Case Report

Polymicrobial pyogenic flexor tenosynovitis of the index finger and first ray resulting from autophagia

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ABSTRACT

Pyogenic flexor tenosynovitis (PFT) is a well known infectious condition of the hand, involving the inoculation of the flexor tendon sheath with microorganisms. Many cases have been reported, common causes including direct inoculation by a puncture wound and deep lacerations extending into the flexor tendon sheath. In this report, we present a case of a 50 year old female with PFT resulting from autophagia (consuming one's own body parts, in our case, fingers) successfully treated with irrigation and debridement, amputation of the index finger at the metacarpophalangeal joint and antibiotic therapy.

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1. Introduction

Flexor tenosynovitis of the hand is a common condition with numerous causes including direct inoculation from puncture wounds, lacerations to the hand, toothpick injuries, and even high pressure injection-injuries.^{1,2,3} Kanavel originally described this condition and the associated 4 characteristic physical exam findings; fusiform swelling of the digit, fixed semiextended positioning, pain on passive extension, and pain with palpation of the flexor tendon sheath.⁴ Hand and finger biting are known inciting factors of hand infections, but usually result in superficial abscesses or cellulitis not involving deeper tissues.⁵

Self-mutilation in the form of autophagia (consuming one's own body, in our case fingers) is associated with a variety of psychiatric and genetic disorders, and often poses a formidable challenge for physicians to treat.^{6,7} Herein, we describe the presentation and successful treatment of a patient that presented with striking evidence of autophagia resulting in pyogenic flexor tenosynovitis of the index finger and first ray. The authors have

obtained the patient's informed written consent for print and electronic publication of the case report.

2. Case study

A 50 year old female with a history of dialysis dependence end stage renal disease, renal transplantation, hepatitis C, and hyperparathyroidism presented to our hospital complaining of several weeks of right hand pain and swelling. Prior to presentation to our hospital the patient had been treated at a wound care center and with dialysis dosed antibiotics by outside physicians. She presented to our hospital because of a lack of improvement from these treatments. On exam the patient had obvious absence of the majority of her digits with purulent drainage from the remainder of the index finger at the proximal interphalangeal joint (Fig. 1). The patient described herself as a "picker," stating that she had developed the habit of chewing and biting her fingers many years prior to presentation. She stated she had not sought further treatment for her hand because of "embarrassment" regarding her condition. Imaging of the right hand revealed the partial absence of the second finger lytic changes indicative of osteomyelitis of the second finger, as well as the complete or partial absence of several other phalanges. (Fig. 2a–c). During surgical treatment, a Brunner incision was made on the affected index finger in the standard

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Fig. 1. Preoperative photograph of the right hand demonstrating purulence at the remainder of the index finger and ulceration proximal to the metacarpophalangeal joint.

manner. Upon dissection through the subcutaneous tissues a copious amount of purulent material was encountered encompassing the entire flexor tendon sheath. After thorough irrigation and debridement, the index finger was amputated at the metacarpophalangeal joint as it was no longer viable. Intraoperative cultures grew multiple microorganisms including staphylococcus aureus, alpha hemolytic streptococci, enterococcus faecalis, and bacteroides fragilis some of which are associated with oral flora. She was successfully treated postoperatively with broad spectrum antibiotics with resolution of her right index finger PFT and healed all of her incisions (Fig. 3).

3. Discussion

PFT is an infection of the flexor tendon sheaths of the hand. There are many known causes, the most common being direct inoculation from a puncture wound or laceration to the hand. As of

Fig. 3. Postoperative photograph of the right hand showing well healed incisions.

current literature review, there are no reported cases of PFT resulting from autophagia. Although cases from human and animal bites have been reported, none of these cases were the result of a patient chewing or consuming their own fingers. In cases of PFT, prompt diagnosis is required to avoid complications associated with delayed treatment.⁸ If diagnosis is not established early and treatment postponed, patients may develop attenuation and rupture of the flexor tendons, formation of adhesive scar tissue within the flexor tendon sheath, or even bacteremia and sepsis.

Organisms isolated from PFT are often associated with the instigating injury. Skin flora including staphylococcus aureus, staphylococcus epidermidis, and MRSA are commonly found in puncture and laceration wounds.² Eikenella corrodens has been isolated from human bites, pasteurella multocida from cat bites. Other more rare causes include listeria monocytogenes in farm workers, neisseria gonorrhea in sexually active adolescents, and mycobacterium marinum in aquatic injuries.² Immunocompromised patients such as this case may develop multiorganism infections.²

Fig. 2. (A) Preoperative AP radiograph of the right hand. (B) Lateral radiograph of the right hand. (C) and Oblique radiograph of the right hand demonstrating absence of the index finger P2 and P3.

Self injurious behaviors (SIB) are well known to most psychiatrists, but rarely do orthopedists come into contact with these disturbing cases. Common SIB forms include but are not limited to head banging, self-biting, self-scratching, self-hitting, gouging, and picking.⁷ Genetic disorders such as Lesch-Nyhan disease and psychiatric conditions including obsessive-compulsive disorder and post-traumatic stress disorder are associated with SIB.⁷ In the case of our patient none of these diagnoses applied, and she was diagnosed with a psychiatric condition not otherwise specified.

A psychiatric consult should be obtained early to help guide treatment to mitigate these behaviors, as these patients are unfortunately difficult and known to be frustrating to definitively treat.⁷ Though these patients may be difficult to treat, a team approach and prompt operative interventions are vital to optimize outcomes. In our case, treatment was delayed because of the patients' concern over the social stigma associated with her condition. Although, care was being delivered in the form of wound care and antibiotics by outside facilities, prompt, and aggressive, surgical intervention was the only treatment modality that could adequately treat this problem. While orthopedic surgeons rarely encounter SIB, it is important to realize that there are serious orthopedic manifestations of these disorders that must be diagnosed and managed quickly to limit any negative sequelae. It is also important to realize that these patients may be more difficult to treat, because of the patient's reluctance to seek care, making early intervention even more important than in other populations.

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