

DIAGNOSTIC CHALLENGES OF ENDOMETRIAL CARCINOMA MIMICKING PROLAPSED LEIOMYOMA IN A VIRGIN PATIENT: A CASE REPORT

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ABSTRACT

Introduction: Endometrial carcinoma predominantly affects postmenopausal women, yet up to 25% of cases occur in reproductive-aged individuals. Diagnostic challenges arise when patients maintain virginity status, limiting internal gynecological examination. Prolapsed or pedunculated endometrial masses may mimic benign leiomyoma, potentially leading to delayed diagnosis and suboptimal management. Case Presentation: We present a case of a 36-year-old virgin woman with chronic heavy menstrual bleeding, recurrent anemia requiring multiple transfusions, and ultrasonographic findings suggestive of submucosal leiomyoma. Internal gynecological examination was deferred due to virginity considerations. Despite medical management including GnRH agonist therapy, symptoms persisted. Laparotomy revealed a friable mass expelling porridge-like material from the uterine cavity. Histopathological examination confirmed well-differentiated endometrioid adenocarcinoma. Discussion: This case illustrates the diagnostic dilemma when endometrial carcinoma mimics benign leiomyoma in young virgin patients. Sociocultural factors limiting invasive diagnostic procedures, coupled with atypical clinical presentation, contributed to delayed definitive diagnosis. The failure of GnRH agonist therapy and unique intraoperative findings provided critical clues distinguishing malignancy from benign disease. Alternative diagnostic modalities including MRI and transrectal ultrasound should be considered earlier in such cases. Conclusion: Clinicians must maintain high suspicion for malignancy in young women with refractory abnormal uterine bleeding, even when virginity status limits diagnostic options. Adoption of non-invasive or alternative imaging modalities and comprehensive counselling regarding diagnostic procedures are essential to avoid delayed diagnosis of endometrial malignancies.

Keywords: Endometrial Carcinoma, Diagnostic Challenges, Virgin Patient, Prolapsed Leiomyoma, Abnormal Uterine Bleeding.

INTRODUCTION

Abnormal uterine bleeding (AUB) represents one of the most common gynecological complaints, affecting up to 30% of women during their reproductive years (Munro et al., 2018). The etiology of AUB is diverse, encompassing functional disorders (hormonal, coagulation, and iatrogenic factors) and structural abnormalities (fibroids, polyps, adenomyosis, malignancy, and hyperplasia) (Bassette & Ducie, 2024). While most AUB cases in reproductive-aged women have benign etiologies, persistent bleeding despite adequate conservative management warrants investigation for more serious pathology, including endometrial malignancy.

Endometrial carcinoma is the most common gynecological malignancy in developed countries and ranks second after cervical cancer in developing nations (Bassette & Ducie, 2024). It typically affects postmenopausal women with a median age of 60 years. However, recent epidemiological data demonstrate increasing incidence among premenopausal women, with 20-25% of cases diagnosed in women under 45 years of age (Obermair et al., 2020). In young women, endometrial cancer is frequently misattributed to benign conditions

such as submucosal leiomyoma, endometrial polyps, or adenomyosis due to overlapping clinical presentations (Turashvili & Hanley, 2024).

Standard diagnostic evaluation for suspected endometrial pathology relies on clinical assessment, transvaginal ultrasonography, and endometrial sampling. However, in patients who maintain virginity for cultural, religious, or personal reasons, these diagnostic procedures present significant challenges.

Sociocultural barriers, particularly prevalent in Asian and Middle Eastern populations, often result in patient refusal of invasive gynecological examinations (Robatjazi et al., 2015). The World Health Organization has recognized virginity testing as a violation of human rights and has called for its elimination, while simultaneously acknowledging the complex cultural contexts in which these beliefs persist (World Health Organization, 2018).

This diagnostic limitation creates a clinical dilemma, particularly when malignancy mimics benign disease. Prolapsed or pedunculated endometrial masses present additional complexity as they may appear radiologically and clinically similar to prolapsed submucosal leiomyomas, potentially leading to misdiagnosis and delayed appropriate treatment (Eveline et al., 2022).

We present a case that exemplifies these diagnostic challenges: a 36-year-old virgin woman with persistent heavy menstrual bleeding initially diagnosed as submucosal leiomyoma, ultimately proven to be well-differentiated endometrioid adenocarcinoma following exploratory laparotomy. This case highlights the importance of maintaining clinical suspicion for malignancy despite apparent benign findings, the limitations of non-invasive diagnostic modalities, and the need for culturally sensitive approaches to gynecological diagnosis.

