A unique case presentation of recurrent self-inflicted chemical burns

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Abstract

A 52-year-old man was admitted to multiple burn facilities five years after an initial work-related chemical burn to his hand, with the claim of a non-healing burn. Further investigation identified characteristics of self-inflicted burn for primary and secondary gain. A literature review of clinically relevant case studies is presented to aid in the identification and diagnosis of suspected factitious illness. Factitious disorders of the hand are frequently under-reported due to variability in presentation, difficulty in detection, and the need for repeat observations necessary for psychological diagnosis. This case serves to highlight key techniques in clinical approach and management for malingering disorders of the upper extremity.

Key words: chemical burn, hand, factitious disorders

Introduction

Self-inflicted burns occur in a small but unique patient population ranging from 0.97% to 9% of total burn admissions annually in the U.S.[1,2] Although self-inflicted burn patients are a small subgroup of burn patients, these patients often have a high cost burden per admission. In 2004 the Healthcare Cost and Utilization Agency reported approximately 573 million dollars in hospital costs for 32,500 burn patients. Cost-effective healthcare has become an important national priority with the passage of the Affordable Care Act. Burn care has made significant advances in the delivery of health care with a shift in focus from mortality to improved quality of life through cost-effective resource utilization. The total costs for malingering patients requiring burn care has not been established since only a few case reports comment on the overall healthcare costs with these patients (Table 1).[3,4,5]

Our case examines a 52-year-old man who presented with new chemical burns to his hand after sustaining a work related chemical burn injury five years prior. This case describes patterns that suggest a malingering disorder rather than chronic wound care complications. In addition, it reminds clinicians about the possibility of malingering behavior in all clinical encounters, and the discussion outlines appropriate management and treatment techniques.

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Case

This patient is a 52-year-old married Caucasian man with a past medical history of hypertension

Table 1 Factitious hand disorders			
Study	**Patient population and injury type**	**Time of injury to referral**	**Average direct cost of care**
Grunert [3]	29 patients with factitious hand disorders	3 to 62 months (average delay in referral of 18 months)	$52,240 (range 10,200-103,600)
Connor[4]	174 workers' compensation patients with factitious hand disorders	3 to 34 months	$39,130 (range of 21,000-87,000)
Kasdan and Stutts[5]	1 case report with a factitious hand disorder	132 months	$117,660

Figure 1: Volar Aspect On Admission

Figure 2: Dorsal Aspect On Admission

who sustained a chemical burn injury five years prior to presentation. This injury occurred while performing janitorial duties at his place of employment when an unknown liquid substance spilled on his non-dominant left wrist and hand. The wound was located on the left wrist, was circumferential in distribution, and extended to the dorsal aspect of the hand (Figures 1 and 2). Since his initial injury five years ago, the patient had been seen and treated by numerous physicians throughout the Southwest region. The patient reported receiving five split thickness skin grafts and debridements all of which had failed secondary to recurrent infections.

One week prior to admission at our hospital, he was admitted to an outside facility while receiving daily IV antibiotics due to an acutely worsening chronic cellulitis in the affected left hand. New blisters were observed which were previously undocumented on the anterior aspect of the left forearm as well as the dorsal aspect of the left hand and arm.

Upon admission to the burn unit, his chief complaint was of extreme pain to the affected left hand and decreased flexion of the wrist and fingers.

He had an unremarkable review of systems, and no pertinent family history of recurrent infections or immunocompromised status. Physical examination of the wound showed injuries which appeared linear in pattern with superficial depth noted on the palmar and volar aspect of the left wrist and hand. The patient provided a photograph album, which contained medical documentation of wound progression with associated dates. The orthopedic service was consulted to address the diminished left hand range of motion and strength. The dermatology service was consulted and a 6 mm punch biopsy was obtained which showed the histologic findings of superficial dermal necrosis consistent with recent chemical injury. After taking into consideration all relevant findings, suspicion for potential factitious behavior prompted further inquiry into prior treatment history. He recalled that he had previously been placed in multiple long-term dressings and serial castings for similar wound healing and chronic infection issues at various regional facilities by multiple wound care providers. The patient also disclosed that he had repeatedly failed to follow-up with each respective provider, resulting in the self-removal of dressings and casts at his own discretion. Upon initial admission to our facility, this patient was unfunded and reported previous workers' compensation and disability funding since the original date of injury.

The patient was discharged after a three-day admission with adequate wound progression documentation (Figures 3 and 4) and placed in a triple-layer compression dressing. Prior to discharge, he was counseled at length about maintaining an intact dressing until his follow-up appointment in one week. At his one week follow-up, he requested immediate removal of the dressing in order to have another local provider diagnose his condition to reinstate his workers' compensation and medical leave status.

Discussion

Munchausen's syndrome, or factitious disorder, is a rare presentation to most specialist physicians, including hand surgeons. This case highlights the necessity for keeping this diagnosis in mind when evaluating patients who present with atypical injury patterns without a clear precipitating incident or verifiable history.

