coarse calcifications are noted, with the largest calcification measuring 3 cm (yellow arrows).

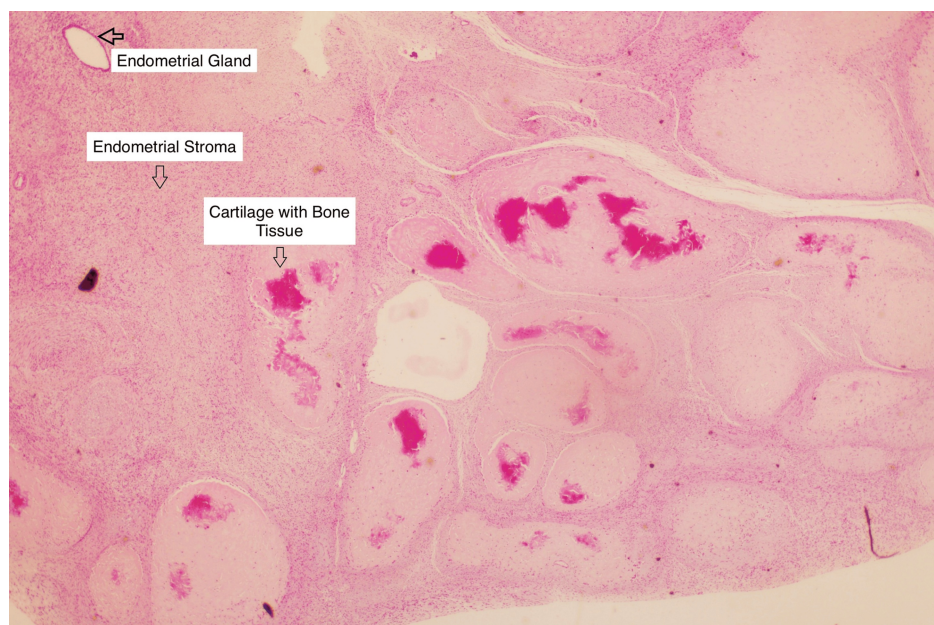


FIGURE 6: Patient's histological findings on hematoxylin and eosin (H&E) staining demonstrating cartilage mineralization within the endometrial stroma.

Arrows indicate the endometrial glands, endometrial stroma, and cartilage with osseous metaplastic (bone) tissue. Scanner view (2× magnification).

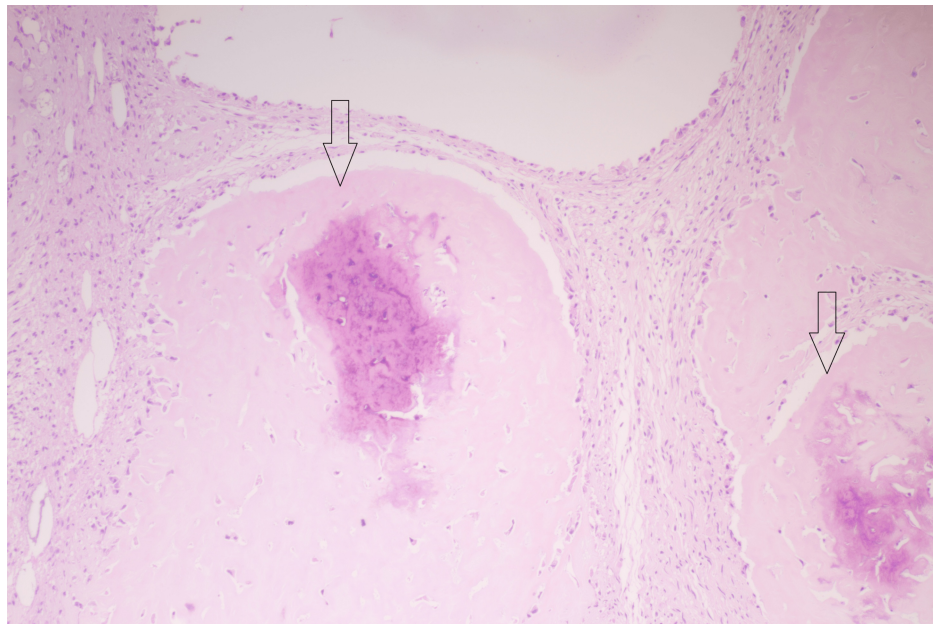


FIGURE 7: Patient's histological findings on hematoxylin and eosin (H&E) staining demonstrating cartilage mineralization within the endometrial stroma.

Arrows indicate osseous metaplasia. Scanner view (10× magnification).

