Bitten to the bone: A case of anxiety-induced osteomyelitis

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Abstract

Background

Onychophagia is a habitual nail-biting disorder, usually associated with mental or emotional diseases. It affects 20-30% of the population in all age groups. Human bites have the potential to become serious injuries due to high virulence in the human oral flora and may often require hospital admission, antibiotics and even debridement in the operating room. Thus, repetitive nail biting has the potential to be limb-threatening if not treated early and appropriately.

Case Presentation

Patient is a 49-year-old gentleman with a past medical history of severe refractory anxiety treated with hydroxyzine and scheduled alprazolam, after failing multiple other treatments, who was admitted to the hospital due to cellulitis of the right third digit after failing outpatient antibiotic therapy. On the initial physical exam, the patient had a lack of fingernails and multiple wounds at various stages of healing across all digits. The distal and middle phalanges of the 3rd right digit showing increased erythema and swelling and band tightening. Patient was started on broad spectrum antibiotics. Initial Xray of the right hand was concerning for osteomyelitis which was later confirmed with Magnetic Resonance Imaging (MRI). Infectious disease agreed on a course of cefepime, vancomycin and metronidazole. Hand surgery did not see a need for amputation initially though patient did require fasciotomy of the flexor compartment of the right middle finger at day 6 of admission due to slow recovery. Hand surgery however was not convinced patient would make meaningful recovery and advocated for amputation of finger, but patient decided to continue non-operative treatment. He was discharged to a skilled nursing facility where he was to continue intravenous antibiotics for 4 more weeks.

Conclusion

The vulnerable patient population of south Texas is predominately Hispanic, Spanish-speaking and uninsured. It is imperative to treat psychiatric disorders early to prevent complications, however, given the few numbers of psychiatrist in the Rio Grande Valley and even fewer who speak Spanish it is not unusual find an appointment in more than 6 months out. In this case, we observe the limb-threatening complications a simple "bad habit" can lead to if not treated early and appropriately.

Categories: Internal Medicine, Psychiatry, Infectious Disease

Keywords: onychophagia, hispanic population, rio grande valley, severe anxiety, osteomyelitis diagnosis

Introduction

Onychophagia is a habitual nail-biting disorder, usually associated with mental or emotional diseases [1-3]. It affects 20-30% of the population in all age groups [3]. Human bites have the potential to become serious injuries due to high virulence in the human oral flora and may often require hospital admission, antibiotics and even debridement in the operating room. Thus, repetitive nail biting has the potential to be limb-threatening if not treated early and appropriately. Here, we present the case of a gentleman with limb-threatening osteomyelitis due to chronic nail biting secondary to severe anxiety.

Case Presentation

Patient is a 49-year-old gentleman with a past medical history of severe refractory anxiety treated with hydroxyzine and scheduled alprazolam, after failing multiple other treatments with multiple psychiatry

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providers, who was admitted to the hospital due to cellulitis of the right third digit. He had already failed outpatient treatment with amoxicillin-clavulanate for cellulitis of the right third digit.

On the initial physical exam, the patient had a lack of fingernails and multiple wounds at various stages of healing across all digits (Figure 1 and 2). The distal and middle phalanges of the 3rd right digit showed increased erythema and swelling with band tightening. Surprisingly, initial labs were unremarkable (Tables 1-3).

**FIGURE 1:** Left hand 24 hours after broad spectrum antibiotics were started. Marked improvement from admission.
FIGURE 2: Right hand. 24 hours after starting broad spectrum antibiotics. Marked improvement from admission.

