

# A Case of a Juvenile Endometrial Polyp Presenting with Intractable Menorrhagia in an Adolescent Girl

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## Abstract

**Background:** Endometrial polyps are exceptionally rare in adolescents, in whom heavy menstrual bleeding (HMB) is usually due to anovulatory cycles or coagulation disorders. Optimal postoperative management in this age group, particularly regarding recurrence prevention, remains unclear. **Case:** A 14-year-old girl presented with persistent HMB unresponsive to combined estrogen-progestin therapy. Laboratory tests showed no coagulation or endocrine abnormalities. Imaging revealed an endometrial mass extending into the cervical canal, and hysteroscopic resection confirmed a benign endometrial polyp. Given her anovulatory background and presumed unopposed estrogen exposure, postoperative treatment with a low-dose combined oral contraceptive (COC) was initiated. Over a 3-year follow-up, regular cycles were maintained without recurrence. **Conclusion:** Structural causes of HMB, such as endometrial polyps or other organic uterine lesions, should be considered when adolescents remain symptomatic despite hormonal therapy. COCs may serve as an effective postoperative strategy to prevent the recurrence of estrogen-dependent lesions such as endometrial polyps in patients with persistent anovulatory cycles.

## Keywords

Adolescent, Heavy Menstrual Bleeding, Endometrial Polyp, Transcervical Resection, Combined Oral Contraceptives, Recurrence Prevention

## 1. Introduction

Heavy menstrual bleeding (HMB) in adolescents is most commonly caused by

anovulatory cycles associated with hypothalamic–pituitary–ovarian axis immaturity, followed by coagulation disorders, particularly von Willebrand disease. In contrast, structural causes are considered extremely rare. According to Hall *et al.* [1], the etiologies of adolescent HMB include anovulatory bleeding in approximately 24%, coagulation disorders in 25%, and structural abnormalities such as endometrial polyps in fewer than 0.2%.

We report a rare case of an adolescent with severe HMB caused by an endometrial polyp refractory to hormonal therapy. This case highlights the importance of considering structural etiologies despite normal laboratory findings, including coagulation studies. Hysteroscopic resection was performed as definitive treatment, and postoperative management with a focus on recurrence prevention is discussed.

## 2. Case Report

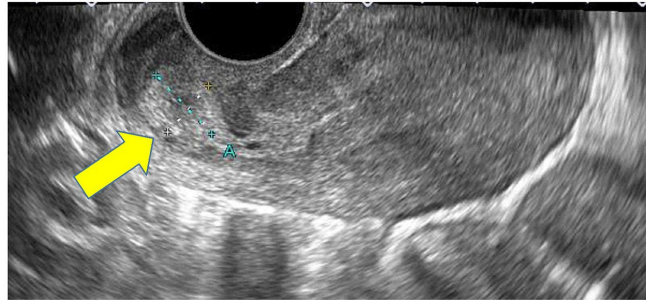
A 14-year-old nulliparous girl with no history of sexual activity presented with persistent abnormal uterine bleeding. Menarche occurred at 11 years of age, followed by irregular menstrual cycles. Six months before presentation, she developed continuous bleeding. A previous physician diagnosed dysfunctional uterine bleeding and initiated treatment with a combined oral contraceptive containing ethinyl estradiol 30 µg and levonorgestrel 150 µg in a cyclic regimen for three months. Despite adherence to therapy, clinically significant bleeding persisted, and the condition was therefore considered a failure of standard COC treatment, but hemostasis was not achieved. Bleeding persisted with progressive anemia, prompting referral to our institution.

At presentation, the patient reported daily bleeding lasting for approximately six months, requiring 8 - 10 sanitary pads per day and passage of large clots. The bleeding interfered with school attendance and physical activity. Refractory bleeding was defined as the persistence of significant bleeding despite at least three consecutive cycles of standard-dose combined oral contraceptive therapy.

