A 3-Year-Old Girl with a Recent History of Yellow-Green Vaginal Discharge

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A 3-year-old previously well girl presented with her mother with a 3- to 4-day history of yellow-green vaginal discharge. Her mother noted the discharge was present on the child’s underwear. The mother reported that the child has had some intermittent vaginal itching as well, but no complaints of pain. There has been no bloody vaginal discharge. The child has been potty trained for approximately 9 months, and she has not had any recent urinary or stool accidents. She has no nocturnal enuresis. She has been afebrile and otherwise has been acting well. She does take bubble baths frequently.

The mother denied any behavioral changes, tantrums, or developmental problems. The mother had recently started a new job working nights. The child’s maternal uncle cares for her and her siblings at night while the mother works. She has visitation with her father as well, usually once per week overnight. The mother denied any suspicion of sexual abuse.

On physical exam, the child appeared well. Her genital exam reveals a prepubescent child with scant green discharge from the vagina. A urinalysis reveals 3+ leukocyte esterase. A urine culture was sent, as was a vaginal bacterial culture. The child was sent home with the mother with a diagnosis of nonspecific vulvovaginitis with cultures pending. Hygiene matters were discussed at length, including the use of cotton underpants, the discontinuation of bubble baths, and proper wiping.

Two days later, the laboratory contacted the office to report the results of the child’s vaginal culture.

Editor’s note: Each month, this department features a discussion of an unusual diagnosis in genetics, radiology, or dermatology. A description and images are presented, followed by the diagnosis and an explanation of how the diagnosis was determined. As always, your comments are welcome via email at pedann@Healio.com.

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Her genital exam reveals a prepubescent child with scant green discharge from the vagina.
Diagnosis:
Sexually Transmitted Infection from Sexual Abuse

The child’s vaginal culture was positive for Neisseria gonorrhoeae.

The child and mother were immediately called back to the office. The mother was informed of the results and expressed shock. The child’s vaginal discharge had continued but not worsened. She had a repeat physical exam done by a pediatrician with experience in child abuse and her exam revealed a crescentic hymen with a hymenal notch at the 6 o’clock position. Cultures of the vagina, rectum, and oropharynx were obtained. Specifically, cultures from the vagina and oropharynx were plated on chocolate blood agar-based media with a CO₂ tablet. Chlamydia trachomatis cultures were also obtained from the vagina and rectum. HIV testing was offered and the mother consented. Child Protective Services was immediately notified. Repeat vaginal cultures ultimately were again positive for N. gonorrhoeae, as was the oropharyngeal gonococcal culture.

The child was given intramuscular ceftriaxone and oral azithromycin, and she was discharged to the care of her mother with Child Protective Services investigating. The child underwent forensic interviewing that was unrevealing. She ultimately had longitudinal sexually transmitted infection testing for a total of 6 months, including rapid plasma reagin (RPR), HIV, and hepatitis B and C, all of which were negative.

Her male siblings — who were age 13 years, 11 years, and 11 months at the time — all were offered medical exams. These exams were not done on the same day as their sister, the index patient. The two older brothers denied any sexual abuse, and they had normal physical exams. They had urine sent for nucleic acid amplification testing for N. gonorrhoeae and C. trachomatis, both of which were negative. They had negative oropharyngeal cultures. The 11-month-old brother had a physical exam that was unremarkable. He also had urethral and rectal cultures sent for N. gonorrhoeae and C. trachomatis, as well as oropharyngeal cultures for gonorrhea. Ultimately, his oropharyngeal culture was positive for N. gonorrhoeae. After a police investigation, no adult was ever identified or charged with child abuse in this case.

DISCUSSION

Approximately 5% of children who are sexually abused acquire a sexually transmitted infection. Infections of the rectum and throat, which are usually asymptomatic, can also occur. Newborn babies born to infected women can acquire conjunctivitis or pharyngitis from Neisseria, but beyond the newborn period, infection with N. gonorrhoeae in an infant or prepubertal child should be considered diagnostic of sexual abuse and prompt reporting to Child Protective Services.2,3

In this particular child, there was no disclosure of sexual abuse at the time of presentation, nor thereafter in the course of the police investigation. This underscores the importance of laboratory confirmation of N. gonorrhoeae infection. For gonorrhea culture, swab specimens should be Dacron or rayon, as calcium alginate and cotton can inhibit the organism. In prepubertal girls, specimens should be collected at the vaginal introitus or vaginal walls and left for 10 to 15 seconds to absorb any secretions. Swabs should then be directly inoculated onto appropriate growth media, such as Thayer-Martin agar, which prevents the overgrowth of other endogenous flora. Viable organisms decrease quickly, as early as 6 hours after plating, especially if the specimens are refrigerated, so prompt transport to the laboratory is necessary. The use of culture in identifying gonorrhea allows for antibiotic sensitivity to be performed, as well as the ability to isolate gonorrhea from non-genital sites.4,5

Many offices and hospitals now utilize nucleic acid amplification tests (NAAT) in the diagnosis of STIs. NAATs have increased sensitivity over culture and do not require invasive specimens.
Culture remains the gold standard, however, in the detection of *N. gonorrhoeae* and *C. trachomatis* in sexually abused prepubescent children. There is growing evidence in the literature that the use of NAATs in prepubescent children may be equivalent if not superior in diagnosing some STIs (a discussion into this is beyond the scope of this article).

What is unique about this case is that both the index child who presented with vaginitis and her asymptomatic infant brother both had positive oropharyngeal cultures for *N. gonorrhoeae*. Gonococcal pharyngitis does develop after genital oral contact. Asymptomatic carriage of *N. gonorrhoeae* in the pharynx of sexually active adults is not uncommon. This 3-year-old girl was almost certainly sexually abused, but given her young age was unable to make any specific disclosures about the nature of that sexual abuse. At subsequent visits, her mother reported some sexualized play, including seeing her masturbate with a crayon. Both she and her infant brother often shared pacifiers. Child Protective Services and the investigating police department questioned the possibility of oropharyngeal self-inoculation from vaginal secretions or the possibility of innocent transmission to the infant brother through a shared fomite, like a pacifier, between the two children. However, gonococci survive on surfaces outside the human body for very short periods of time and are very sensitive to drying. Viable gonococci have not been recovered from random samplings in public restrooms. There is a dearth of recent literature on self-inoculation of gonococcus or pharyngeal infection in prepubertal children with gonorrhea.

Given that, I concluded that it was highly probable that both children were sexually abused, but that my degree of certitude regarding the baby brother, particularly in light of the shared pacifiers and masturbatory behavior of the young girl, was not as strong as for his sister.

**REFERENCES**