

# A Case of Atypical Polypoid Adenomyoma with a Literature Review

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## Abstract

This study aims to investigate the clinicopathological features, imaging findings, and reasons for misdiagnosis of uterine atypical polypoid adenomyoma (APA) to improve its preoperative diagnostic accuracy. We report a case of a 46-year-old woman presenting with irregular vaginal bleeding who was admitted in April 2025. Preoperative imaging, including transvaginal ultrasound, MRI, and PET-CT, was misinterpreted as endometrial or cervical cancer. However, postoperative pathological examination confirmed APA, characterized by architecturally complex endometrial glands with extensive squamous metaplasia and a stroma composed of proliferating smooth muscle and fibrous tissue. Following hysteroscopic resection, the patient recovered well. This case underscores that APA is a rare uterine lesion with malignant potential, often misdiagnosed due to nonspecific imaging features. Improved recognition of its imaging characteristics combined with pathological evaluation is essential to avoid misdiagnosis and guide individualized treatment.

**Keywords:** Atypical Polypoid Adenomyoma, irregular vaginal bleeding, transvaginal ultrasound, misdiagnose

## 1. Introduction

Atypical Polypoid Adenomyoma (APA) is an uncommon and pathologically distinctive uterine lesion(2020)[1], first delineated by Mazur et al. in 1981(1981)[2]. According to the World Health Organization (WHO) 2020 classification of tumours of the female genital tract(2020)[3], APA is defined as a distinct mesenchymal tumor of benign or borderline malignancy. It is pathologically characterized by architecturally complex and atypical endometrial glands, extensive squamous metaplasia, and a stroma composed of proliferating smooth muscle or fibrous tissue. This histological pattern closely mimics that of well-differentiated endometrial adenocarcinoma, presenting a major diagnostic challenge. Clinically, APA predominantly affects reproductive-age and perimenopausal women and most frequently presents with irregular vaginal bleeding. Due to its relative rarity and non-specific imaging features, although modalities such as transvaginal ultrasonography and MRI can detect the lesion, they often fail to reliably distinguish it from more common intrauterine pathologies like endometrial polyps, submucosal leiomyomas, or endometrial carcinoma, thereby contributing to a high preoperative misdiagnosis rate. This article reports the case of a 46-year-old patient with APA, whose imaging studies across multiple institutions were misdiagnosed as malignant uterine tumors. By presenting this case alongside a review and analysis of the relevant literature, we aim to provide an in-depth discussion of the clinicopathological characteristics, imaging manifestations, key points for differential diagnosis, and treatment strategies for APA. Our goal is to enhance recognition of this disease among clinicians and radiologists, thereby providing a reference for achieving precise preoperative diagnosis and formulating individualized treatment plans. This article presents a case of a 46-year-old woman with APA that was initially misdiagnosed as a uterine malignancy across multiple imaging modalities. We aim to elucidate the clinical, radiological, and pathological hallmarks of this entity through this case report and a review of the pertinent literature. The objective of this study is to enhance awareness of APA among clinicians and radiologists, thereby facilitating a more accurate preoperative diagnosis and guiding appropriate, individualized management.

## 2. Case Description

### 2.1 Case History

A 46-year-old woman presented with half a year of irregular vaginal bleeding. The bleeding was scanty, dark red in color, and lasted for 3-5 days before clearing up. In January 2025, she went to local hospital A for an ultrasound examination that showed "hyperechoic mass in the uterine cavity", but no special treatment was given. On April 17, 2025, the patient went to local hospital B again for treatment. A pelvic MRI examination showed: endometrial

mass, endometrial cancer was considered; abnormal cervical signal, cervical cancer was considered; pelvic effusion. The PET-CT examination performed on April 18, 2025 showed that there was a mass shadow in the uterine cavity and the cervical cervix was heterogeneously thickened. Malignant tumors were considered (endometrial cancer involving the cervix?). For further diagnosis and treatment, she was admitted to our hospital's outpatient clinic with a query of "Endometrial Cancer?". Since the onset of the disease, the patient's energy, appetite, and sleep remained normal. There has been no significant change in weight and physical strength recently.

