

VCHIP CHAMP VDH COVID-19

May 4, 2020 | 12:15-12:45pm Call Questions and Answers*

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Practice Issues – COVID-19 Pediatric Inflammatory Response (COVID toes)

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Chillblains/perniosis are usually red and purple bumps that we see on the fingers and toes. They are an abnormal inflammatory and vascular response to exposure to a cold and wet environments. In its most severe form, you can see blisters, pustules, and ulceration. Patients usually complain about the itch at first, but then as it goes on it tends to be a little more painful. Sometimes patients have trouble walking. They appear rapidly over a period of a couple of hours and usually gradually resolve over a period of two to three weeks. Patients do not always need treatment, but it can be recurrent. They are usually seen in fall and winter, which is one of the atypical findings that we're seeing right now, all these spring cases. They are more common in children and young to middle-aged women. We often see it as an isolated disorder, but it can be secondary to other diseases, such as connective tissue disease, monoclonal gammopathy, cryoproteinemia, chronic myelomonocytic leukemia, and viral infections. Compared with primary perniosis, secondary perniosis tends to be associated with photosensitivity and persistence beyond cold season.

There have been some rumblings online in the past month or so, starting on Facebook groups and even private chat messages on what dermatologists are reporting. They're seeing a surge in the usual number of cases of perniosis in the setting of the viral infection. We know that there are some inflammatory processes of the COVID-19 virus that raise the question of whether this is one of those. There have been a few preliminary case reports. If you look at the literature right now, there are only nine (9) series of case studies. We do tend to see a little more heel involvement. One study included 63 patients. You can see a little bit more blistering than the average cases. It's still mostly on the toes, less on the fingers. In a table that showed who had tested positive when testing was done, only one of them (out of the 63) had tested positive for COVID-19. Some of them had symptoms, while others did not. This seemed to go on for a few weeks. The age range spanned from 15-year-olds to 91-year-olds. That was all in the medical field.

As of Friday, the New York Times published an article, *What is 'Covid Toe'? Maybe a Strange Sign of Coronavirus Infection* (<https://www.nytimes.com/2020/05/01/health/coronavirus-covid-toe.html>). I've also seen it referred to as Toe-vid. I'm sure it is going to become a little bit of an inundation to my clinic and to your practices as well as parents read about this. There were some excellent dermatologists cited in the paper, which presented information very well. They talked about how these patients tend to be very well, asymptomatic to mild courses, and younger. We are still not exactly sure about all the mechanisms behind it. We need to research that a little bit more. Prothrombotic features of the virus may play a little bit of a role. We're seeing that with potentially Kawasaki involvement, like strokes in younger adults. I do wonder if there are some indirect features going on as well, if people are just staying at home more and going around barefoot in this still sort of cold season. There is also a reporting bias as people are hearing about it, seeing it, and asking people about it. We are going to pick up more of these cases. I'm sure all of those factors are coming into the equation, but there is no question that we are seeing a definite surge in cases at the moment.

*Note: This is a paraphrased synopsis of the call and is not a word-for-word transcription.

Prothrombotic features may play a role. I do wonder if there are indirect relations as well. People are staying at home more and going barefoot in this still cold season. There are no questions that we are seeing a surge at the moment. Rate of the positive COVID-19 tests in the French and Italian published series of those with pernio-like lesions seem to be at least no worse than the background rate of COVID-19 in the community. Of those tested in the two studies, when combined, only 2 out of 29 tested positive (rate of 7%), whereas in Italy about 10% of all people tested positive nationwide with France slightly higher at 15%. This is all PCR swabs, and I have not seen a ton on antibody testing. Not peer-reviewed yet, but in a paper by Sigal et al. published to a dermatology Facebook group, they are finding a little bit different pathophysiology upon biopsy. They tend to see a little bit more thrombi in these biopsies compared to normal pernio. This finding presents a little more evidence that there is more going on than just reporting bias or environmental changes.