Patient was started on broad spe

| CBC          |
|--------------|
| WBC - 5.3 th\/uL |
| Hg - 12.2 m\/uL   |
| HCT - 37.3%      |
| Plt - 292 th\/uL |

TABLE 1: CBC on admission
**TABLE 2: BMP on admission**

| BMP          |
|--------------|
| Na- 134 mmol/L |
| K- 4.0 mmol/L  |
| Chl- 98 mmol/L  |
| CO2- 0.9 mmol/L |
| Cr- 0.9 mg/dl    |
| BUN- 15 mg/dl    |
| Glu- 296 mg/dl   |

**Blood Cultures**

Aerobic- Negative

Anaerobic- Negative

**Blood Cultures**

Aerobic- Negative

Anaerobic- Negative

**TABLE 3: Final blood cultures**

Patient was started on broad spectrum antibiotics with vancomycin and Zosyn on admission. Infectious disease agreed on a course of cefepime, vancomycin and metronidazole the day after admission. Initial Xray of the right hand was concerning for osteomyelitis (figure 3) which was later confirmed with Magnetic Resonance Imaging (MRI) (figure 4).
FIGURE 3: X- Ray right hand

X-ray of right hand. There is absence of the tip of the third digit distal phalanx with a questionable osteomyelitis.
Hand surgery did not see a need for amputation initially though patient did require fasciotomy of the flexor compartment of the right middle finger on day 6 of admission due to slow recovery. Hand surgery however was not convinced patient would make meaningful recovery and advocated for amputation of finger, but patient decided to continue non operative treatment.

Patient continued to have marked improvement and was ultimately discharged to a skilled nursing facility with a PICC line where he was to continue intravenous antibiotics for 4 more weeks. In regard to his psychiatry follow ups, patient had an upcoming psychiatry appointment the week of discharge and reported concerns of close follow up due to prolonged appointments.
Discussion

Onychophagia begins at childhood and usually tend to stop biting nails overtime. The prevalence is likely underestimated due to reluctance in seeking medical care, it can range from 3% - 46.9% among different population groups, with medical students being the highest affected [4]. Etiology of onychophagia is currently unknown, genetic and environmental contributions are associated with its onset and severity. Numerous studies including twin studies [5] have shown a partial genetic component of the onychophagia [5,6].

Diagnosis of Onychophagia is made with clinical history and physical examination. Complications include Acute paronychia and later osteomyelitis. Onychophagia can also predispose to herpetic whitlow and can facilitate the spread of subungual warts [7,8]. Oral and dental complications such as prevalence of Methicillin-resistant Staphylococcus Epidermidis oral colonization [9], higher carriage of Enterobacteriaceae [10,11]. Nail biting can also be associated with Temporomandibular joint Syndrome, therefore warrants the need for prompt treatment.

Treatment options are non-pharmacologic and pharmacologic, non-pharmacologic include aversive therapies, competitive stimuli, object manipulation, habit reversal and using bitter tasting lacquer [12]. Pharmacological therapy include Selective serotonin reuptake inhibitors, N-acetyl cysteine (NAC) [13], tricyclic antidepressants, dopamine agonists and lithium. Treatment of complications is based on severity and center-specific antibiotic guidelines.

Onychophagia may lead to significant psychosocial problems. Since onychophagia is a challenging disorder to treat, a multi-disciplinary approach involving psychiatrists, internists, dermatologists and dentists may be required. In the Rio Grande valley, located in the southernmost tip of Texas, the prevalence of anxiety and depression increases while the population of physicians struggles to keep up. An estimated 10% of psychiatrist are expected to retire within the next couple of years and the consequences of will have an even bigger impact in the RGV [14-17].

Conclusions

The vulnerable patient population of South Texas is predominately Hispanic, Spanish-speaking and uninsured. It is imperative to treat psychiatric disorders early to prevent complications, however, given the few numbers of psychiatrist in the Rio Grande Valley and even fewer who speak Spanish it is not unusual find an appointment in more than 6 months out. The patient population of the RGV deserve easier access to mental health including Spanish speaking providers. In this case, we observe the limb-threatening complications a simple "bad habit" can lead to if not treated early and appropriately.

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following: Payment/services info: All authors have declared that no financial support was received from any organization for the submitted work. Financial relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. Other relationships: All authors have declared that they are no other relationships or activities that could appear to have influenced the submitted work.

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