You are constantly fascinated by the symmetrical fashion in which certain dermatologic skin lesions manifest in children. As the following children presented to your office with these naso-labial and labial rashes, you still needed to consider several potential etiologies of the lesions — from bacterial to viral to fungal to irritant sources. And sometimes two distinctly different causes might become apparent either upon closer inspection or lack of response to treatment.

As I have repeatedly stated, adhering strictly to the “Occam’s razor” principle of applying only the simplest diagnosis to complex cases will sometimes lead to inadequate treatment of many pediatric cases. Children just do not read the same medical text books that many of you do. The children in the following case presentations were otherwise healthy with normal vital signs, unless mentioned in the text.

**CASE 1**
The afebrile otherwise normal 6-month-old black infant presented to your office with a 5-day history of this circular rash on the philtrum under the nose (see Figure 1). The rash was unresponsive to 5 days of treatment with a generic over-the-counter triple antibiotic ointment. The rash appears to have an entire reddened base with much honey-crusting along with some dry rough scaliness.

Should you proceed with a topical ointment or an empiric oral therapy? Is this a bacterial, viral, fungal, or irritant rash? Should you perform a specific culture?

**CASE 2**
The afebrile and otherwise normal 5-year-old white female developed this circular symmetrical serpiginous peri-nasolabial rash about 3 weeks ago (see Figure 2, page 445). It began as a small papule just under the nasal septum philtrum area, and has now spread to cover nearly the entire nares area and most of the philtrum. It has some central clearing along with some scaly remnants in the center of the annular rash.

Should you proceed with a topical ointment or an empiric oral therapy? Is this a bacterial, viral, fungal, or irritant rash? Should you perform a specific culture?
Should you proceed with a topical ointment or an empiric oral therapy? Is this a bacterial, viral, fungal or irritant rash?

**CASE 3**

The 6-year-old afebrile and otherwise healthy white male developed an almost annular maculo-papular raised rash that extended to the tip of the nose and upper vermillion border (See Figure 3). You also note several large crops of tiny vesicles in the center of the lesion amid the otherwise clear skin. He has no history of cold sores or staphylococcal infections.

Should you proceed with a topical ointment or an empiric oral therapy? Is this a bacterial, viral, fungal or irritant rash?

**CASE 4**

The 4-year-old afebrile and otherwise healthy white female came to your office with a 4-week history of this nearly symmetrical peri-oral rash that began in September (see Figure 4). She had been exposed to strep throat by a sibling. She has had much difficulty adjusting to her new preschool, and cries many mornings before school. Her father was also recently incarcerated. The rash has been unresponsive to triple antibiotics, clotrimazole, and bacitracin.

Should you proceed with a topical ointment or an empiric oral therapy? Is this a bacterial, viral, fungal, or irritant rash?

**CASE 5**

The 7-year-old white male presented to your office with a fever to 102°F, pharyngitis for 2 days, and a red pharynx and tender 1.5-cm swollen anterior cervical nodes. He had been treated with 5 days of azithromycin for pharyngitis that was diagnosed last week by an urgent care center. No strep testing was performed. You also noticed the recent development of this large crop of circular and irregular small crusted lesions on the anterior nares, lips, and chin region (see Figure 5, page 446). The rash has also been unresponsive to over-the-counter topical antibiotics.

Should you proceed with a topical ointment or an empiric oral therapy? Is this a bacterial, viral, fungal, food allergy, or irritant rash? Should you perform a specific culture?

**CASE 6**

The 6-year-old white female has been feeling poorly for about a week with intermittent low-grade fevers, sore throat, and this heavily crusted and somewhat vesicular peri-oral rash for the same time period (see Figure 6A, page 446). Crops of this rash are similarly distributed on her trunk (see Figure 6B, page 446). She has a history of severe allergies and moderate eczema. Her rash has been unresponsive to oral cephalaxin and topical triamcinolone for the last week as well.

Should you proceed with a topical ointment or an empiric oral therapy? Is this a bacterial, viral, fungal, or irritant rash? Should you perform a specific culture?

