

Prepubertal Vaginal Bleeding

Diane F. Merritt, MD; Mariel A. Focseneanu, MD

Diagnosis of vaginal bleeding in the female child requires a careful history and physical examination so that appropriate treatment can be offered.

Vaginal bleeding in infants and prepubescent children is rare and should always be evaluated. Common causes for vaginal bleeding include physiologic endometrial sloughing in the newborn associated with withdrawal of maternal estrogen and in children, vulvovaginitis, vaginal foreign bodies, dermatologic conditions, urethral prolapse, trauma, and neoplasms.

The first step in diagnosing the problem is to obtain a thorough history and physical examination. Ask the patient about the onset and duration of bleeding, history of trauma, and associated symptoms (eg, headache, abdominal pain). The office physical examination should be comprehensive, with special attention to evidence of pelvic masses or sexual precocity (eg, breast enlargement, presence of secondary hair). The external genital examination should note any dermatologic lesions, structural anomalies, and evidence of trauma, vaginal foreign objects, or infection.

Documentation of the source of bleeding (vulvar, urethral, vaginal, or anal) is important if the girl is seen during a bleeding episode. Often, however, there is only an un-

documented history of bleeding, with no obvious source.

ETIOLOGIES

Vulvovaginitis

Very often vaginal bleeding is attributable to inflammation or infection. Vulvovaginitis (Figure 1) may be caused by respiratory, oral, and fecal pathogens that cause a purulent, serosanguineous drainage or cause vulvar irritation and excoriation of the skin.¹ Due to low levels of endogenous estrogen, the vaginal mucosa in prepubertal girls is thin, and lack of protective lactobacilli promotes infection. Hand washing, improved perineal hygiene, and avoidance of topical irritants, perfumed or deodorant soaps, and bubble



Photo courtesy of Diane F. Merritt, MD.

FIGURE 1. Vulvitis can present with pruritus, burning, or perianal and perivaginal erythema. It is commonly associated with poor hygiene.

Diane F. Merritt, MD, is Professor, Obstetrics and Gynecology, and Director, Pediatric and Adolescent Gynecology; and **Mariel A. Focseneanu, MD**, is Fellow, Pediatric and Adolescent Gynecology; both at Washington University School of Medicine, St. Louis, MO.



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FIGURE 2. Trauma. This patient sustained a straddle injury. As shown here, straddle injuries generally spare the hymen.

baths will reduce vulvovaginitis. Parents and children should be instructed to wipe front to back. External application of bland emollient barriers such as zinc oxide or petroleum jelly may be helpful.²

Vaginal Foreign Bodies

Foreign bodies are a common cause of vaginal bleeding, and children may present with a foul-smelling, bloody discharge. Vaginal irrigation can be attempted using a small catheter and warm water to flush out debris. If the object is not visible on exam, irrigation is unlikely to remove it, and exam under anesthesia with vaginoscopy is often required. Vaginoscopy not only allows for removal of a foreign object but also can facilitate diagnosis of other causes of the bleeding.³

Dermatologic Conditions

A potential dermatologic reason for bleeding is lichen sclerosus. This condition is characterized by chronic inflammation, intense pruritus, and thinning and whitening of the vulvar and perianal skin in a keyhole fashion. Petechiae or blood blisters may arise and be mistaken as a sign of sexual abuse. Diagnosis is based on these classic clinical characteris-

tics but may be confirmed by a tissue biopsy, if necessary.

Potent topical steroids are the first line of treatment and will usually improve the appearance and symptoms of pruritus. The steroid should then be tapered and used for the shortest duration necessary; flare-ups may occur and require retreatment.^{4,5}

Condyloma acuminatum caused by human papillomavirus can be friable and therefore present as vaginal bleeding in a young girl. When this diagnosis is made, an investigation for sexual abuse is warranted.

Trauma

Trauma to the vulva or vagina (Figure 2) is especially concerning. Most of these injuries are accidental, but physical and sexual abuse must be ruled out. Straddle injuries may result in bruising, hematomas, and lacerations of the mons and labia. Generally, the vagina and hymen are spared in straddle injuries.

The child should be asked to void, and a Foley catheter should be placed for children who are unable to urinate spontaneously, as urinary retention is common due to discomfort. If there is a laceration of the hymen, especially posteriorly, the possibility of child abuse should be considered.