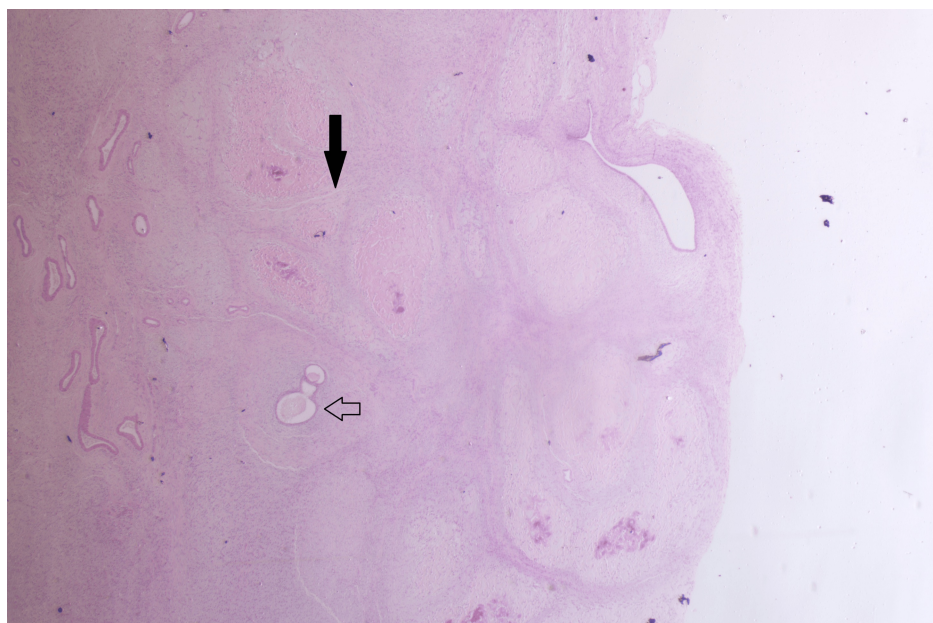


FIGURE 8: Patient's histological findings on hematoxylin and eosin (H&E) staining demonstrating cartilage mineralization within the endometrial stroma.

The black arrow indicates osseous metaplasia with cartilage mineralization within the endometrial stroma, and the open arrow indicates the endometrial gland. Scanner view (2× magnification).

Given the suspicious imaging findings, further evaluation with hysteroscopy was suggested to confirm if any malignancy was present and to direct further management at an oncology center. The patient again refused to allow directed hysteroscopy and biopsies, requesting only a hysterectomy, fully aware of all risks of malignancy suspected on ultrasound. She refused referral to an oncology center for further management.

She consented to a robotic total hysterectomy with bilateral salpingo-oophorectomy, understanding the risks of detecting malignancy after histopathology results were ready. The patient was assessed as fit for surgery with intermediate risk and no active cardiac conditions.

The patient's surgery was complicated due to obesity, distended bowel (despite preparation), and excessive vascularity of the uterus. She recovered following the enhanced recovery protocol and, after an uneventful postoperative period, was discharged on day 2. On her follow-up visit in 10 days, she was well, having returned to her daily activities comfortably. The patient was informed that the final histopathological examination revealed no evidence of malignancy or atypia. Results noted ossifying cartilaginous metaplasia of the endometrial stroma involving the endometrium and an endometrial polyp, along with a single tiny leiomyoma within the myometrium. She has returned for follow-up with no complaints until six months after surgery.

Discussion

Endometrial osseous metaplasia (EOM), sometimes referred to as endometrial calcinosis or microcalcifications, is a rare condition in which bone tissue forms within the endometrium. It is thought to result from the transformation of endometrial stromal cells into osteoblast-like cells, although the exact mechanisms remain unclear. Factors such as a history of abortion or chronic uterine inflammation have been suggested as potential contributors. Clinically, EOM may cause infertility, abnormal uterine bleeding, or pelvic discomfort, emphasizing the importance of early recognition and appropriate management [6,7]. This condition is extremely uncommon, with an estimated incidence of only three cases per 10,000 women worldwide, although its exact global incidence is unknown as population-based data are lacking [8].

Postmenopausal bleeding (PMB) affects roughly 10% of women immediately following menopause. Being a common gynecological concern, it is defined as uterine bleeding occurring after at least one year of amenorrhea. While benign causes such as vaginal atrophy, endometrial polyps, or fibroids are frequent, about 10%-15% of women with PMB may have endometrial carcinoma. Prompt evaluation is therefore essential to rule out malignant or premalignant lesions. In rare instances, benign but unusual entities such as endometrial osseous metaplasia can present in a way that mimics more serious disease, creating a diagnostic challenge [9].

Osteocartilaginous metaplasia is a rare benign condition, often misdiagnosed as malignancy. The awareness of this metaplasia can prevent the overdiagnosis of malignant mixed Müllerian tumor, especially in young age groups, which may lead to unnecessary hysterectomy. Only about 100 cases have been reported to date [10,11]. This pathological diagnosis has been reported in younger women of reproductive age (15-49 years), whereas our patient was postmenopausal [12].

