Tampon Use in Patients with Anorexia Nervosa Can Cause Persistent Vaginal Bleeding: A Case Series

ABSTRACT
Objective: To describe the phenomenon of persistent vaginal bleeding in two patients with severe anorexia nervosa.

Method: We report two cases of young women with severe anorexia nervosa reporting vaginal bleeding that persisted for months despite trials of topical and systemic conjugated estrogen therapy.

Result: A speculum exam by a gynecologist ultimately revealed the source of the bleeding to be tampon-induced vaginal ulcers. These resolved, along with the vaginal bleeding, with vaginal estrogen cream and cessation of tampon use.

Discussion: Most patients with anorexia nervosa are amenorrheic due to reversion of the hypothalamic-pituitary-ovarian axis to a prepubertal state. Vaginal bleeding in patients with anorexia nervosa may trigger needless systemic hormonal treatments, radiographic studies, and multiple physician visits. A careful exam is warranted to evaluate for the presence of tampon-induced vaginal ulcer in patients with anorexia nervosa who have persistent vaginal bleeding.

Keywords: amenorrhea; vaginal bleeding; hormones; estrogen

Introduction
The absence of three consecutive menstrual periods in postmenarchal women defines one of four current diagnostic criteria for anorexia nervosa. As more data are generated regarding menstrual status in all classes of eating disorders, the criterion of amenorrhea may fall out of favor. Physiologically, hypothalamic hypogonadism with impaired gonadotropin-releasing hormone secretion, and low levels of luteinizing hormone, follicular-stimulating hormone, and estradiol represent a reversion of the hypothalamic-pituitary-ovarian axis to a prepubertal state. The return of menses appears to occur at 90% of ideal body weight (IBW) in 86% of adolescents with anorexia nervosa, within six months of achieving this weight. Although some literature speaks to the presence of oligomenorrhea in patients with bulimia nervosa, and to the persistence of normal menstrual periods despite low body weight in patients with anorexia nervosa, to our knowledge no reports exist of persistent vaginal bleeding in patients with anorexia nervosa.

We describe two cases in which patients with severe anorexia nervosa, both weighing less than 70% of ideal body weight (IBW) and hospitalized in an acute medical center for complications of malnutrition and monitored refeeding, incidentally complained of persistent vaginal bleeding. In both cases, outpatient providers had presumed that months of daily light vaginal bleeding were due to endometrial atrophy, but bleeding persisted despite varying doses of systemic hormonal therapies. Ultimately, the history of daily tampon use was elicited during both patients' inpatient hospitalizations, and a speculum and pelvic examination revealed traumatic vaginal ulcerations in the setting of atrophic vaginal mucosa. Cessation of tampon use and initiation of conjugated estrogen vaginal cream resolved the vaginal bleeding.

Cases
Case 1
Ms. S is a 32-year-old Caucasian woman with a history of anorexia nervosa since the age of 15, who...
was admitted to the specialized eating disorder unit of our acute hospital for monitored refeeding. Height and weight on admission were 5'8" and 70.5 pounds (32 kg), with a BMI of 10.7 kg/m², representing 50% of her ideal body weight (IBW). Besides complaints related to her anorexia, the patient complained of daily vaginal bleeding for the previous 15 months.

Gynecologic history was significant for primary amenorrhea for which she was started on 35 mcg triphasic oral contraceptive pills (OCP) with subsequent monthly menses. While taking antibiotics for a sinus infection, she began to have vaginal bleeding. Her weight at that time was 112 pounds, with a BMI of 17 kg/m², which was 80% of IBW. She remained on her triphasic OCP, and bleeding continued daily, requiring increased tampon usage to three per day. One month later, ultrasound evaluation showed a possible "growth" versus polyp in her uterus, and the patient underwent dilatation and curettage and was found to have benign pathology. Her bleeding did not resolve. A repeat transvaginal ultrasound showed an atrophic, thin endometrial stripe. She was prescribed a 2 mg estradiol vaginal ring, with 0.5 mg estradiol nasal spray and 200 mg micronized progesterone. She denied any improvement in her bleeding on this regimen and was then switched to a low dose combined oral contraceptive. None of the therapies changed her bleeding pattern, and she continued to use one to three tampons/day for hygiene.