**CASE 7**

The 2-year-old white female presented with these peri-oral and oral findings. She has had a fever to 102°F, dysphagia, drooling excessively, poor appetite, along with the few crusted lesions at the angle of her mouth along with several red blisters on her tongue as seen in Figure 7 (see page 447). She has no other skin lesions. She has been recently prescribed amoxicillin clavulanate for her pharyngitis and “impetigo” of the mouth as was determined by your community hospital ED.

Should you proceed with a different empiric oral therapy? Is this a bacterial, viral, fungal, or irritant rash? Should you perform a specific culture?

**CASE DISCUSSIONS**

**Case 1**

The annular lesion, with its classic “honey-crusted” scaliness on the upper philtrum of this 6-month-old infant is typical of impetigo. Impetigo is a superficial skin infection nearly always caused by *Staphylococcus aureus* (75%-90%) and by group A streptococcus (GAS) (10%), and sometimes by a mixed infection with these two same organisms. Although topical therapy with mupirocin or retapamulin might alleviate the infection, my impression is that oral therapy is much more likely to eradicate infection in this locale,
which probably involves the anterior nasal mucosa and septum as well.

In the past, *S. aureus* impetigo had typically been treated with a beta-lactam antibiotic, usually either an oral cephalosporin (not cefixime or cefitibuten) or amoxicillin-clavulanate (AMC). However, due to the increasingly high rates (60%-75%) of MRSA among outpatient *S. aureus* isolates being observed in most sites throughout the US, I prefer to initiate empiric oral therapy with either clindamycin or trimethoprim-sulfamethoxazole (TMP-SMX) for MRSA strains. Nonetheless, because of the significant likelihood of GAS in any case of impetigo, practitioners should only use oral (TMP-SMX) if a pre-therapy culture is obtained, or when careful follow-up can be obtained within the next 48 hours to ensure improvement.

Thus for impetigo simplex, my initial choice is usually oral clindamycin, unless taste issues (even with FLAVORx [Columbia, MD]) are problematic. I would still avoid macrolides if at all possible due to their notable rates of GAS resistance and MRSA resistance. If clindamycin cannot be used for impetigo, then be highly cognizant of the high rates of MRSA when using oral beta-lactams and of GAS when using TMP-SMX.

**Cases 2 and 3**

These two children presented with similarly symmetrical annular scaly-bordered rashes on the naso-labial/philtrum region extending onto the nose (see Figures 2 and 3 page 445). This particular rash location is known as *tinea faciei*, (a “cousin” to *tinea capitis*), and is due to a superficial fungal infection of the facial skin. It is most commonly caused by *Trichophyton tonsurans* (> 90%), and illuminating the rash with a Wood’s lamp in a dark room is typically fruitless, as only *Microsporum* species fluoresce. Note that the annular area of the lesion in Figure 3 (see page 445) is not as scaly — an inflammatory response that has been being blunted by the prior treatment with topical steroids. This somewhat more atypical and non-descript rim of rash as seen in Case 3 is commonly termed *tinea incognito*.

Also, note the difference in the central area of the rash in both children. Typical of tinea infections, Case 2 has some residual slightly reddened scaliness. By contrast, Case 3 has more than 40 tiny vesicles in the middle of the semi-annular rim of the lesion. Is this more typical of another type of infection? Any guesses?

According to Paller and Mancini, similar to *tinea capitis*, *tinea faciei* often requires systemic oral antifungal therapy due to its location. In the two cases presented here, you were able to prescribe topical ketoconazole twice daily with an excellent response for the fungal portion of the infection. You also told the parents to follow up by phone within the next few days, in case an oral systemic antifungal like griseofulvin might be needed if the fungal portion of the rash did not respond. However, in Case 3, you also recommended that the family initiate antiviral therapy with oral acyclovir for this child, because of the high probability that a secondary herpes simplex infection had also erupted in the center of the fungal tinea infection. The child had no history of prior cold sores or herpes simplex infections, although both parents had a history of recurrent cold sores. The herpetic lesions abated promptly as well, most likely due to the early initiation of antiviral therapy.