RESULT AND DISCUSSION

Diagnostic Challenges in Young Virgin Patients

This case exemplifies the complex diagnostic challenges encountered when managing gynecological pathology in young virgin patients. The convergence of multiple factors— young age, virginity status limiting diagnostic options, and clinical presentation mimicking benign disease—created a perfect storm for delayed diagnosis.

Atypical Presentation of Endometrial Carcinoma

Endometrial carcinoma in reproductive-aged women typically occurs in the context of well-established risk factors including obesity (BMI > 30 kg/m²), polycystic ovarian syndrome, chronic anovulation, nulliparity, diabetes mellitus, or Lynch syndrome (Bassette & Ducie, 2024; Obermair et al., 2020). Our patient remarkably lacked these classical risk factors with a normal BMI of 23.3 kg/m², regular ovulatory cycles, and no family history of gynecological malignancies. This absence of traditional risk factors likely contributed to the initial diagnostic focus on benign etiology.

Recent epidemiological studies demonstrate that 14-25% of endometrial cancer patients are premenopausal, with 5% diagnosed before age 40 (Centini et al., 2025; Obermair et al., 2020). The incidence among young women has increased by 132% over the past 30 years, partly attributed to rising obesity rates and delayed childbearing (Gao et al., 2025). However, a subset of young patients without traditional risk factors still develop endometrial cancer, suggesting additional, yet-unidentified carcinogenic pathways.

Sociocultural Barriers to Diagnosis

Virginity holds profound sociocultural and religious significance in many communities, particularly in Asian and Middle Eastern societies, where it is closely tied to

family honor, marriage prospects, and personal identity ((Crosby et al., 2020; Robatjazi et al., 2015)). A qualitative study from Iran involving gynecologists and forensic medical specialists revealed that virginity testing is requested for both formal (legal) and informal (social) reasons, with examiners experiencing significant ethical ambiguity about the practice (Robatjazi et al., 2015).

The World Health Organization, in collaboration with UN Women and the UN Human Rights Council, issued a statement in 2018 calling for elimination of virginity testing, declaring it "a painful, humiliating and traumatic practice that constitutes violence against women" (World Health Organization, 2018). The American College of Obstetricians and Gynecologists similarly issued a policy statement opposing virginity testing, emphasizing that physical examinations purported to assess virginity are without medical basis and are associated with adverse psychosocial and physical outcomes (American College of Obstetricians and Gynecologists, 2020).

Despite these international recommendations, clinical reality often involves nuanced situations where absolute refusal of internal examination must be respected while simultaneously attempting to provide appropriate medical care. A systematic review by Olson and García-Moreno (2017) found that virginity testing lacks any medical validity, with no reliable relationship between hymenal appearance and history of vaginal intercourse. Nevertheless, clinicians must navigate these complex sociocultural dynamics while prioritizing patient welfare (Olson & García-Moreno, 2017).

In our case, the patient's refusal of hysteroscopy and transvaginal examination eliminated access to the gold standard for endometrial diagnosis—direct visualization and tissue sampling. This created dependence on less sensitive diagnostic modalities and contributed directly to delayed diagnosis.

Clinical Mimicry: Leiomyoma versus Endometrial Carcinoma Overlapping Clinical Features

Both submucosal leiomyomas and endometrial carcinoma present with abnormal uterine bleeding and anemia. Ultrasonographic differentiation can be challenging, particularly when endometrial carcinoma develops a prolapsed or pedunculated morphology. A study by Tsuchiya et al. (2013) described the "broccoli sign"—a characteristic morphology combining a stalk and prolapsed tumor visible on MRI—which can occur with both benign (leiomyoma, polyps) and malignant (endometrial carcinoma, carcinosarcoma) uterine masses. (Tsuchiya et al., 2013)

In a case report of hidden endometrial carcinoma in a patient with known leiomyoma, Sri et al. (2015) emphasized that large prolapsing submucosal fibroids can prevent adequate endometrial sampling and mask underlying malignancy. Their patient, similar to ours, underwent hysterectomy for presumed benign disease, with incidental discovery of stage IA grade 1 endometrial carcinoma on final pathology. (Sri et al., 2015)

A recent case series by Benabderrazik et al. (2024) described four patients with large prolapsed uterine tumors initially thought to be benign leiomyomas. MRI proved crucial for pre-operative characterization, with definitive diagnosis only established through histopathology after hysterectomy. In their series, one case was confirmed as leiomyoma with necrobiosis, two were sarcomas, and one was serous adenocarcinoma—highlighting the broad differential diagnosis for prolapsed uterine masses (Benabderrazik et al., 2024).