Although the etiology of chemical burns can vary in nature, the presentations of self-inflicted burns are remarkably rare.[6] There are numerous epidemiological risk factors for self-inflicted burns, including male sex, single marital status, active psychiatric illness, and substance abuse.[7] In addition, certain occu-

Figure 3: Volar Aspect On Discharge

Figure 4: Dorsal Aspect On Discharge

pational exposures have been associated with higher risk and higher incidence of work-related burn injuries. Important information in the history and physical examination may provide evidence for possible artificial wound disturbance. Kasdan *et al* 5 notes key features that aid in recognizing factitious illness as presented by our patient (Table 2). The original burn injury incident five years prior as the sole cause for continued wound hospitalization was questioned with respect to pathological findings, photographic evidence, and physician documentation. The first suspicious finding in this case was apparent by visual inspection of the unusual burn pattern, which suggested deliberate self-harm and inconsistent healing maturation patterns of the primary burn lesion.

Our patient's findings were consistent with a factitious disorder primarily with the observation of multiple recurring burn injuries to the non-dominant hand over an extended period of 5 years with no resolution or improvement to the wound. It was determined that our patient fulfilled the diagnostic criteria of factitious disorder that at times shifted into malingering. Initially, Mr. P's left arm injury may not have been produced factitiously with no associated element of secondary gain. Wound manipulation and ensuing complications were propagated to obtain supplementary medical leave of absence and workers' compensation. Based on the history, presentation, and historical evidence it was concluded that perpetuation of the wound was aimed at financial gain via workers' compensation.

Factitious disorders of the hand are frequently underreported due to variability in presentation, difficulty in detection, and required repeat observations necessary for psychological diagnosis. Factitious illnesses can manifest themselves through a wide variety of impairments of the upper extremity via self-mutilation, foreign body insertion, ulcer and wound manipulation, self-lymphedema, psychogenic posturing/clenched fist, and many more. Factitious disorders of the hand involving self-mutilation can be extremely variable in presentation ranging from mild superficial lacerations to self-amputation. Self-inflicted hand or forearm laceration injuries may present with a variable degree of involvement ranging from superficial to deep tendon injury. The depth of lacerations can be used to direct specific psychiatric

Table 2 Triggers for suspicion of factitious disorder upon presentation

History	Physical Examination
Male sex	Severe pain out of proportion to findings on examination
Psychiatric illness or substance abuse	Multiple injuries of varying ages in same location
Low social support	Linear cuts or burns, especially parallel to each other
Work-related injury	Non-dominant hand injured
History of seeking medical care at multiple institutions	

From Kasdan[5]

interventions and management.[8] Self-mutilation can be produced by methods of repetitive self-trauma as seen in pachydermodactyly (PDD) and Secretan's syndrome. This was first described by Verbov as soft tissue swelling of the proximal interphalangeal joints of fingers II-IV most commonly produced by repeat hand rubbing movement.[9] It presents predominantly in adolescents males and has been associated with psychiatric disorders, such obsessive compulsive disorder. Secretan's syndrome, also known as post traumatic edema syndrome, is a rare condition which is poorly understood in the literature. The etiology of trauma is thought to involve repeat blows to the dorsum of the hand resulting in induration and brawny edema.[10] If treatment is not initiated, peritendinous fibrosis and myxedematous hardening of the affected soft tissue will occur with resultant loss of extensor function. Factitious illnesses of the hand involving foreign body insertion are occasionally seen with a variety of substances other than medication. Case reports in the literature describe injections of household insecticides, caustic agents, hydrocarbons, and gases in the upper extremities.[11] Factitious illnesses of the hand involving wound and ulcer manipulation have proven to be a significant diagnostic challenge due to several confounding factors. The clinical picture of the wound injury may be distorted by falsification of historical accounts, unusual appearing lesions, and propagation of current and/or new injuries. These challenging circumstances pose a significant problem for the physician who is actively seeking out organic causes.

There are several warning signs that alert and signal factitious illness behavior (Table 2). Early diagnosis is imperative to prevent continued propagation of these chronic behavioral components. Effective diagnostic methods include the use of long-term occlusive dressing or serial casting which functions to cover the wound with an impermeable layer of protection. This method provides barrier protection from wound disruption and allows uninterrupted wound healing to occur until resolution. Recurrence of the wound following removal of occlusive dressing helps to confirm suspicion of a factitious disorder. A multidisciplinary approach should be implemented to

Table 3 Steps in evaluation and treatment of suspected factitious hand injuries

1.	Thorough history and physical examination.
2.	Obtain treatment records from all prior treatment centers with direct communication with prior treating physician, if possible.
3.	Depending on nature of injury, consult appropriate specialists to obtain additional insight into potential etiologies: dermatology if blistering, swelling or skin lesion; burn surgeon if burn; orthopedic/hand surgeon if fracture or tendon/joint injury. If skin lesion present, then biopsy and dermatopathologic evaluation should be considered.
4.	Early use of occlusive treatment options to prevent manipulation of wound, with wound care conducted only under supervision by healthcare personnel. Methods to detect tampering at home include signing across the applied bandages, instilling fluorescein dye in addition to standard wound care, and casting.
5.	Psychiatric consult should be considered. However, this usually requires confronting the patient with the suspected diagnosis, a step many healthcare providers are reluctant to take.

address the comorbid psychiatric illness and appropriate wound care (Table 3). Comprehensive psychiatric evaluation is critical in discerning and revealing undiagnosed psychiatric conditions.[12] In conclusion, the recognition of the factitious disorder with the appropriate multidisciplinary approach can be used as a means to reduce associated cost and resource use, while providing optimal treatment of both the wound and the psychological disorder.

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