I've seen two cases. My first case was a 12 year old female, completely asymptomatic, with no known exposure, and did present with pernio. She had never had it before. Her test came back negative. My second case was a 15 year old, had a URI/asthma flare in late March, and went to a private school where he had classmates who had recently returned from a class trip to Italy. His presentation was a little bit atypical for pernio, but, when we tested him, he was also negative. So this all fits in with the data. In regards to testing, it is worth getting the PCR nasal swab testing for these presentations, given the liberalization of testing requirements. There are no clear consensus on other tests, including serology. Treatment is more straight forward. My approach is behavioral modification. You want to make sure that they are keeping not only their feet really warm, but also their core warm. I tell patients if their core is cold, it will steal from both their hands and feet, so keep your core covered. There is not a lot of flexibility. They have to change their socks if they are wet, if they are outside. I want them to stay active, but be careful about it. I always starts with a high potency topical steroid applied twice daily under occlusion to pruritic areas on the toes and fingers, no more than 3 days a week. That is usually pretty effective in cutting down the symptoms. I haven't had to go beyond on that, but if I did, I prefer Nifedipine 10-30 mg nightly for my next line for recalcitrant cases. That's what I tend to do for my non-COVID-related pernio cases. We are still gathering information. The society for pediatric dermatology is inviting all healthcare providers to submit cases that are suspicious clinically for COVID-19, which doesn't have to be confirmed. The American Academy of Dermatologists has a very similar method for adult patients.

Questions/Discussion

Q: In order to test more, we need test centers to be open for more hours. I had people that could fit testing in on Friday, but it was after 2pm, which was the cut off for our area, so they were told they had to wait until Monday.

A: Breena Holmes, MD, VDH: I'm hearing that testing sites will expand opening hours and who to test. We're pushing testing sites for meeting the needs. They are going to put out a health alert reminding providers you can test mildly symptomatic patients. They could also provide an accurate update on testing centers.

Q: How are adult PCPs involved in this discussion?

A: Breena Holmes, MD, VDH: I need contact with the adult providers. I'm hopeful that Stephanie Winters can help me with that. The pace of this is faster than I expected.

Q: What are testing strategies for kids who aren't symptomatic? Doesn't seem like a PCP initiative if kids are not symptomatic, so who to test?

A: Ashley Miller, MD, South Royalton Health Center: I still have concern testing childcare providers if they aren't symptomatic, if the likelihood of false negatives goes up with asymptomatic people. I worry we will create a false sense of security.

A: *Judy K. Orton, MD, Green Mountain Pediatrics: I agree with Ashley, on false sense of security.*
A: *Breana Holmes, MD, VDH: I completely agree that negative tests are not reassuring. We have to all get the word out that isolation of patients with positive tests is the goal. It's not reassurance.*
A: *William Raszka, MD, UVM Children's Hospital & Larner COM Department of Pediatrics: Testing is awfully complicated. However, if the pre-test probability of a positive is low, a negative PCR is reasonable to assume the person is very unlikely to be infected.*

Q: Is nares testing presumably less aerosolizing and would it therefore be possible to do that without PAPR/N 95? Or is full PPE always going to be needed, even for less invasive testing due to the risk of exposure from PUI in general? If full PPE for any kind of testing is needed, what is that supposed to look like in pharmacies and would dispensing PPE to pharmacies interfere with PPE for medical providers?

A: *Breana Holmes, MD, VDH: Yes, no PPE needed if done correctly.*
A: *Benjamin Lee, MD, UVMCC: I would clarify that there is no need for N95, but if a symptomatic patient has suspected COVID, at minimum a surgical mask, face shield, gown, and gloves should be worn, meaning no need for airborne precautions.*

Q: What happens to the childcare location (and all the children/families in that facility) when the childcare provider tests positive?

A: *Breana Holmes, MD, VDH: We have public health nurses who guide the next steps when a childcare provider test positive. It all depends on close contact and exposure in the decision of whether to close.*

Q: What about the press release: "Testing of Health Care Employees: Each provider shall develop a plan and implement that plan for the periodic testing of healthcare workers i.e., nurses, physicians, emergency medical personnel, medical and nursing students, laboratory technicians, pharmacists, hospital volunteers, administrative staff or any other employee who may come in contact with a patient. These plans shall be coordinated with the Vermont Testing Task Force."?

A: *Breana Holmes, MD, VDH: My understanding of the press release is that it is about healthcare providers in hospital settings, but I can confirm.*
A: *Wendy Davis, MD, VCHIP: I thought the Commissioner today linked to procedures (even if outpatient) that might require airway management. I will try to clarify.*
A: *Breana Holmes, MD, VDH: The intent was to test HCWs involved with procedures but it sounds like the press release was broader. I will confirm!*

Q: Is anyone seeing these on fingers at all?