On initial examination, she exhibited Tanner stage III development. Hemoglobin was 9.0 g/dL. Coagulation tests, including PT, aPTT, platelet function, and von Willebrand factor antigen/activity, were normal. Endocrine evaluation (LH 2.34 mIU/mL, FSH 6.59 mIU/mL, prolactin 15.4 ng/mL, estradiol 32 pg/mL, testosterone 0.27 ng/mL) was appropriate for age. Speculum examination revealed a mass protruding from the internal os.

Because the patient had no history of sexual activity, pelvic imaging was performed with careful attention to patient comfort and consent. Transabdominal ultrasound was initially used, followed by transvaginal ultrasonography after detailed explanation to the patient and her guardian; no sedation was required.

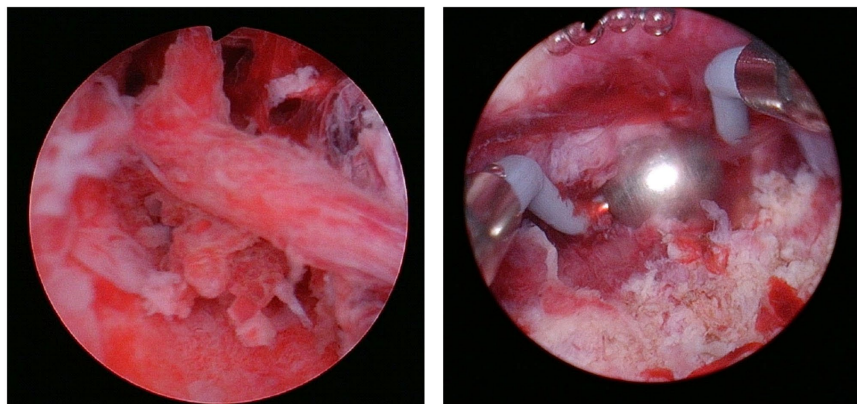
Transvaginal ultrasound demonstrated a 1 - 2 cm intracervical mass without diffuse endometrial thickening (**Figure 1**). MRI showed a T2-hypointense lesion extending from the uterine cavity into the endocervical canal, suggesting either a submucosal fibroid or an endometrial polyp (**Figure 2**).



**Figure 1.** Transvaginal ultrasound demonstrated a 1 - 2 cm intracervical mass without diffuse endometrial thickening (arrow).



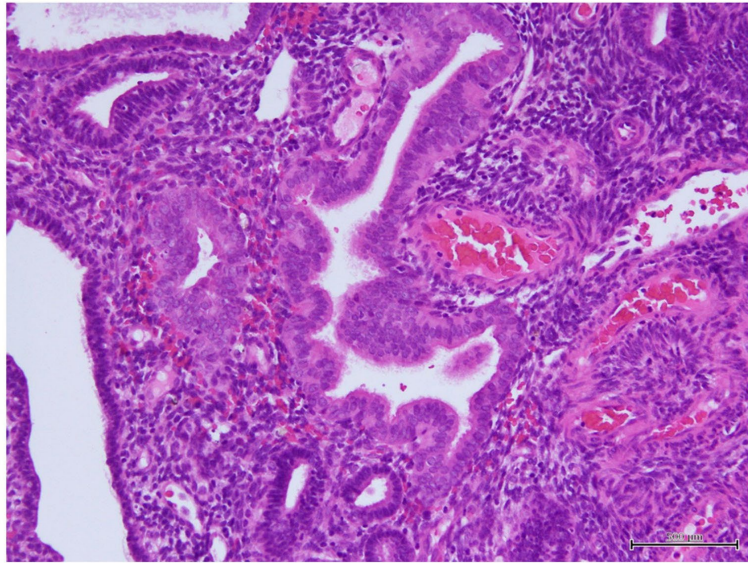
**Figure 2.** MRI showed a T2-hypointense lesion extending from the uterine cavity into the endocervical canal, suggesting either a submucosal fibroid or an endometrial polyp.