Ultrasonographic Limitations

Transabdominal ultrasonography, while valuable for initial assessment, has known limitations in characterizing endometrial pathology. The mass identified in our patient

demonstrated heterogeneous echotexture with feeding vessels—features that can be seen in both leiomyomas with degeneration and vascularized malignant tumors. Eveline et al. (2022) demonstrated in their radiology-pathology correlation study that factors including large intracavitary tumors, adenomyosis, and leiomyomas significantly affect MRI accuracy in assessing myometrial invasion depth in endometrial carcinoma. They emphasized that identifying the intact endometrial-myometrial interface and junctional zone is critical but often challenging in the presence of concurrent benign uterine pathology (Eveline et al., 2022).

Failure of GnRH Agonist Therapy: A Diagnostic Clue

Our patient's persistent symptoms despite three monthly GnRH agonist injections should have raised suspicion for non-leiomatous pathology. GnRH agonists induce a hypoestrogenic state, effectively reducing leiomyoma volume by 40-60% over 3-6 months (Friedman et al., 1993; Lethaby et al., 2001). This occurs through suppression of follicle-stimulating hormone and luteinizing hormone secretion, resulting in decreased ovarian estrogen production.

In contrast, endometrial carcinoma, particularly well-differentiated endometrioid tumors, are often hormone responsive but do not typically regress with GnRH agonist monotherapy (Centini et al., 2025). While GnRH agonist-induced endometrial atrophy might temporarily reduce bleeding, it does not address the underlying neoplastic process. The lack of symptomatic improvement in our patient represented a critical red flag that warranted re-evaluation of the initial diagnosis.

Intraoperative Findings: "Porridge-like" Material

The most striking feature of this case was the intraoperative discovery of friable, necrotic "porridge-like" material expelling from the uterine cavity upon incision. Well-differentiated endometrial adenocarcinomas frequently undergo central necrosis, particularly when they outgrow their blood supply or form pedunculated masses that undergo torsion (Turashvili & Hanley, 2024). This necrotic material, while grossly concerning for malignancy, can occasionally be seen in degenerated leiomyomas with red degeneration or necrobiosis.

Benabderrazik et al. (2024) reported similar findings in their case series, noting that large prolapsed tumors frequently demonstrate extensive necrosis regardless of underlying histology. However, the combination of necrotic tissue, patient age, lack of response to hormonal therapy, and lack of definitive benign features should collectively heighten suspicion for malignancy (Benabderrazik et al., 2024).

Alternative Diagnostic Approaches

Given the diagnostic limitations imposed by patient refusal of internal examination, what alternative approaches could have facilitated earlier diagnosis?

Magnetic Resonance Imaging

MRI represents the gold standard for local staging of endometrial carcinoma and can provide valuable information about tumor characteristics even in the absence of tissue diagnosis (Sala et al., 2019). MRI enables assessment of:

- Tumor size and location
- Depth of myometrial invasion
- Cervical stromal involvement
- Lymph node enlargement
- Extrauterine extension

Recent guidelines from the European Society of Urogenital Radiology emphasize

MRI's role in treatment planning for endometrial cancer ((Sala et al., 2019). Dynamic contrast-enhanced sequences can distinguish endometrial carcinoma from benign polyps and leiomyomas based on enhancement patterns (Eveline et al., 2022). Additionally, diffusion-weighted imaging (DWI) shows restricted diffusion in malignant tumors but not in most benign leiomyomas (Nougaret et al., 2015).

Had our patient undergone pelvic MRI, features such as heterogeneous T2 signal, restricted diffusion, irregular tumor margins, or early enhancement compared to myometrium might have suggested malignancy, prompting more aggressive diagnostic pursuit despite the patient's initial reluctance.

Transrectal Ultrasound

For patients who decline transvaginal examination, transrectal ultrasound (TRUS) offers an alternative route for endometrial assessment. While less commonly performed, TRUS can provide adequate visualization of the uterus, endometrium, and adnexae. Studies have demonstrated TRUS accuracy comparable to transvaginal ultrasonography for assessing endometrial thickness and detecting endometrial abnormalities (Crosby et al., 2020).

Comparison with Published Cases

Several case reports describe similar diagnostic challenges:

Katsuma et al. (2024) reported a 19-year-old woman with stage IA endometrial carcinoma treated with medroxyprogesterone acetate who subsequently experienced recurrence. They emphasized the importance of thorough medical history and endometrial assessment even in young patients, noting that irregular menstruation alone warrants investigation.(Katsuma et al., 2024)

Gerli et al. (2014) presented a 23-year-old patient with endometrioid carcinoma grade II-III, highlighting that endometrial cancer can occur even in very young women. They discussed fertility-sparing treatment options including progestin therapy combined with hysteroscopic resection.(Gerli et al., 2014)

Casadio et al. (2020) published a series of 36 women with G1 endometrioid endometrial cancer, including some with minimal myometrial invasion, who underwent fertility-sparing treatment. Their study is one of the first to extend conservative management to patients with minimal myometrial invasion, demonstrating that selected cases can be managed without immediate hysterectomy.(Casadio et al., 2020)

Fertility-Sparing Treatment: Missed Opportunity?