**Case 4**

You are concerned that the symmetrical annular rash seen on the peri-oral area of the otherwise healthy 4-year-old girl in Figure 4 (see page 445) may have been caused by an impetiginous infection. Despite the somewhat crusted appearance of the dermatitis rim, in your career you have previously seen several children with this type of dermatitis, most of whom were noted to be quite chronically anxious or recently stressed. In this case, you have uncovered a tremendous amount of separation anxiety, school phobia, and some other milder nervous habit tics as well. She had no history of eczema.
This child has developed “lip-licker’s dermatitis” from her constant chronic tongue licking of her peri-oral skin.\(^2\) Saliva is a notable skin irritant, causing inflammation and irritation of the skin, particularly among those with atopic dermatitis or infants with chronic pacifier use. Occasionally, the contact dermatitis can result from certain foods, notoriously citrus, carrots, shrimp, spinach, and in my experience “ketchup” condiments.

This child was treated with hydrocortisone valerate 0.2%, a mild steroid ointment, along with a bland emollient several times a day, resulting in only a partial resolution. Although anti-anxiety drugs like SSRIs may be appropriate in older children with moderate to severe anxiety, they should probably not be prescribed by pediatricians to this age group. After 4 weeks of only partial amelioration, and the persistent lip licking, you prescribed a low dose of an antihistamine drug, oral hydroxyzine, and a much weaker anti-anxiety drug three times a day. She had a much improved response for both the dermatitis and the separation anxiety. Sedation from the hydroxyzine was transient and not much of a problem, due to the low dose employed.

**Case 5**

The 7-year-old boy in Figure 5 (see page 446) initially presented with classic signs and symptoms of GAS pharyngitis, including sore throat, low-grade fever, and anterior cervical lymphadenitis 7 days prior to today’s visit. His symptoms and signs, which were milder, persisted despite treatment with 5 days of standard dose azithromycin. However, in light of the development of this new-onset peri-oral crusted rash, you wondered if this also could have been a herpetic pharyngitis initially and that your azithromycin treatment was irrelevant anyway.

You decide to test for GAS with a rapid antigen detection test — which turns up positive. Now, the more you examine the rash, the more it appears to be impetigo simplex, especially in view of the crusty sore on the anterior nares.

Azithromycin-resistant GAS has been noted to be as high as ~50% in some areas of the US.\(^1\) Even before these reports of resistance, azithromycin treatment failures among children with GAS pharyngitis have been observed to be as high as 42% to 62% as well.\(^3,4\) Thus you are not surprised by the antibiotic failure with azithromycin for both the pharyngitis and the new-onset impetigo. You prescribe oral cephalexin twice daily for 10 days (to cover for the possible \textit{S. aureus} co-pathogen) with good resolution of both infection sites. The child obviously did not have MRSA causing the impetigo.

**Case 6**

This previously healthy 6-year-old girl developed extensive crops of herpetic and severe crusted lesions, particularly in the peri-oral region over several days (see Figure 6A, page 446). To determine the etiology of her severe dermatitis, you thought that she required cultures for both herpes and for bacterial coinfection. In light of her history of mild atopic dermatitis, you surmised that she had been afflicted with a disseminated generalized herpes rash, known as \textit{eczema herpeticum} (see Figure 6B, page 446).\(^2\) Her cultures also grew MRSA, a secondary bacterial super-infection, along with her positive PCR lesion test for herpes simplex type 1. Despite numerous oral courses of clindamycin and oral acyclovir with some initial partial amelioration over the next several weeks, she eventually required IV vancomycin and IV acyclovir for several days due to her worsening rash and intermittent fevers. She did not develop a commonly associated secondary keratoconjunctivitis as well.

**Case 7**

This 2-year-old girl had developed an “angular cheilitis,” or perleche, which is a fissuring and inflammation of the corners of the mouth (see Figure 7). Cheilitis usually appears to be related to moisture collecting at the mouth angles, although it can be occasionally secondary to candida or impetigo in refractory cases. Saliva is considered to be quite an irritant of the skin. However, this child’s cheilitis is most likely related to the viral herpangina infection and her concomitant constant drooling. As the fevers and blisters on the tongue resolved, so did the cheilitis sores. Herpangina requires no specific treatment except for nonspecific therapies such as ibuprofen, extra oral fluids, and emollients for the cheilitis. Thus, you discontinued her oral antibiotic.

**REFERENCES**