### 2.2 Gynecological Examination

Vulva: normal development, female distribution of pubic hair, married and nulliparous, no ulcers or vegetations.

Vagina: smooth, can accommodate 2 fingers, mucous membrane is not congested, a small amount of white discharge is seen, the vault is normal, and there is no tenderness.

Cervix: nulliparous type, normal size, smooth surface, no thickening of the cervical canal, good mobility, medium texture, no pain when lifting.

Uterus: anterior position, smooth surface, medium texture, good mobility, no tenderness, no palpable painful nodules.

Appendices: There is no thickening or tenderness in the appendages on both sides.

### 2.3 Diagnostic Tests

After the patient was admitted to the hospital, transvaginal ultrasound was performed: a solid hypoechoic nodule was seen on the front wall of the uterus, about 12mm\*11mm\*11mm in size, with clear borders and uneven internal echo. CDFI: Punctate blood flow signals were seen around and inside the nodule (Figure 1, Figure 2). The endometrium was unclearly displayed, and a hypoechoic mass was seen in the uterine cavity, with an area of about 56mm\*53mm\*48mm, and the boundary between part of it and the muscular layer was not clear (Figure 3); a hypoechoic mass was seen in the cervix, measuring about 26mm\*21mm\*15mm, with a clear boundary and uneven internal echo (Figure 4). CDFI: Abundant blood flow signals are seen in the uterine cavity and cervical mass, and low-velocity, moderate-resistance spectra is measured. (Figure 5, Figure 6). Ultrasound tips: (1). The uterine cavity and cervix are hypoechoic and have abundant blood supply, Suspicious for malignancy. (2). Solid space-occupying lesions on the uterine wall, possibly a fibroid. Cervical cytology revealed atypical glandular cells (AGC). Diagnostic pathological dilation and curettage showed that (endometrium) the endometrial gland structure is complex, accompanied by budding and branching changes, local cell nuclei are rounded, with obvious nucleoli, and extensive squamous metaplasia, and the endometrial stroma is significantly reduced and replaced by proliferated smooth muscle or fibrous cells. The lesion was first considered to be atypical adenomyomatous polyps (Figure 7).



Figure 1. A solid hypoechoic nodule on the anterior wall of the uterus with clear borders and uneven internal echo

### 2.4 Treatment and Outcome

The patient was deemed to have surgical indications and subsequently underwent hysteroscopic electroresection of the endometrial lesion, diagnostic dilation and curettage, and cervical canal dilation on April 23, 2025. Postoperative pathological examination of the uterine cavity contents confirmed the diagnosis of APA. The

specimen was characterized by architecturally complex endometrial glands with extensive squamous metaplasia, focal glandular epithelial cells exhibiting rounded nuclei and prominent nucleoli, and a stroma demonstrating fibrous and smooth muscle cell hyperplasia (Figure 8). During postoperative follow-up, the patient was in good general condition and reported no significant vaginal bleeding.

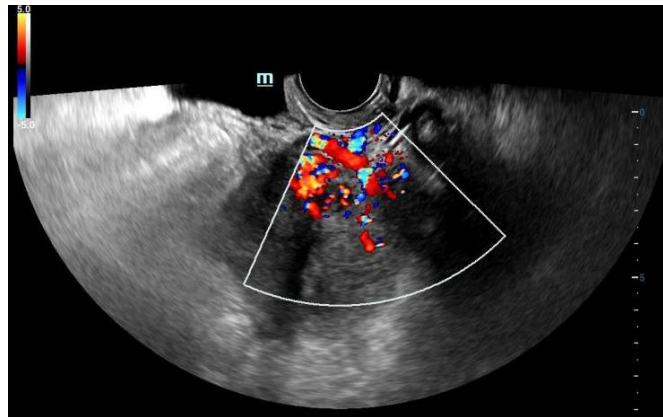


Figure 2. CDFI: Spot-like blood flow signals are seen around and inside the hypoechoic nodules on the anterior wall of the uterus