An unfortunate aspect of this case was the patient's refusal of definitive surgical treatment following diagnosis. Had endometrial carcinoma been diagnosed earlier through less invasive means, fertility-sparing treatment might have been discussed as an alternative to immediate hysterectomy.

Recent guidelines from the European Society of Gynecological Oncology (ESGO), European Society of Human Reproduction and Embryology (ESHRE), and European Society for Gynaecological Endoscopy (ESGE) provide detailed recommendations for fertility-sparing management of endometrial carcinoma (Centini et al., 2025). Suitable candidates include:

- Age < 40-45 years with desire for fertility preservation
- Endometrioid histology, grade 1 (some guidelines include grade 2)
- No or minimal myometrial invasion (< 50%)
- No lymphovascular space invasion
- No extrauterine disease

Treatment options include high-dose oral progestins (megestrol acetate 160 mg daily or medroxyprogesterone acetate 400-600 mg daily), levonorgestrel-releasing intrauterine device (LNG-IUD), or combination therapy with hysteroscopic tumor resection followed by hormonal treatment (Casadio et al., 2020; Centini et al., 2025; Obermair et al., 2020).

A systematic review by Gallos et al. (2012) reported complete response rates of 55-75% with progestin therapy, though 25-40% experience recurrence. Five-year survival rates exceed 95% in appropriately selected patients (Gallos et al., 2012; Obermair et al., 2020).

Our patient, with well-differentiated endometrioid adenocarcinoma and presumably limited disease based on operative findings, might have been a candidate for fertility-sparing treatment had she been receptive to ongoing medical management and surveillance.

Management of Patient Refusal

The patient's refusal of definitive treatment following cancer diagnosis presents both medical and ethical challenges. Clinicians must balance respect for patient autonomy with the duty to provide appropriate care and ensure informed consent.

Key elements of management include:

1. Comprehensive counseling: Ensure patient fully understands her diagnosis, natural history of untreated endometrial cancer, treatment options, and prognosis
2. Exploration of barriers: Identify specific concerns driving refusal (fear, financial constraints, cultural factors)
3. Involvement of family/support systems: With patient permission, engage family members in decision-making
4. Harm reduction approach: If definitive treatment is refused, establish close surveillance with serial endometrial sampling, imaging, and symptom monitoring
5. Documentation: Carefully document all counseling, patient decision-making capacity, and reasons for refusal
6. Cultural sensitivity: Engage cultural liaisons or community leaders if cultural factors influence decision-making

In our patient's case, continued efforts to re-engage her in treatment discussions, potentially involving family members and addressing specific barriers, represent the most appropriate approach.

CONCLUSION

This case illustrates the diagnostic complexity encountered when endometrial carcinoma mimics benign leiomyoma in a young virgin patient. The convergence of atypical patient demographics (young age, normal BMI, regular ovulation), sociocultural barriers limiting internal examination, and clinical presentation indistinguishable from benign disease created substantial diagnostic challenges.

Key factors contributing to delayed diagnosis included patient refusal of invasive diagnostic procedures due to virginity preservation concerns, reliance on transabdominal ultrasonography with inherent limitations, and initial diagnostic bias toward benign disease given patient age and lack of classical risk factors.

Critical clues suggesting malignancy included persistent symptoms despite appropriate medical therapy (particularly failure of GnRH agonist treatment) and the distinctive intraoperative finding of friable, necrotic tissue inconsistent with typical leiomyoma.

This case underscores the importance of maintaining clinical vigilance for malignancy in young patients with refractory AUB, even in the absence of traditional risk factors. When

virginity status or other factors preclude standard diagnostic approaches, alternative modalities including pelvic MRI and transrectal ultrasonography should be employed earlier in the diagnostic algorithm.

Comprehensive counseling addressing both medical necessity and cultural sensitivity is essential to facilitate appropriate diagnostic evaluation. When patients ultimately refuse standard care, clinicians must document thoroughly, explore barriers to treatment acceptance, and establish harm reduction strategies including close surveillance.

Future research should focus on developing culturally sensitive diagnostic pathways for gynecological conditions in populations where virginity preservation is prioritized, and on identifying reliable non-invasive biomarkers for early detection of endometrial malignancy in young women.

DAFTAR PUSTAKA

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