



Perianal Dermatitis: Much More Than Just a Diaper Rash

Stan L. Block, MD, FAAP

Diaper rash presents in a variety of ways. Each case must be assessed for the multitude of possible etiologies or triggers for the rash. The following cases explore important causative etiologies an office practitioner will occasionally encounter.

CASE 1

You are seeing a 2-month-old female for the first time for her well-baby checkup. She was a full-term, seven-pound, healthy baby, born by spontaneous vaginal delivery, whose mother had a positive Group B Beta streptococcus (GBBS) bacterial screen. The mother was treated with prophylactic intravenous ampicillin, and the infant had an otherwise normal newborn course.

The baby eats 6 to 7 ounces of standard milk-based formula per feeding and has about 5 to 7 wet diapers and 2 to 4 firm stools daily. She has had no respiratory symptoms, fever, cough, or rash since birth. Your examination reveals a healthy looking infant with normal growth parameters, tympanic membranes, nose, pharynx, and neck. The heart, lungs, abdomen and extremities are normal. However, when you

remove the diaper, you notice the erythematous-based, slightly nonmacerated rash of the perianal area extending slightly up to the labia majora (see Figure 1). The rest of her dermatologic examination is normal. Which test(s) should you perform next?

CASE 2

The mother reports to you that her healthy 4-month-old female has had some pink staining of her diaper over the previous 2 weeks, and yesterday she noted some actual blood in the diaper. The child has been afebrile, eating well, and lacking any constitutional or systemic symptoms. She has had no vomiting or diarrhea, her stools are usually loose or soft since she has started baby fruits this month, and the stools are not bloody. No one else in the family has been ill, particularly with any diarrhea. She has never received any antibiotics.

Your examination of the child shows a well-appearing, afebrile child with normal growth parameters, tympanic membranes, pharynx, and neck. The remainder of her examination is normal except for the diaper area with the rash seen in Figure 2. Which test(s) should you perform next?

CASE 1 DISCUSSION

Despite the newborn in utero antibiotic exposure from the mother's GBBS prophylaxis, the appearance of the rash just does not look like *Candida*. It is not purplish, and it does not have any satellite lesions. Thus, you decide to order a routine bacterial "wound" culture for Group A streptococcus (GAS) by obtaining a skin swab of the red rash. You also ask the mother if any



Figure 1. A 2-month-old asymptomatic girl with perianal dermatitis extending to the labia.



Figure 2. A 4-month-old girl who developed blood in her diapers over the past 24 hours along with the onset of obvious diaper dermatitis.

other family members have been recently ill. She responds that the infant's 8-year-old sibling was diagnosed with streptococcal pharyngitis last week. Should you also perform a rapid strep test of the infant's throat? Possibly, but the yield is certainly almost none.

You know that this rash in a 2-month-old infant is not in any way typical for impetigo, yet you empirically prescribe amoxicillin 40 mg/kg/day divided twice daily for the infant based on your strong suspicion of streptococcal perianal dermatitis (SPD).

Stan L. Block, MD, FAAP, is Professor of Clinical Pediatrics, University of Louisville, and University of Kentucky, Lexington, KY; President, Kentucky Pediatric and Adult Research Inc.; and general pediatrician, Bardstown, KY.

Address correspondence to Stan L. Block, MD, FAAP, via email: slblock@pol.net.

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You do this despite this infant's extremely young age for strep and a lack of reports in the literature of this disease syndrome in newborns this young. After 48 hours, your suspicions are confirmed. The culture grows GAS. With your follow-up phone call to the mother, you are told that the rash has now nearly disappeared. It appears that the infant had acquired the infection via her affectionate older brother's kisses. He visited the office the next day with symptomatic pharyngitis and a positive strep rapid antigen detection test (ADT).

CASE 2 DISCUSSION

This 4-month-old girl's rash (see Figure 2, page 12) appears to have well-defined borders, and to be fiery reddened and macerated, which likely accounts for the blood in the diapers. However, the edges of this infant's rash appear also to have some satellite lesions. Is this *Candida*, or could this be some impetiginous or folliculitis satellite lesions? With the history of blood in the stool, you also might be concerned about the possibility of an enteric pathogen-caused colitis, especially since your community is recently experiencing a large *Shigella* outbreak. However, the child's stools are only occasionally loose. Thus, you are also not particularly alarmed about a possible *Clostridium difficile* toxin, especially with the lack of any previous antibiotic exposure.