**Figure 3.** The main body of the endometrial polyp protruded into the vagina following cervical dilatation, with only the pedicle remaining attached to the posterior wall of the endometrium.

Because of ongoing bleeding and anemia, hysteroscopic resection was performed following cervical preparation. Hysteroscopy revealed a pedunculated in-

tracavitary lesion arising from the endometrium (**Figure 3**). The lesion was completely removed without complication, and postoperative bleeding resolved promptly. Histopathological evaluation showed a well-circumscribed polypoid lesion composed of endometrial glands and fibrous stroma, consistent with a benign endometrial polyp without atypia (**Figure 4**). Given her chronic anovulatory cycles and presumed unopposed estrogen exposure, combined oral contraceptives (COCs) were initiated postoperatively. Over a 3-year follow-up, she achieved regular withdrawal bleeding without evidence of recurrence.



**Figure 4.** Histopathological evaluation showed a well-circumscribed polypoid lesion composed of endometrial glands and fibrous stroma, consistent with a benign endometrial polyp without atypia.

Postoperatively, the patient was started on a low-dose COC containing ethinyl estradiol 20 µg and drospirenone 3 mg (Yaz®) in a cyclic regimen, with a planned duration of at least 12 months. Oral iron supplementation was continued until hemoglobin levels normalized, and complete blood counts were monitored at 1, 3, and 6 months after surgery. Follow-up consisted of clinical evaluation and pelvic ultrasonography every six months.

### 3. Discussion

The majority of HMB in adolescents is attributable to functional causes, most commonly anovulatory bleeding, and hormonal therapy is therefore considered first-line treatment. However, it has been reported that approximately 25% of adolescents with treatment-refractory HMB have underlying coagulation disorders or platelet function abnormalities [1]. Accordingly, screening evaluations—including platelet counts and measurements of von Willebrand factor (vWF) antigen and activity—should be performed in such cases.

Current guidelines recommend that evaluation of adolescent HMB follow a

structured approach based on the PALM–COEIN classification and include screening for coagulation disorders before considering structural causes [2] [3].

In the present case, a 14-year-old girl, three years after menarche, experienced persistent HMB despite the absence of identifiable abnormalities in hemostatic function, coagulation parameters, or hormonal profiles. Imaging studies suggested an endometrial polyp, which was subsequently resected hysteroscopically. Histopathological examination confirmed the diagnosis of an endometrial polyp. Endometrial polyps are extremely rare during adolescence, and only a limited number of cases have been reported in the literature. Davis *et al.* [4] described a case of an endometrial polyp in an 8-year-old girl during early puberty and emphasized the importance of including structural causes in the differential diagnosis of abnormal uterine bleeding, in addition to coagulation disorders and endocrine abnormalities such as precocious puberty. In their report, functional bleeding was initially suspected; however, MRI and hysteroscopic evaluation ultimately led to the diagnosis of an endometrial polyp, and complete resolution of bleeding was achieved after surgical removal.

Imaging findings initially raised the differential diagnosis of a submucosal fibroid versus an endometrial polyp. The absence of myometrial continuity on MRI, the pedunculated appearance on hysteroscopy, and the soft, glandular nature of the lesion favored an endometrial origin. These features, together with the histopathological results, allowed other structural causes to be confidently excluded.