Figure 3. The endometrium is not clearly displayed, with low echo masses in the uterine cavity and some unclear boundaries with the myometrium



Figure 4. CDFI: low echo mass and abundant blood flow signals in the uterine cavity

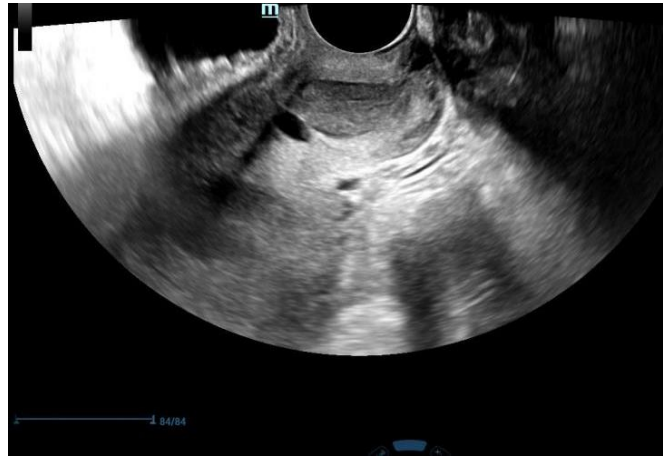


Figure 5. Hypochoic mass in the cervix



Figure 6. Abundant blood flow signals are seen in the cervical mass, and low-velocity, moderate-resistance spectra is measured

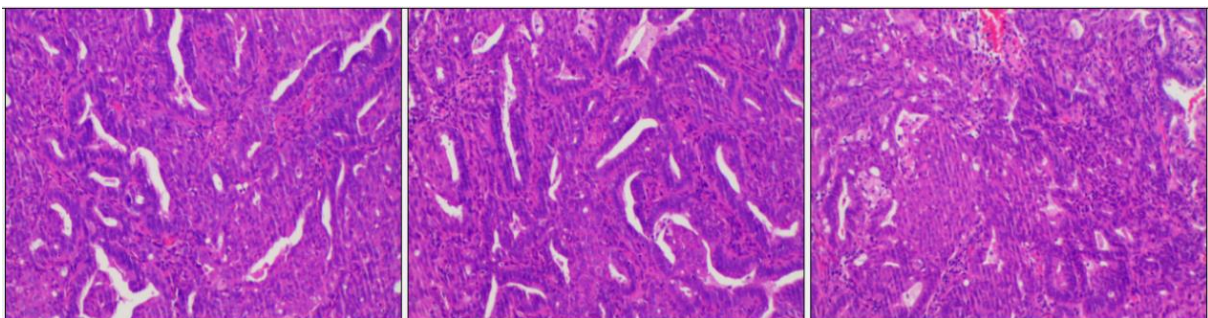


Figure 7. (Endometrium) The structure of the endometrial glands is complex, accompanied by budding and branch-like changes. Local cell nuclei become rounded with obvious nucleoli, accompanied by extensive squamation. The endometrial stroma is significantly reduced and replaced by proliferating smooth muscle or fibrous cells. The lesion is first considered to be atypical adenomyomatous polyps.

