

# LOW-RESISTANCE FLOW IN A LARGE ADENOMYOMATOUS POLYP MIMICKING A LEIOMYOSARCOMA

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Adenomyomatous polyps are pedunculated or sessile overgrowths of endometrial glands, fibrous stroma, and vessels [1]. Most of them are benign and present with abnormal uterine bleeding. Large adenomyomatous polyps are rare, and most arise in breast cancer patients after tamoxifen therapy [2].

We present a 76-year-old woman with a benign large adenomyomatous polyp without a history of breast cancer or tamoxifen therapy. Ultrasonography and magnetic resonance imaging (MRI) findings suggested the possibility of a uterine malignancy. To our knowledge, this is the first report of an adenomyomatous polyp identified using the low-resistance flow pattern on color Doppler ultrasonography.

A 76-year-old woman, gravida 5, para 3, abortus 1, ectopic 1, was initially examined because of recurrent postmenopausal bleeding occurring twice in 2 months with no associated abdominal pain, dizziness, fever or other discomfort. Pelvic ultrasound revealed a 6.7 × 4.6 × 5.4 cm heterogeneous hyperechoic mass with multiple cystic spaces (Figure 1). Color Doppler showed low-resistance flow in the cystic spaces, which suggested malignancy (resistance index, 0.38) (Figure 2). No ascites or adnexal mass was found.

MRI was subsequently arranged and revealed an ovoid heterogeneous soft tissue tumor encapsulated within the uterus, suggesting leiomyosarcoma, although no evidence of enlarged lymph nodes or ascites was found (Figure 3). Because a malignancy was suspected, an abdominal total hysterectomy was performed, and a widely based polypoid mass measuring 6.5 × 4.5 × 3.0 cm with a smooth surface was found in the uterine cavity. No ascites or palpable lymph nodes were noted during the

operation. Gross inspection revealed polycystic spaces and a mucinous cut surface. Microscopically, the histology showed an adenomyomatous polyp of the corpus that was composed of cystic benign glands and scattered superficial hyperchromatic stroma cells. No mitosis (mitotic figure) was seen (Figure 4). The patient recovered gradually after the operation and was in good health.



**Figure 1.** Pelvic ultrasonography revealing an endometrial polyp-like mass of about 1 × 3 cm in size that was located in the lower segment of the uterus.



**Figure 2.** Color Doppler showing low-resistance flow in the cystic spaces, suggesting malignancy.

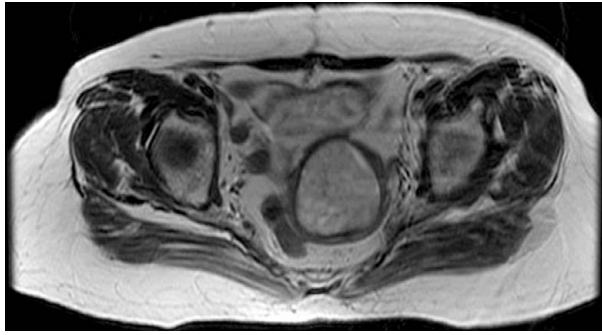


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**Figure 3.** Magnetic resonance imaging revealing an ovoid heterogeneous soft tissue tumor encapsulated within the uterus. However, there was no evidence of an enlarged lymph nodes or ascites.



**Figure 4.** Histology showed an adenomyomatous polyp of the corpus that was composed of cystic benign glands and scattered superficial hyperchromatic stroma cells.

Adenomyomas are composed of endometrial glands and stroma separated by myometrial smooth muscles. A polypoid adenomyoma protruding into the endometrial cavity is called an adenomyomatous polyp. Adenomyomatous polyps may be derived from endometrial stroma cells that are capable of smooth muscle differentiation, possibly secondary to prolonged estrogenic stimulation of an endometrial stromal progenitor cell [3–5]. There is a strong age-dependent association between endometrial polyps and endometrial carcinoma [6]. A linear relationship between the rate of endometrial polyps with malignancies and increasing age was observed, with the highest rate identified in women aged >65 years old, where 32% of the endometrial polyps were associated with malignancy [6].

Adenomyomatous polyps are usually solid, well-circumscribed endometrial masses. They are usually solitary and <2 cm in diameter, but are sometimes larger. The tumors typically arise in the lower segment of the uterine corpus, but may involve the upper corpus or fundus. Their cut surface is yellow-tan or gray to white, with a firm rubbery consistency and a lobulated smooth

surface. Focal hemorrhages into the cysts or stroma may be apparent, but without calcification [5].

Adenomyomatous polyps usually occur in premenopausal women who are younger than those with endometrial adenocarcinoma, but rarely occur in postmenopausal women treated with tamoxifen [2]. Abnormal vaginal bleeding is the most common symptom, as is the case with other endometrial lesions. Polypectomy has been successfully used for the definitive treatment of this entity, without evidence of recurrence [5].