Similar to our case, their findings highlight the risk that structural lesions may be overlooked when bleeding is attributed solely to hormonal imbalance. Endometrial polyps typically occur in women in their 40s to 50s, particularly during the perimenopausal period, and are rare in younger patients. In adolescents, it has been hypothesized that localized glandular hyperplasia may develop during the initial exposure of the endometrium to estrogen, leading to polyp formation [5]; however, the precise pathophysiological mechanisms remain unclear. Moreover, data regarding the natural history and recurrence rates of endometrial polyps in pediatric and adolescent populations are limited. In the present case, MRI and transvaginal ultrasonography were key to diagnosis, allowing safe and complete hysteroscopic resection. The postoperative course was uneventful, and no recurrence has been observed to date. These findings underscore the importance of early imaging evaluation to exclude structural lesions in adolescents with severe bleeding refractory to hormonal therapy. Although complete resection was achieved in this case, recurrence of endometrial polyps cannot be excluded even in young patients. Reported recurrence rates vary but are generally estimated at approximately 13% - 24% [6] [7], with persistent estrogen stimulation and endocrine instability considered contributory factors. Histologically, endometrial polyps are characterized by localized glandular and stromal hyperplasia, and estrogen-dependent mechanisms are thought to play a central role in their pathogenesis. Excess estrogen exposure is therefore regarded as a major risk factor for recurrence [8]. From this perspective, postoperative strategies aimed at recurrence preven-

tion should focus on controlling systemic and local estrogen exposure. Both progestin-only therapy and combined oral contraceptives (COCs) have been reported to reduce recurrence after polypectomy. Wang *et al.* [9] reported that oral progestins induce secretory or atrophic changes in the endometrium during treatment and may effectively control bleeding and suppress proliferative lesions. However, progestins may not adequately suppress ovarian estrogen production, particularly in adolescents who frequently experience anovulatory cycles and relative estrogen dominance. Consequently, their ability to correct the underlying hormonal milieu may be limited. In adult populations, multiple studies have demonstrated that progestin therapy reduces recurrence risk, and meta-analyses suggest that the levonorgestrel-releasing intrauterine system (LNG-IUS), which provides sustained high local progestin exposure, may be superior to oral progestins in preventing recurrence [10] [11]. Nevertheless, the insertion of LNG-IUS in nulliparous adolescents requires careful technical and ethical consideration. In contrast, COCs suppress gonadotropin-releasing hormone-mediated LH and FSH pulsatility, inhibit ovulation, and attenuate cyclical peaks of ovarian estradiol secretion. Continuous use results in a stable, atrophic endometrium, providing both systemic estrogen regulation and long-term endometrial stabilization. In adults with non-atypical endometrial hyperplasia, COCs have demonstrated higher remission rates than oral progestins, indirectly supporting their efficacy in suppressing the hyperplasia-polyp spectrum [9]. Rosenfield *et al.* [12] reported that given the immaturity of the hypothalamic-pituitary-ovarian axis in early postmenarchal adolescents, anovulatory cycles and sustained estrogen exposure are common. Therefore, effective prevention of polyp formation or recurrence requires both restoration of cyclic ovarian function and long-term endometrial suppression. COCs are well suited to achieve the former, while both COCs and LNG-IUS provide strong endometrial stabilization. This physiological rationale supports the consideration of COCs as a first-line option for postoperative recurrence prevention in adolescents, provided no contraindications exist.

This report has several limitations. The effectiveness of COCs for recurrence prevention in adolescents is largely extrapolated from studies in adult populations or in related conditions such as endometrial hyperplasia. Moreover, as this is a single case, no conclusions can be drawn regarding the comparative effectiveness of different postoperative strategies. Further accumulation of cases and prospective studies are required to establish optimal management in this age group.

#### **4. Conclusion**

In adolescents with heavy menstrual bleeding, functional causes such as anovulatory bleeding and coagulation disorders should be considered first. However, when bleeding is refractory to hormonal therapy, rare structural etiologies may underlie the condition. This case highlights the importance of including endometrial polyps in the differential diagnosis of adolescent HMB and underscores the need for careful consideration of postoperative strategies to prevent recurrence.

## Availability of Data and Materials

The data are contained within this article.

## Author Contributions

KT—Data curation; Formal analysis; Original draft writing. AS, AY—Data curation; Formal analysis. YY, MS, TY—Review & Editing.

## Ethics Approval and Consent to Participate

All clinical information and images used in this paper were approved by the Ethical Committee of Kobe Medical Center. The patient gave her written informed consent to publish her case.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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