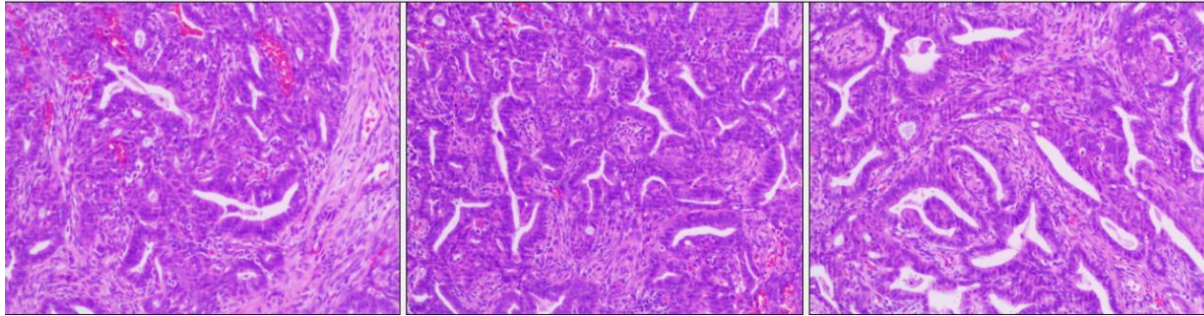


Figure 8. (Uterine cavity contents) Consider atypical polypoidal adenomyoma. The endometrial gland structure is complex and accompanied by extensive squamous metaplasia. Local glandular epithelial cell nuclei are rounded with obvious nucleoli, and the stroma is fibrous or smooth muscle cell hyperplasia

### 3. Discussion

APA is categorized under polypoid adenomyoma (PA) of the uterus, which represents a distinct subtype of endometrial polyp (2019)[4]. According to the presence or absence of atypia in the glandular epithelium, PA can be divided into two categories: typical polypoid Adenomyoma (TPA) and APA, of which APA is even rarer(2020,2020)[5,6]. At present, the pathogenesis of APA has not been fully elucidated. Most scholars believe that its occurrence is closely related to long-term unopposed estrogen stimulation. In clinical practice, APA patients often coexist with estrogen-related diseases such as adenomyosis, uterine fibroids, and atypical endometrial hyperplasia. This clinical feature indirectly suggests that estrogen drive may play a key role in its occurrence and development(2020)[7].

#### 3.1 Clinical Characteristics

APA is more common in women of childbearing age and perimenopause. The main clinical symptom is irregular vaginal bleeding. It can also manifest as increased vaginal secretions or pelvic pain. Some patients have no obvious symptoms and are often discovered accidentally during examination or treatment for infertility. The most common sites are the lower uterine segment, cervix, and uterine body, which have three growth patterns(1996)[8]: (1) pedunculated, similar to polyps; (2) sessile, wide-based, similar to submucosal leiomyomas; (3) Grows between the muscle walls and is often clearly demarcated from the muscle layer and surrounding tissues. It is relatively rare for APA to occur in the body of the uterus and occupy the entire uterine cavity, which is the case in this patient.

#### 3.2 Pathological Features

Atypical polypoidal adenomyoma is characterized histologically by irregularly distributed endometrioid glands scattered in a stroma composed of smooth muscle and a small amount of fibrous tissue. The glands may exhibit a well-differentiated adenocarcinoma-like structure and are often accompanied by squamous metaplasia. Because its atypical glandular structure is similar to well-differentiated endometrial adenocarcinoma or malignant mixed Mullerian tumor, some studies have pointed out that APA is a borderline tumor with uncertain malignant potential(2020,2020)[6,7]. Atypical polypoidal adenomyoma has interstitial muscle fibers arranged in short bundles and lacks a fibroblast-derived stromal reaction surrounding the glands, which helps differentiate it from invasive carcinoma.

#### 3.3 Imaging Features

Because APA is relatively rare, there are relatively few literature reports on its imaging manifestations, mostly case reports. APA lacks specific imaging manifestations, so it is often difficult to differentiate from intrauterine lesions such as endometrial polyps and endometrial cancer. Transvaginal ultrasound examination is currently the most commonly used examination method. APA ultrasound manifestations(2012)[9]: solid space occupying the uterine cavity, uneven internal echo, when the tumor is large, it can fill the uterine cavity, mixed with small cystic areas, and the boundary with the myometrium is still clear. Color Doppler flow imaging (CDFI) often indicates the existence of chaotic blood flow signals around or within the lesion, and the arterial spectrum can be detected in most cases. In some cases, the resistance index (RI) is low.