Exam at the time of initial gynecologic evaluation revealed a cachectic woman with a nontender abdomen or pelvis, and no external genital lesions. Speculum exam was initially deferred due to bed positioning, degree of debilitation, and lack of telemetry monitoring in GYN clinic.

Labs showed WBC count of 4.0 × 10⁹ cells/L (normal 4.5–10 × 10⁹ cells/L), hematocrit of 33.5% (normal 35–45%), and platelet count of 94 × 10⁹ cells/L (normal 150–400 × 10⁹ cells/L). Coagulation parameters were normal. TSH was normal. The patient was given an empiric 10-day trial of transdermal combined 20 mcg ethinyl estradiol/150 mcg norgestimate patch for three months with no change in symptoms. She was then switched to oral conjugated estrogen daily and medroxyprogesterone for 15 days each month, again with no change in bleeding pattern. At this time she was hospitalized for medical complications of her eating disorder.

Gynecologic exam was significant for a cachectic woman with a nontender abdomen and pelvis, and a pelvic exam which revealed pale arophic vulvar mucosa without lesions. Speculum exam showed two granulating friable ulcers of the vaginal mucosa, one 2–3 cm ulcer anterior to the cervix and another 3 cm ulcer on the posterior vaginal wall. No other lesions were noted, and the cervix and remaining bimanual exam were normal.

showed a benign, full thickness epithelial ulcer with mild acute fibrinous inflammation and underlying granulation tissue.

The patient was treated with vaginal estrogen cream nightly and cessation of tampon use. Reexamination two weeks later revealed a healing 1.5 cm vaginal ulcer and minimal vaginal bleeding. Vaginal estrogen cream regimen was decreased to two to three times/week, with resolution of the ulcer and bleeding within a month. Bleeding recurred with decreased doses of estrogen vaginal cream one time per week and repeated tampon use. Symptoms again resolved with nightly estrogen cream for two weeks and strict avoidance of tampon use.

Case 2

Ms. G is a 32-year-old Caucasian woman with a history of anorexia nervosa since the age of 16, as well as Crohn's disease, admitted for supervised refeeding and stabilization of her Crohn's. Height and weight on admission were 5'11" and 76 pounds (34.5 kg), with a BMI of 14 kg/m², representing 73% of IBW. The patient stated that she had been anorexic for four years until five months prior to admission, when she noticed some daily vaginal bleeding that persisted to the time of admission. Her primary care doctor obtained a pelvic ultrasound which was unremarkable and then empirically prescribed systemic estrogens with no change in bleeding pattern. A gynecology consult was obtained.

Current gynecologic history was significant for daily vaginal bleeding that began five months prior to admission, for which the patient used two tampons/day. She denied sexual activity. The patient denied receiving a pelvic exam during this bleeding episode and was empirically started on the transdermal combined 20 mcg ethinyl estradiol/150 mcg norgestimate patch for three months with no change in symptoms. She was then switched to oral conjugated estrogen daily and medroxyprogesterone for 15 days each month, again with no change in bleeding pattern. At this time she was hospitalized for medical complications of her eating disorder.

Gynecologic exam was significant for a cachectic woman with a nontender abdomen and pelvis, and a pelvic exam which revealed pale arophic vulvar mucosa without lesions. Speculum exam showed two granulating friable ulcers of the vaginal mucosa, one 2–3 cm ulcer anterior to the cervix and another 3 cm ulcer on the posterior vaginal wall. No other lesions were noted, and the cervix and remaining bimanual exam were normal.
Labs revealed WBC $3.3 \times 10^9$ cells/L, hematocrit of 30.7%, platelet count of $216 \times 10^9$ cells/L, and iron deficiency. A Pap smear of her vaginal ulcer and of her cervix revealed ASCUS, and her test for high risk HPV was negative. A pelvic ultrasound from prior to admission revealed normal anatomy and an endometrial stripe of 2 mm.

The patient was treated with two weeks of nightly vaginal conjugated estrogen cream and cessation of tampon use, with resolution of her symptoms. She remained symptom free at one year.

