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PREPUBERTAL GENITAL BLEEDING: EXAMINATION AND DIFFERENTIAL DIAGNOSIS IN PEDIATRIC FEMALE PATIENTS

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Abstract—Background: Prepubertal genital bleeding can be caused by a variety of etiologies including trauma, infection, structural, hematologic disorders, precocious puberty, and malignancy. Urethral prolapse can be seen in prepubescent girls due to a relative estrogen deficiency. Urethral prolapse classically presents with urethral mass and vaginal bleeding, often associated with constipation. **Case Report:** A healthy 6-year-old White girl presented to the Pediatric Emergency Department (ED) with vaginal bleeding for 1 day preceded by a few months of constipation. In the ED the patient's physical examination was remarkable for a tender, nonmobile mass at the vaginal introitus. Transabdominal pelvic and renal ultrasounds were unremarkable. The emergency physician's working diagnosis was a vaginal mass concerning for sarcoma botryoides. Pediatric and Adolescent Gynecology (PAG) was consulted. They performed an examination under anesthesia (EUA) with cystoscopy and vaginoscopy. The EUA confirmed a urethral prolapse approximately 2 cm in diameter. The patient was treated with conjugated estrogen vaginal cream. At her 1-month follow-up, the urethral prolapse had resolved. **Why Should an Emergency Physician Be Aware of This?:** Performing a proper pelvic examination of a prepubescent girl presenting with vulvovaginal bleeding is crucial to form an accurate diagnosis in the ED setting. By placing the young girl in the frog-leg or knee-chest position and using both lateral and downward traction of the vulva, one can adequately visualize the external genitalia and outer 1/3 of the vagina. This can help streamline diagnosis and avoid unnecessary examinations and anxiety. © 2018 Elsevier Inc. All rights reserved.

Keywords—prepubescent; pelvic examination; urethral prolapse; vulvovaginal bleeding

INTRODUCTION

Although gynecologic problems are uncommon in prepubescent girls, it is important to practice routine assessment of external genitalia in all young girls presenting with prepubertal vulvovaginal bleeding. A differential diagnosis of prepubertal vulvovaginal bleeding includes trauma, vulvovaginitis, structural disorders, hematologic disorders, precocious puberty, and sarcoma botryoides, a malignant vaginal tumor in young girls. Adolescent girls with gynecologic complaints most commonly present with abdominal pain, pelvic pain, or abnormal uterine bleeding (1). An appropriate pediatric gynecologic examination is crucial for making the correct diagnosis, especially in an ED setting. Children are not little adults, so the same pelvic examination done on adult women is not appropriate for prepubescent girls. The knee-chest position, along with downward and lateral traction of the vulva, is the best way to visualize the vulva and outer one-third of the vagina in a prepubescent girl (2).

Urethral prolapse is a protrusion of the distal urethra through the urinary meatus. It has an estimated incidence of 1 in 2880 (3). Urethral prolapse is seen not only in prepubescent girls but also postmenopausal women, due to a

relative estrogen deficiency. The distal portion of the female urethra has a high concentration of estrogen receptors further contributing to the risk for urethral prolapse in estrogen-deficient patients (3). There is a higher incidence of urethral prolapse in girls of African descent, but the reason for this remains unclear. Additional risk factors for young girls include trauma, urinary tract infection, anatomical defects, and increased intraabdominal pressure from chronic coughing or constipation. Urethral prolapse in prepubescent girls typically presents with a urethral mass and vaginal bleeding, often in association with constipation. Diagnosis is made clinically by symptomatology and a classic “doughnut sign,” illustrated in Figure 1, on physical examination (3,4). Early recognition of urethral prolapse is important to avoid unnecessary examinations, eliminate patient and family anxiety, and institute proper treatment.

CASE REPORT

A healthy 6-year-old White girl with a past medical history significant for allergic rhinitis and eczema presented to the Pediatric ED with vaginal bleeding. The patient’s mother reported bright red vaginal bleeding “like a period.” On the day of presentation, the mother reported the patient was soaking through a regular absorbency pad every 2–3 h. The mother denied passage of clots and reported increased urinary frequency and urgency at night, dysuria, constipation, and abdominal pain for the last few months. The patient said that she “had to strain hard” in order to pass a bowel movement. The parents had no concerns for abuse. A confidential history from the patient confirmed no history of abuse. The patient denied appetite changes, behavioral changes, prior bleeding episodes, fever, chills, nausea, vomiting, or weight changes. The patient had no pertinent surgical, family, or social history. In the ED the patient’s physical examination was unremarkable other than her genitourinary examination. The external genital examination showed no rashes or lesions, but a nonmobile grape-like mass was noted at the vaginal introitus that was tender to palpation by swab.

Laboratory values and imaging studies were ordered. Imaging included a pelvic transabdominal ultrasound and complete renal ultrasound. The pelvic transabdominal ultrasound was unremarkable, showing a normal appearance of the uterus and ovaries. No adnexal masses were noted. Her renal ultrasound was also unremarkable. A complete blood count, coagulation studies, and urinalysis were within normal limits. Her urinalysis was significant for large urine blood and urine red blood cells > 180. The emergency physician diagnosed vaginal bleeding with mass, concerning for sarcoma botryoides. Pediatric Adolescent and Gynecology (PAG) was then



Figure 1. Classic “doughnut sign” visualized on pelvic examination of patient with urethral prolapse. Reproduced with permission from *Pediatrics in Review*, Vol. 27, Pages 213–23, Copyright © 2006 by the Association of American Pediatrics (4).

consulted to further evaluate. Outpatient follow-up with PAG was scheduled to evaluate for a possible examination under anesthesia (EUA) with biopsy to rule out malignancy.

PAG examination was carried out with the patient in the dorsal lithotomy position (Figure 2). The patient was then scheduled for an EUA with cystoscopy and vaginoscopy to better examine the lower genital tract to confirm the suspected diagnosis of urethral prolapse. EUA revealed a urethral prolapse approximately 2 cm in diameter, irregularly shaped, friable, exuberant, and erythematous, with dark purple-colored peripheral margins. The cystoscopy and vaginoscopy were normal. The patient was discharged home with instructions to apply conjugated estrogen vaginal cream to the prolapse. At the patient’s 1-month follow-up examination, the urethral prolapse was completely resolved and her genital examination was normal. The conjugated estrogen cream was discontinued and dietary changes were discussed to help improve the patient’s constipation.

DISCUSSION

Although urethral prolapse is a less common cause of urogenital bleeding in prepubescent girls, it is an important differential diagnosis. Other diagnoses, listed in Table 1, which should be included on the differential, can be divided into multiple etiologies including traumatic, infectious, structural disorders, hematological, hormone-

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