However, adenomyomatous polyps with abnormal vaginal bleeding in postmenopausal women should be differentiated from cancer. One report included 100 cases of müllerian adenosarcomas of the uterus in patients aged 14–89 years (median, 58 years), who also had abnormal vaginal bleeding [7]. An enlarged uterus and tissue protruding from the external orifice were the most common findings. Gross examination of the excised uteri disclosed polypoid masses, commonly filling the endometrial cavity, and some of these masses had spongy cut surfaces. Criteria that have been found to be useful in differentiating müllerian adenosarcomas from müllerian adenofibromas include (alone or in combination) two or more stromal mitotic figures per 10 high-power fields, marked stromal cellularity, and significant stromal cell atypia [7].

Some researchers have published reports describing the sonographic appearances of typical adenomyomatous polyps [5,8]. Ultrasound has been used to reveal polypoid or pedunculated forms, which have smooth outer surfaces and poorly defined margins with the underlying myometrium. The solid submucosal mass may be hypoechoic or hyperechoic compared with the myometrium, with multiple small or large hypoechoic or hyperechoic areas, which reflect the presence of cysts or hemorrhagic areas. However, no studies have used Doppler flow to assess adenomyomatous polyps. In contrast, the typical sonographic appearance of an endometrial polyp is a well-defined, homogeneous, polypoid lesion isoechoic to the endometrium with preservation of the endometrial-myometrial interface [9]. Masses with a parietal index <1.0 [10] or resistance index <0.4 [11] were initially considered to predict malignancy. In our study, the low-resistance flow in the cystic spaces suggested malignancy.

MRI is an excellent imaging technique to visualize the female pelvis and uterus. On T2-weighted sequences, the high signal of the endometrium is easily differentiated from the surrounding low-signal junctional zone and myometrium. Thus, MRI is usually able to image a leiomyoma and show its location relative to the endometrium and the remainder of the uterus [12].

A well-defined polypoid mass protruding into the uterine endometrial cavity that is isointense relative to the myometrium with small or large foci of high signal on T1- or T2-weighted imaging in a premenopausal woman should prompt the inclusion of a typical adenomyomatous polyp in the differential diagnosis [13].

In conclusion, adenomyomatous polyps rarely undergo malignant changes. However, large polyps in postmenopausal patients may be associated with increase risk for malignant neoplasia. Ultrasound and MRI are useful diagnostic tools to evaluate such polyps.

## References

- Altaras M, Cohen I, Cordoba M, Ben Aderet N. Papillary adenofibroma of the endometrium: case report and review of the literature. *Gynecol Oncol* 1984;19:216–21.
- Takeuchi M, Matsuzaki K, Uehara H, Shimazu H, Nishitani H. A case of adenomyomatous polyp of the uterus associated with tamoxifen therapy. *Radiat Med* 2005;23:432–4.
- Longacre TA, Chung MH, Rouse RV, Hendrickson MR. Atypical polypoid adenomyofibromas (atypical polypoid adenomyomas) of the uterus: a clinicopathologic study of 55 cases. *Am J Surg Pathol* 1996;20:1–20.
- Mazur MT. Atypical polypoid adenomyomas of the endometrium. *Am J Surg Pathol* 1981;5:473–82.
- Lee EJ, Han JH, Ryu HS. Polypoid adenomyomas: sonohysterographic and color Doppler findings with histopathologic correlation. *J Ultrasound Med* 2004;23:1421–9; quiz 1431.
- Hileeto D, Fadare O, Martel M, Zheng W. Age dependent association of endometrial polyps with increased risk of cancer involvement. *World J Surg Oncol* 2005;3:8.
- Clement PB, Scully RE. Mullerian adenosarcoma of the uterus: a clinicopathologic analysis of 100 cases with a review of the literature. *Hum Pathol* 1990;21:363–81.
- Reinhold C, Tafazoli F, Mehio A, Wang L, Atri M, Siegelman ES, Rohoman L. Uterine adenomyosis: endovaginal US and MR imaging features with histopathologic correlation. *Radiographics* 1999;19(Spec No):S147–60.
- Davis PC, O'Neill MJ, Yoder IC, Lee SI, Mueller PR. Sonohysterographic findings of endometrial and subendometrial conditions. *Radiographics* 2002;22:803–16.
- Bourne T, Campbell S, Steer C, Whitehead MI, Collins WP. Transvaginal colour flow imaging: a possible new screening technique for ovarian cancer. *BMJ* 1989;299:1367–70.
- Kurjak A, Zalud I, Alfrevic Z. Evaluation of adnexal masses with transvaginal color ultrasound. *J Ultrasound Med* 1991;10:295–7.
- Maizlin ZV, Vos PM, Cooperberg PL. Is it a fibroid? Are you sure? Sonography with MRI assistance. *Ultrasound Q* 2007;23:55–62.
- Kitajima K, Imanaka K, Kuwata Y, Hashimoto K, Sugimura K. Magnetic resonance imaging of typical polypoid adenomyoma of the uterus in 8 patients: correlation with pathological findings. *J Comput Assist Tomogr* 2007;31:463–8.