The WHO classification of endometrial metaplasia's and related changes is as follows: (1) epithelial metaplasia's and related changes and (2) nonepithelial metaplastic and related changes, which include smooth muscle metaplasia, osseous metaplasia, cartilaginous metaplasia, fatty change, glial tissue, and foam cell change [11].

The awareness of uncommon diagnoses facilitates their recognition, even in rare clinical scenarios. It is likely that the presence of long-standing endometrial polyps with a previous polypectomy could have led to chronic inflammation causing metaplasia; however, no such case or explanation is proposed in the literature. It can be suggested that postmenopausal women with endometrial polyps should be kept under close surveillance after hysteroscopy to check for the persistence of endometrial polyps.

Conclusions

This case illustrates how a rare condition such as endometrial ossification can present in a complex clinical scenario, particularly in a postmenopausal patient with recurrent vaginal bleeding, long-standing endometrial polyps, and multiple comorbidities. Imaging findings suspicious for malignancy, along with a protruding cervical mass, created a diagnostic challenge, demonstrating that even benign entities can mimic serious gynecological pathology.

Robotic total hysterectomy with bilateral salpingo-oophorectomy was required due to persistent symptoms and the need to rule out malignancy. Histopathology confirmed a benign diagnosis of ossifying cartilaginous metaplasia, relieving both the patient and her clinical team. This case emphasizes the importance of awareness of rare benign conditions in the differential diagnosis of postmenopausal bleeding and highlights the critical role of histopathology and a multidisciplinary approach in ensuring safe, patient-centered care in high-risk and complex scenarios.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the

work.

Concept and design: Asiyeh E. Davoodi, Shalini Malhotra, Tatsiana Palkhouskaya

Acquisition, analysis, or interpretation of data: Asiyeh E. Davoodi, Desh Deepak Idnani, Muna Kashwani

Drafting of the manuscript: Asiyeh E. Davoodi, Desh Deepak Idnani, Muna Kashwani

Critical review of the manuscript for important intellectual content: Asiyeh E. Davoodi, Shalini Malhotra, Tatsiana Palkhouskaya

Supervision: Asiyeh E. Davoodi

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Sert UY, Guler I, Nas T: Frequency of the causes of postmenopausal bleeding, results of a tertiary referral center in Turkey. *Gynecol Obstet Reprod Med.* 2021, 27:65-71. [10.21613/GORM.2019.1007](#)
2. Gold EB: The timing of the age at which natural menopause occurs . *Obstet Gynecol Clin North Am.* 2011, 38:425-40. [10.1016/j.ogc.2011.05.002](#)
3. Palacios S, Henderson VW, Siseles N, Tan D, Villaseca P: Age of menopause and impact of climacteric symptoms by geographical region. *Climacteric.* 2010, 13:419-28. [10.3109/13697137.2010.507886](#)
4. Raouf SA, Gupta P, Papaioannou S, Pradhan P: Endometrial thickness for invasive investigations in women with postmenopausal bleeding. *Climacteric.* 2011, 14:117-20. [10.3109/13697131003660577](#)
5. Grigore M, Pristavu A, Gafitanu D: Ultrasound features of osseous metaplasia of the endometrium-case series and review of the literature. *Clin Imaging.* 2018, 52:260-3. [10.1016/j.clinimag.2018.08.006](#)
6. Ulu UO: Endometrial osseous metaplasia:2 case reports and literature review . *J Radiogr Radiat Sci.* 2025, 39:19-23. [10.82547/jrrs/2024/GYUD2969](#)
7. Brito-Balanzategui C, Peñafiel-Pallares WS, Venegas-Baca O: When bone forms in the endometrium: a case of osseous metaplasia presenting with chronic pelvic pain and abnormal uterine bleeding. *Int J Med Stud.* 2025, 13:S286. [10.5195/ijms.2025.3907](#)
8. Helmi Z, Nori W: Endometrial osseous metaplasia presented as infertility cases with intra-operative obstacles: two case reports and literature review. *Qatar Med J.* 2025, 2025:24. [10.5339/qmj.2025.24](#)
9. Bakour SH, Timmermans A, Mol BW, Khan KS: Management of women with postmenopausal bleeding: evidence-based review. *Obstet Gynaecol.* 2012, 14:243-9. [10.1111/j.1744-4667.2012.00129.x](#)
10. Devdhar S, Gupta V, Gautam R, Chaudhary A: Osseous metaplasia of the endometrium: a rare pathological entity. *Cureus.* 2024, 16:e62204. [10.7759/cureus.62204](#)
11. Silverberg SG, Tabbara SO: Principles and Practices of Surgical Pathology and Cytopathology . Churchill Livingstone, London, England; 2015.
12. Women of reproductive age (15-49 years) population (thousands) . (2026). <https://platform.who.int/data/maternal-newborn-child-adolescent-ageing/indicator-explorer-new/MCA/women-of-reproducti...>