Neonatal Acute Paronychia

Luke Grome¹ and Gregory Borah¹

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Abstract

Background: Paronychia is defined as infection afflicting the eponychial nail folds of the hand or foot. Such infections are rarely reported in the perinatal age group, and not previously described in a neonate younger than 2 weeks. Trauma resulting in inoculation of the nail fold is the most common predisposing factor to paronychia. Oral trauma in the pediatric population from finger sucking predisposes this population to a different set of bacterial pathogens than adults. Contamination can progress to infection and abscess formation within the nail fold with the most prevalent vector in adult infections being *Staphylococcus aureus*. Comparatively, mixed anaerobic and aerobic infections tend to afflict children with oral soothing habits. **Methods:** This is a case report will present the rare occurrence of a paronychia in a neonate caused by methicillin-resistant *Staphylococcus aureus*. **Results:** The management and treatment strategies for paronychia in this atypical neonatal patient consisted of incision and drainage and antibiotic therapy. **Conclusion:** Neonates with oral self-soothing behaviors may be more at risk for developing paronychia of mixed anaerobic and aerobic infections. Initial therapy with broad-spectrum antibiotics amoxicillin/clavulanate or clindamycin is suggested. Incision and drainage in the perinatal setting coupled with antibiotics is curative.

Keywords: neonate, paronychia, infant, infection, neonatal abstinence syndrome, hand, nail fold

Background

Paronychia is defined as infection afflicting the eponychial nail folds of the hand or foot. It occurs in both adult and pediatric populations, but it is rarely reported in the perinatal age group, and not previously described in a neonate younger than 2 weeks. Trauma to the lateral edges of the nail plate and bed, leading to inoculation of the nail fold, is the most common predisposing factor to paronychia. Bacterial contamination can progress to infection and abscess formation within the nail fold with the most prevalent vector of infection being *Staphylococcus aureus*.

Case Report

A white female, born via spontaneous vaginal delivery at 36 weeks of gestation, was admitted to the neonatal intensive care unit for neonatal abstinence syndrome (NAS). At day 10 of life, she was found to have a paronychia on the left second and third digits. This was attributed to prolonged finger sucking as a source of self-soothing for NAS. Her fingers were initially treated with warm compresses, but increasing abscess formation was noted, and linezolid 10 mg/kg every 8 hours was initiated. Consultation with the plastic and hand surgery service for incision and drainage was obtained. The paronychia abscess site was disinfected with topical betadine solution. Using a #15 blade scalpel, a small subeponychial incision was

made which produced 0.5 cc of creamy yellow purulent drainage. Gram stain of the wound swab showed gram-positive cocci, and subsequent culture grew methicillin-resistant *Staphylococcus aureus* (MRSA), sensitive to the current antibiotic coverage with linezolid, which was continued. The signs and symptoms of paronychia resolved rapidly over the next 2 days. At one week all signs of infection were cleared.

Discussion

This unusual case of a common hand infection is unique due to the very young age of the presenting patient. No cases in the recent literature were found of any pediatric paronychia occurring below the age of 1 month. In addition, MRSA infection from finger oral manipulation as a source of self-soothing from NAS makes this case worth discussion.

The most common causes of acute bacterial paronychia in the adult population are *S aureus* and *Staphylococcus pyogenes*.⁴ When oral inoculation is a risk factor, anaerobic gram-negative bacteria may also be implicated.⁴ In the pediatric

¹West Virginia University School of Medicine, Morgantown, USA

Corresponding Author:

Gregory Borah, Professor and Chief, Division of Plastic, Reconstructive and Hand Surgery, School of Medicine, West Virginia University, PO Box 9238, Morgantown, WV 26505, USA.
Email: gborah@hsc.wvu.edu

population, Brook¹ found mixed anaerobic and aerobic infections in 46% of pediatric paronychia. Comparatively, 80% of paronychia in adults are caused by *S aureus*.⁶ This difference is postulated to be from differing routes of inoculation, with pediatric nail biting and finger sucking being the primary route in that population.³

Initial treatment of multiple warm water soaks to the fingers in addition to broad-spectrum antibiotics such as amoxicillin/clavulanate or clindamycin is ideal.⁵ If an abscess is present, incision and drainage is recommended in conjunction to the previously mentioned antibiotic therapy. When wound culture results return as MRSA, as seen in the discussed case, effective initial therapy options in the outpatient setting include oral clindamycin, trimethoprim-sulfamethoxazole, and linezolid.⁷ Inpatient MRSA therapy with vancomycin is still the drug of choice for hospital-acquired MRSA.²

This patient was put at risk for paronychia during the neonatal period due to NAS symptoms predisposing her to trauma to the nail fold by oral manipulation. In the case of the discussed patient, 1 day of warm compresses were initiated before abscess formation was noted. Once abscess formation was identified, incision and drainage was performed, and due to a high suspicion index for MRSA and a desire for oral therapy, linezolid was chosen for treatment.

Summary

Paronychia in the pediatric population is most commonly predisposed by oral manipulation with a resulting mixed anaerobic and aerobic infection from mouth flora. Initial therapy with broad-spectrum antibiotics amoxicillin/clavulanate or clindamycin is suggested. Incision and drainage in the perinatal setting coupled with antibiotics is curative. However, MRSA should be suspected in a hospital setting, and oral therapy with linezolid or intravenous vancomycin should be initiated when gram stain shows gram-positive cocci, and adjusted when organism and sensitivities are identified. Neonates with oral self-soothing behaviors may be more at risk for developing paronychia, and special

attention to finger nail health should be considered in these cases.

Ethical Approval

This study was approved by our institutional review board.

Statement of Human and Animal Rights

This article does not contain any studies with human or animal subjects.

Statement of Informed Consent

Informed consent was obtained from all individual participants included in the study.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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