As in Case 1, you elect to obtain a bacterial wound culture of the infant's perianal rash for potential streptococcal infection. You have previously observed older infants who had some bleeding in their diapers with similar perianal streptococcal diaper rashes. The rash does not appear to be typical for either candidal dermatitis (see Figure 3) or staphylococcal dermatitis (see Figure 4). You empirically initiate antimicrobial therapy with amoxicillin at 40 mg/kg/d administered twice daily for 10 days. The culture result at 48 hours reveals GAS. She does well on the antibiotic with no recurrence of the infection. No other family member had a likely streptococcal infection, such as pharyngitis or impetigo. Thus,

you are unsure of the source of her infection because young infants rarely ever develop streptococcal pharyngitis.

STREPTOCOCCAL PERIANAL DERMATITIS (SPD)

In the past, SPD has been termed "perianal cellulitis" or inaccurately, streptococcal "proctitis." The incidence of SPD ranges from about 1 in 2000 to 1 in 200 patient visits.¹ However, the most fascinating aspect of these two cases is the very young age of the children, as most series on SPD report a minimum age of 6 to 9 months.^{1,2} This very erythematous and usually well-demarcated confluent rash of the perianal mucosa is a superficial, noninvasive infection. However as Figure 1 (see page 12) shows, in younger infants, the edge of the rash may not appear as well demarcated.

Typical SPD starts at the anus and spreads centrifugally, and sometimes upward to the vulva (see Figure 1, page 12) or to the scrotum/penis as well. It differs significantly from impetigo (summertime; round, honey-crusted, or bullous lesions); scarlet fever (fine discreet maculo-papular rash starting initially in the groin, axilla, and abdomen); pustular folliculitis (usually a staphylococcal infection, see Figure 4); and erysipelas (a rash commonly on the face and associated fever and ill appearance). And unlike most other nondermatologic streptococcal infections, SPD does not produce any constitutional symptoms such as fever or headache. SPD must also be differentiated from candidiasis, pinworms, seborrhea, and (rarely) sexual abuse.

Recognition of SPD often depends on your distinct clinical gestalt and a high index of suspicion; it is particularly beneficial to have confirmed a few cases of SPD. Typical characteristics of SPD are listed in the Sidebar (see page 14).

Most children with this fiery red, perianal SPD rash present with rectal itching or rectal pain as their chief complaint. Strep pharyngitis is not commonly associated with SPD either, although I personally have observed it concomitantly in many younger



Figure 3. A 9-month-old boy with typical *Candida* diaper dermatitis with purplish hue and satellite lesions.



Figure 4. A 6-month-old boy with typical multiple discreet pustular folliculitis lesions of *Staphylococcus* infection in the diaper region.

school-age children with SPD. For example, a 10-year-old girl experiencing months of recurrent abdominal pain presented to our office with new onset of blood in her stools. While withdrawing the colonoscope during a colonoscopy, the referral gastroenterologist serendipitously noted the girl had a characteristic erythematous rash on the anal area. The patient had not complained of any anal issues, probably due to her age and/or embarrassment. An anal skin culture was obtained and it grew GAS. The patient was treated with amoxicillin, and the rectal bleeding subsided completely. The colonoscopy was normal, but the recurrent abdominal pain persisted, likely due to common prepubescent ovarian discomfort (a pelvic ultrasound performed on the patient was normal).

DIAGNOSIS OF SPD

In Case 1, your colleague asks you why you did not order a swab for an in-office strep rapid ADT of the infant's rash. You explain that first, in light of the young

age and the maternal prenatal history, the streptococcal rash could be Group B beta streptococci, and the ADT would not have detected this strain. Second, you happen to be well-versed in the Clinical Laboratories Improvement Act (CLIA), which can lead to a fine of up to \$10,000 for any inappropriate use of a laboratory test, even if it is CLIA-waived. The in-office rapid ADT is only approved for pharyngeal testing.