Minor lacerations can be repaired in a cooperative child under sedation or using local anesthesia. If the injury is extensive, general anesthesia may be needed to fully assess injuries and allow repair. If the patient is able to void spontaneously, nonexpanding hematomas can be observed and treated with ice and pain medications. Large, expanding hematomas should be opened and drained, especially if the overlying skin is becoming ischemic.³

Urinary Tract

Disorders of the urinary tract, such as infections leading to gross hematuria, may initially be misinterpreted as vaginal bleeding by concerned parents. Urethral prolapse occurs when the distal end of the urethral mucosa everts either partially or completely. Patients present with painless bleeding or urinary symptoms. Treatment is conservative, with application of estrogen cream at the area of prolapse twice daily for 2 weeks and then, if still present, continued use until resolution. Surgical excision is rarely necessary to remove necrotic tissue.

Gynecologic Neoplasms: Benign and Malignant

Neoplasms of the vulva and vagina are rare. Cavernous hemangiomas of the vulva are benign proliferations of blood vessels that may bleed if traumatized by hygiene, diapers, or clothing. A barrier ointment can be applied if bleeding is a concern. Surgery, embolization, or laser therapy is reserved for severe cases.⁶

Hemangiomas of the perineum may be associated with spinal dysraphism, a developmental abnormality of the spine, so a neurologic assessment should be performed.⁷ Like hemangiomas, hymenal polyps are usually benign. If “polyps” or skin tags are noted at birth, they will generally regress after maternal levels of estrogen decrease in the infant. There is no need for surgical excision unless these hymenal tags appear to be growing or causing hygiene difficulties.

Benign papillomas may arise in the vagina of children and result in vaginal bleeding. Vaginal polyps, however, should be resected and sent for pathologic evaluation to exclude malignancy, especially if they are associated with bleeding.

Embryonal rhabdomyosarcomas (also known as sarcoma botryoides; Figure 3) are malignant multicystic masses that can be found in the vagina, hymen, and urethra. Once the diagnosis is confirmed, collaboration with pediatric oncology is recommended for appropriate treatment.⁸

A rare tumor occurring in the vagina of infants is the endodermal sinus tumor. This disease usually occurs in children younger than 2 years, and survival rates are poor. Combination surgery and chemotherapy are appropriate.

Malignant juvenile granulosa cell tumors of the ovary may present as abdominal masses and are known to produce estrogen, thereby stimulating secondary sexual development and vaginal bleeding in children. Functional ovarian cysts can occur in fetuses, neonates, and children, and generally they resolve spontaneously. Isolated benign follicles of the ovary may produce enough estrogen to cause endometrial proliferation, followed by sloughing as the functioning follicle resolves.

Central Precocious Puberty

Vaginal bleeding can be a presenting sign of precocious puberty, which is defined as pre-



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FIGURE 3. Rhabdomyosarcoma. This girl presented with prepubertal bleeding and no signs of secondary sexual development. Vaginoscopy revealed a lesion attached to the cervix, which is seen here protruding through the vagina.

mature development (pubic hair or breast development) before age 7 in non-African American girls and before age 6 in African American girls.⁹ Evaluation includes thorough physical examination looking for secondary sexual characteristics.

The diagnosis may require observation of progression from one stage of pubertal development to the next in less than 3 to 6 months. Diagnostic studies include measurement of accelerated growth velocity demonstrated by growth charts and advanced bone age. The gold standard is measurement of gonadotropins after gonadotrophin-releasing hormone (GnRH) or GnRH-agonist stimulation. Compared to those with gonadotropin-independent precocious puberty, patients with central precocious puberty will exhibit an elevated basal or stimulated luteinizing-hormone level. These patients need an MRI of the brain to determine whether there is a CNS tumor.¹⁰

Exogenous Exposure to Estrogens

Another etiology for childhood vaginal bleeding is exogenous exposure to estro-

TABLE. Prepubertal Bleeding Etiologies

- Vulvovaginitis
- Vaginal foreign bodies
- Dermatologic condition
- Trauma
- Urinary tract disorder
- Gynecologic neoplasm
- Central precocious puberty
- Exogenous exposure to estrogen
- Factitious bleeding
- Neonatal endometrial sloughing

gens. These exposures can occur from accidental ingestion of birth control pills, foods, and beauty products that contain estrogen or estrogen-like components.

Factitious Bleeding

It is important for a health care professional to document the presence of vaginal bleeding and seek the underlying cause. Each child deserves a comprehensive work-up, including an examination, vaginoscopy, ultrasound, or hormone testing as needed. Failure to find a cause, and failure for anyone other than the parent to corroborate the bleeding, may suggest that this is an attention-seeking event or Munchausen by proxy.

CONCLUSION

With the exception of neonatal endometrial sloughing, vaginal bleeding in the infant or prepubertal girl is never normal. A careful history and physical examination must be done to identify the source of bleeding (Table) so that appropriate treatment can be offered.

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 409 12th Street, SW
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