In MRI(2022,2015) [10,11]: APA usually appears isointense to the myometrium on T1WI, with internal signal heterogeneity and occasional hyperintense cystic lesions, is not suppressed on fat-suppressed T1WI, and is mixed hyperintense on T2WI. Small high-signal cysts scattered within the mass may be the characteristic MRI feature of

APA. Augmented dynamic contrast-enhanced scan: The solid part is enhanced in various ways, which can show mild to significant enhancement, but the degree of enhancement is usually lower than that of the normal myometrium.

### 3.4 Differential Diagnosis

Accurate preoperative differential diagnosis is crucial for formulating a treatment plan for APA. As a lesion with uncertain malignant potential, if APA is resected hysteroscopically and treated with medication, the patient is expected to retain fertility. Therefore, it is of great clinical significance to distinguish it from common intrauterine lesions. This article combines the literature and the ultrasound images of this case to summarize the key points of identification as follows:

**Differentiation from endometrial polyps:** Endometrial polyps are common benign lesions in the uterine cavity. Ultrasound usually shows a moderate or slightly strong echo mass in the uterine cavity, with clear boundaries and often a pedicle connected to the uterine wall. CDFI: The blood flow signal is not obvious in smaller polyps, but in larger polyps, strip-like blood flow signals can be detected at the pedicle and extend into the lesion. Its echo is usually relatively uniform, which is different from the heterogeneous echo and internal scattered blood flow distribution of APA.

**Differentiation from uterine submucosal fibroids:** Submucosal fibroids often appear as uniform hypoechoic nodules in the uterine cavity on ultrasound, with regular shapes and clear boundaries, which may lead to deformation or deviation of the uterine cavity line. The performance of "mixed echo with microcystic areas" is an important clue in distinguishing APA from ordinary endometrial polyps and submucosal fibroids[10]. CDFI: Circular or semi-circular blood flow signals can be seen around uterine submucosal fibroids. When the fibroid prolapses into the cervical canal, the blood flow signal of its pedicle connected to the myometrium of the uterine wall can be seen. APA lacks this typical "ball-hugging" blood flow surrounding sign

**Differentiation from endometrial cancer:** Endometrial cancer is more common in postmenopausal women, with vaginal bleeding as the main symptom. Typical ultrasound findings include diffuse or focal thickening of the endometrium, chaotic echoes, and uneven intensity. If the tumor infiltrates the muscular layer, the boundary between the endometrium and the muscular layer will be blurred, and uterine effusion may occur. CDFI shows abundant and chaotic low-resistance arterial blood flow signals in the intima. Although APA may have abundant blood flow, the boundary with the muscle layer is usually relatively clear, which is an important identification point.

### 3.5 Treatment

The treatment of APA should follow the principle of individualization. Surgical treatment of APA is the only effective method. For young patients who want to have children or want to preserve their uterus, conservative surgery is a feasible option, but they must be fully informed of the high risk of recurrence or malignant transformation and receive close follow-up for at least 2 years after surgery. Hysterectomy is a more radical treatment for patients who do not want to have children and are perimenopausal or postmenopausal(2019)[12].

## 4. Conclusion

In summary, APA is an intrauterine lesion with malignant potential, and its preoperative diagnosis mainly relies on imaging examinations, especially transvaginal ultrasound. However, the ultrasound findings of APA lack specificity and are easily confused with endometrial polyps, submucosal fibroids, endometrial cancer and other diseases, resulting in a high misdiagnosis rate. This article summarizes the key ultrasound features including: tumors are mostly located in the uterine cavity or lower uterine segment, the tumor has clear boundaries, mixed echoes inside, and may be accompanied by microcystic areas, CDFI: rich blood flow signals can be detected, and PW: blood flow resistance index is low. Therefore, for women of childbearing age with irregular vaginal bleeding, especially those with a history of estrogen-related medication, if the above characteristics appear on ultrasound examination, they should be highly alert to the possibility of APA and undergo hysteroscopy in a timely manner to confirm the diagnosis.