A: *Keith Morley, MD, UVM MC: A few places are reporting finger involvement but it's mainly on the toes and especially the heels, but fingers wouldn't surprise me. It's just not the most common by far.*

Q: On Facebook groups and SOAPM, people keep saying "pediatrics is an aerosolizing procedure". I assume they mean crying babies and kids are aerosolizing just by crying. Is that true? Would that put us in the category of HCWs who need testing?

A: *William Raszka, MD, UVM Children's Hospital & Larner COM Department of Pediatrics: To date, we have not defined crying as an aerosol generating procedure.*

Q: I saw a 3-year-old Somali-American child with true chilblain's bilateral lower extremity. Could that have been COVID? He had a fever. I thought he might have a cellulitis. (This was back on Feb 14.) He got better quickly!

A: *Keith Morley, MD, UVM MC: It's what makes this so difficult as we do see a lot of pernio in New England. My co-fellow in Kentucky hasn't seen one case.*

Q: I had a 14-year-old-girl with blue lips and a pink/light purple papular rash on her legs. A bit of fatigue and normal O2 sat. She had no other symptoms. I did not order testing at the time.

A: Keith Morley, MD, UVM MC: It's definitely something worth reporting. I haven't seen anything about lip involvement, but it could be possible. It doesn't surprise me and could be related.

Q: Pernio, under normal conditions, can take weeks-months to improve. Any anecdotal about course for potential COVID cases?

A: Keith Morley, MD, UVM MC: There was a New York Times paper that stated they seem to be resolving faster than normal. Which suggests it could be that post inflammatory response settling down. That's why we are collecting the data in those databases.

Q: Is there any information about a theory that people who have had the MMR vaccine may be at lower risk of getting COVID-19 or having milder symptoms?

A: William Raszka, MD, UVM Children's Hospital & Larner COM Department of Pediatrics: I'm not sure about the MMR data. There have been opinion pieces about oral polio and BCG vaccination.

A: Benjamin Lee, MD, UVM Children's Hospital & Larner COM Dept. of Pediatrics: There has been a lot of speculation that previous live virus vaccines (OPV, BCG) may be associated with increased protection. There are clinical trials in planning/progress looking at this issue but there are no data as of yet Live vaccines rather, BCG is not a virus!

Q: Should people with "COVID toe" stay home for 2 weeks/self-isolate even if they test negative (due to false negative possibility). I saw a 13-year-old with this and he tested negative as well. I still advised self-isolation.

A: Keith Morley, MD, UVM MC: Also controversial, a lot of people are saying that this is a late manifestation or some post-infectious phenomena. It doesn't necessarily herald a sign of active infection. That seems to be panning out with the PCR swabs we've seen. I can't say there is any guidance I've seen that they have to isolate. They are not saying to at this point.

Q: My 19-year-old college student developed a pernio like picture and was tested for COVID. He was negative. He was otherwise asymptomatic. It looks like the registry is for up to age 18 only.

A: Keith Morley, MD, UVM MC: There are 2 data bases. One is for up to 18 but the American Academy of Dermatology should be for adults as well, so for college aged students.

Q: I know J. Mann is collecting cases at pediatric dermatology at DHMC, but, I think she is sending them to CHOP?

A: Keith Morley, MD, UVM MC: Julianne Mann at Dartmouth is wonderful and I think she is submitting to the same database, the SPD database that's been running out of CHOP.

Q: Are you convinced that COVID toe is a real thing? We are hearing about a lot of kids with this, all testing negative?

A: Keith Morley, MD, UVM MC: I can't say I'm 100% convinced yet. But there is definitely a surge. We are seeing more cases than we normally see and we don't know how much of that is coronavirus versus just publicity about this, I'm not sure. I think there will be more to come on that.

Q: Also, my friend in Seattle has a large Indian population, and she says in general she sees pernio with them in general, and now they have more with COVID (pediatrics)

A: Keith Morley, MD, UVM MC: It's definitely been ramping up. It seems across the board but still more in the colder climates which doesn't surprise people but something we need to continue to gather more and more over the next several weeks.

Q: Keith, how do we send photos to you to look at?

A: Keith Morley, M, D, UVM MC: You can send to my email or Cortex me, too.

Q: Can you comment on hand-foot-mouth versus COVID toe? I mean, the photos obviously look different, but we have seen coxsackie recently.

A: Keith Morley, MD, UVM MC: I always like to look around the mouth and on the buttock, too, to see changes.