However, Clegg and colleagues² showed in a small study of 239 patients with extrapharyngeal strep infections, (73 cultures from perineal sites) that 3 different streptococcal ADT tests were accurate between 92% and 97% of the time, and that all the positive ADT tests correlated 100% of the time with bacterial culture. Unfortunately (and fascinatingly), as part of the CLIA's "improvements," if one performs an in-office streptococcal ADT, the results cannot be displayed in the chart or used to treat the patient. Repeat violators of this regulation could possibly be subjected to a \$10,000 fine.

So why not just send out the rapid ADT to a reference laboratory? For some strange reason, your experience has been that the results from a streptococcal culture return just as fast as when the "rapid" ADT is sent out to the reference laboratory.

TREATMENT OF SPD

You know that either amoxicillin or penicillin would be the treatments of choice for GAS infections, and that no *Streptococcus* isolate has ever been reported to be resistant to this class of drugs. But clinicians who suspect a concomitant staphylococcal infection in SPD still should not prescribe trimethoprim-sulfamethoxazole because Group A streptococci are nearly uniformly resistant. Also macrolides, such as azithromycin, should rarely be used, because of the frequent resistance of streptococci to this class of drugs.

A recent retrospective study of 81 children with SPD by Olson and Bruce³ reported a high rate of recurrence in SPD after treatment with either a penicillin drug (38%) or beta-lactamase resistant antibiotic (28%). The meta-analysis of antibiotic failures in SPD showed the failure rate was also

consistently higher with the amoxicillin/penicillin drugs than with beta-lactamase stable drugs (odds ratio, 2.39).

Feigin and Cherry's *Textbook of Pediatric Infectious Diseases*⁴ suggests that these higher rates of recurrence in SPD are more likely a result of intra-familial transmission, and that evaluation and treatment of other family members may be necessary. In addition to Case 1, you personally have seen this phenomenon in your office in a set of 8-year-old twin boys, who had spread SPD to each other. For refractory SPD, oral clindamycin or a cephalosporin plus rifampin also may be necessary.⁴

COMPLICATIONS

You suspect that in practice, these perianal rashes are frequently misdiagnosed and/or left untreated for weeks or even months sometimes due to unwary parents or clinicians. It is often misdiagnosed as "pinworms," "diaper rash," or "yeast." You worry that untreated streptococcal infections of the throat and impetigo of the skin as a group may lead to rare suppurative complications such as lymphadenitis, cellulitis, septicemia, abscesses, or to rare autoimmune complications such as acute rheumatic fever or acute glomerulonephritis.

However, to my knowledge, this rash has not been associated with any of these rarer complications, even with very delayed diagnosis. Nonetheless, during 30 years of practice, I have observed only the following minor sequelae: scarlatini rash; anal fissures; constipation due to painful defecation; secondary guttate psoriasis; and as described above, possible unnecessary endoscopic procedure.

Although rarely discussed in textbooks, the other major concern during the evaluation of a potential SPD rash is always the possibility of sexual abuse or a sexually transmitted infection. Clinicians must continue to be vigilant, but SPD itself is not associated with sexual abuse.

CONCLUSION

Thorough examination of all children with any rectal pain, bleeding, itching, or rash is paramount. You will strongly sus-

SIDEBAR.

Typical Characteristics of Streptococcal Perianal Dermatitis

Age: 6 months to 10 years
 Males: more common
 Pruritus: 80%
 Rectal pain: 50%
 Hematechezia: 33%
 Guttate psoriasis: rarely
 Family spread: common

Source: Adapted from Nelson Textbook of Pediatrics¹

pect the rash of SPD via your gestalt of the rash once you have confirmed a few cases. The rash's appearance is usually typical (as seen in the figures), but be keenly aware that SPD can occur in infants as young as 2 months, as seen in Figure 1 (see page 13).

I prefer to initiate therapy with amoxicillin 40 to 50 mg/kg/day divided twice daily, once a "wound" culture for GAS of the perianal mucosa has been obtained and a rapid strep ADT of the throat has been performed. An oral cephalosporin may be considered if you are observing a high rate of streptococcal recurrences or if the child failed amoxicillin. Note that you must clearly label the transport media for the anal swab like you would for a "wound" or throat culture. Do not label it for a stool culture, which may likely miss this streptococcal pathogen. Use of an anal rapid strep ADT to diagnose SPD is helpful, scientifically sound, and very practical. But reporting it on the chart could be financially perilous during your annual CLIA audit. ■

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