Comment

A case literature exists which describes tampon-induced vaginal ulcers causing persistent vaginal bleeding. In each case of an otherwise healthy postmenarchal woman with these findings, cessation of tampon use alone solved the problem. However, to our knowledge no cases of bleeding vaginal ulcers have been reported specifically in patients with anorexia nervosa, who are at high risk for atrophic vaginitis due to the multifactorial regression of their hypothalamic-pituitary-ovarian axis. Clinicians may be unfamiliar with managing vaginal bleeding in patients with anorexia nervosa, since these patients are usually amenorrheic. Indeed, the prevalence of denial in patients with anorexia may cause these patients to delay seeking medical attention for persistent vaginal bleeding if they believe presence of bleeding means their weight is not yet low enough to define an eating disorder.

While it is unclear what caused the initial vaginal bleeding in these patients, several theories may be plausible. Menstrual disturbances are well documented in the anorexia nervosa literature, thought to be due to altered LH secretion patterns caused by malnutrition. This effect alone could explain the onset of bleeding in our patients. These patients were experiencing exacerbations of their anorexia nervosa when the bleeding started, suggesting fluctuations in weight could also play a key role in the onset of bleeding. An additional theory involves atrophic endometrium which is known to bleed irregularly due to destabilization of the endometrium in the absence of estrogen. As our patients had not had regular menses for years prior to their admissions, it is possible that the etiology of their initial bleed was atrophic endometrial shedding, which was then prolonged by multiple hormone therapies, vaginal ulcerations from ongoing tampon use, or a combination of the two.

The differential diagnosis for persistent vaginal bleeding in a patient with anorexia nervosa should include atrophic uterine and vaginal bleeding, coagulation disorders, bacterial vaginosis, and cervical dysplasia in addition to the standard infectious, hormonal and anatomic causes of vaginal or uterine bleeding. A careful pelvic exam should be performed looking specifically for vaginal ulcerations, abnormal discharge, and cervical abnormalities, especially if a history of tampon use has been elicited. Laboratory studies such as a CBC, coagulation studies, and TSH should be considered. If pelvic exam does not reveal a source of bleeding, pelvic ultrasound should be performed to rule out an anatomic abnormality of the uterus or ovaries. Endometrial biopsy is likely unnecessary as these patients lack endogenous estrogen due to their hypogonadotropic hypogonadism and thus will rarely develop hyperplasia. Data from ultrasound studies of endometrial thickness from women with postmenopausal bleeding recommends against endometrial biopsy when the endometrial stripe is $\leq 4$ mm, as the incidence of endometrial polyps or hyperplasia was each only 1.1%, and no cancers were missed at this thickness. While simple discontinuation of tampon use may suffice to resolve vaginal ulcers in healthy hosts, we feel that the universal presence of atrophic vaginitis due to the lack of circulating gonadotropins in patients with severe anorexia nervosa requires supplemental estrogen therapy to resolve the ulcerations. We suggest nightly vaginal estrogen cream, for a minimum of two weeks duration. Therapy there after can be tailored to patient response and symptoms.

In summary, patients with anorexia nervosa typically have amenorrhea. Any vaginal bleeding, especially persistent bleeding, should trigger a workup rather than an empiric course of systemic hormone therapy. In this particularly fragile patient population, these cases remind providers to perform a thorough physical exam and to recognize that unexpected or persistent vaginal bleeding may come from a tampon-induced vaginal ulcer. These interventions may ultimately spare patients needless systemic hormonal treatments and their side effects, repetitive radiologic studies, and multiple physician visits.

References

3. Vyver E, Steinegger C, Katzman DK. Eating disorders and men-
strual dysfunction in adolescents. Ann NY Acad Sci 2008;1135:
253-264.
5. Golden NH, Jacobson MS, Schebendach J, et al. Resumption of
menstrual cycles in anorexia nervosa. Arch Pediatr Adolesc Med
6. Jimerson SD, Becker JD. Vaginal ulcers associated with tampon
7. Friedrich E, Siegesmund K. Tampon associated vaginal ulcer-
8. Ashelby L, Fox R. Chronic vaginal ulceration associated with
continuous use of cotton tampons. J Obstet Gynaecol 2006;26:
9. Nordin AJ, Bates RG. Tampon-induced vaginal bleeding pre-
senting as intermenstrual bleeding. Int J Gynaecol Obstet 1995;
51:261-262.
Disord 1993;16:53-60.
ography of the endometrium in women with posimenopausal
bleeding A Nordic multicenter study. Am J Obstet Gynecol
1995;172:1488-1494.