## References

- [1] Raffone, A., Travaglino, A., Saccone, G., Giampaolino, P., Insabato, L., & Zullo, F. (2020). Atypical polypoid adenomyoma: A systematic review of the literature. *Acta Obstetrica et Gynecologica Scandinavica*, 99(5), 558–567. <https://doi.org/10.1111/aogs.13847>
- [2] Mazur, M. T., & Kraus, F. T. (1981). Atypical polypoid adenomyomas of the endometrium. *The American Journal of Surgical Pathology*, 5(5), 473–482. <https://doi.org/10.1097/0000478-198107000-00006>

- [3] WHO Classification of Tumours Editorial Board. (2020). *WHO classification of tumours of female reproductive organs* (5th ed.). International Agency for Research on Cancer.
- [4] Kurman, R. J., Ellenson, L. H., & Ronnett, B. M. (2019). *Blaustein's pathology of the female genital tract* (7th ed.). Springer. <https://doi.org/10.1007/978-3-319-46334-6>
- [5] WHO Classification of Tumours Editorial Board. (2020). *WHO classification of tumours of female reproductive organs* (5th ed.). International Agency for Research on Cancer.
- [6] Raffone, A., Travaglino, A., Saccone, G., Giampaolino, P., Insabato, L., & Zullo, F. (2020). Atypical polypoid adenomyoma: A systematic review of the literature. *Acta Obstetrica et Gynecologica Scandinavica*, 99(5), 558–567. <https://doi.org/10.1111/aogs.13847>
- [7] Raffone, A., Travaglino, A., Saccone, G., Giampaolino, P., Insabato, L., & Zullo, F. (2020). Atypical polypoid adenomyoma: A systematic review of the literature. *Acta Obstetrica et Gynecologica Scandinavica*, 99(5), 558–567. <https://doi.org/10.1111/aogs.13847>
- [8] Longacre, T. A., Chung, M. H., Rouse, R. V., & Hendrickson, M. R. (1996). Atypical polypoid adenomyofibromas (atypical polypoid adenomyomas) of the uterus. A clinicopathologic study of 55 cases. *The American Journal of Surgical Pathology*, 20(1), 1–20. <https://doi.org/10.1097/00000478-199601000-00001>
- [9] Geng, J., Tang, J., Yang, Z., Zhou, R., & Wu, X. (2012). Ultrasound manifestations and clinical analysis of 10 cases of atypical polypoid adenomyoma in the endometrium [J]. *Chinese Clinical Journal of Obstetrics and Gynecology*, 13(01), 36–39.
- [10] Tan, Y., Hu, X., Song, X., Peng, Y., Yu, D., & Ye, X. (2022). MRI and transvaginal ultrasound findings of atypical polypoid adenomyoma: A case report. *Chinese Medical Science Journal*, 37(4), 488-492.
- [11] Nakai, G., Kitano, R., Yamamoto, K., Taki, M., & Kadowaki, H. (2015). Magnetic resonance imaging findings in atypical polypoid adenomyoma. *Journal of Computer Assisted Tomography*, 39(4), 576–579. <https://doi.org/10.1097/RCT.0000000000000169>
- [12] Raffone, A., Travaglino, A., Saccone, G., Giampaolino, P., Insabato, L., & Zullo, F. (2019). Management of women with atypical polypoid adenomyoma of the uterus: A quantitative systematic review. *Acta Obstetrica et Gynecologica Scandinavica*, 98(12), 1548–1558. <https://doi.org/10.1111/aogs.13553>

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