Commentary

A fatal case of Munchausen syndrome: forensic dermatology aids in establishing the diagnosis

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Abstract

Munchausen syndrome (factitious disorder imposed on self), a condition in which the patient intentionally injures themselves to create disease signs and symptoms, is difficult to diagnose. The affected individual not only seeks attention but also sympathy for their illness. A 31-year-old woman with cutaneous Munchausen syndrome who had persistent cutaneous ulcers and new abscesses is described; she died during her hospitalization and postmortem biopsies of her skin lesions and lungs both demonstrated polarizable foreign bodies. Fatal Munchausen syndrome has not commonly been described; including the woman in this report, we are aware of 19 decedents. The cause, mechanism, and manner of death have varied. Like our patient, the manner of death was most frequently undetermined since the circumstances did not permit accident to be differentiated from suicide. In conclusion, forensic dermatology aided in establishing the diagnosis of fatal cutaneous Munchausen syndrome in the woman we report. A biopsy of her non-healing ulcer showed polarizable foreign material that she had inoculated into her skin. Her condition involved not only self-inflicted skin abscesses, but also similar manifestations in her lungs. To prevent unnecessary laboratory tests and procedures and possibly death, health care providers need to consider the possibility of Munchausen syndrome.

Introduction

Munchausen syndrome (also known as factitious disorder imposed on self) is a condition in which the individual creates or exaggerates symptoms and signs of an illness by self-injury to gain attention by medical professionals for additional and usually extensive investigation including repeated office visits and often hospital admission. These patients typically have been seen by multiple clinicians and seek evaluation from numerous medical establishments.[1-47] The symptoms are fake or created by manipulation and the history is frequently fabricated. The person continues to alter their body to create the clinical stigmata of their medical condition. Cutaneous Munchausen syndrome is a variant of Munchausen syndrome in which mucosal lesions or skin lesions, or both, are prominent clinical features of the syndrome. Signs can present as chronic and recurrent skin lesions that are recalcitrant to treatment such as abscesses and ulcers.[1-4]

Fatal Munchausen syndrome is not commonly reported. However, it is likely that the number of cases Munchausen syndrome-associated death may be greater than the literature would indicate.[5-20] The manner of death in individuals with Munchausen syndrome is most commonly undetermined in that the circumstance of the death do not permit differentiation of an accident or a suicide. Correlation of the reported decedent's medical history and autopsy findings may enable the diagnosis of Munchausen syndrome to be made postmortem; forensic dermatology examination will often reveal the diagnosis.

Case Synopsis

A 31-year-old woman with a history of chronic pain was admitted to a rehabilitation hospital for intravenous antibiotics to treat multiple soft tissue nodules involving her buttocks and bilateral extremities. She had drains in place from previous surgical interventions to drain the abscesses; bacterial cultures of the abscesses grew methicillin-susceptible *Staphylococcus aureus* and she was being treated with nafcillin. Laboratory results and

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workup for diagnoses such as vasculitis, scleroderma, and mixed connective tissue disease were all negative. However, the cutaneous lesions had never been biopsied.

The patient had a history of anxiety and depression and had seen a psychiatrist during her college years. She had been evaluated at multiple hospitals with similar complaints; her comprehensive workups yielded no diagnosis and her symptoms persisted. She had left one of the hospitals when they searched her room.

Her medical history and clinical presentation prompted her clinicians to entertain the possibility of Munchausen syndrome. She was questioned regarding self-infliction of her wounds, which she denied. A psychiatry consultation was ordered but had not yet taken place.

The woman died in the hospital 19 days after admission. She was found dead in bed in her hospital room. Because of the unexpected nature of her death, the death was reported to the coroner who ordered an autopsy.

A subsequent search of her hospital room revealed 10 empty fentanyl patch packets and 19 tablets of hydromorphone. The hydromorphone prescription (for a total of 120 tablets) had been filled, while she was hospitalized, 8 days prior to her death. It was subsequently determined that her boyfriend had brought the medications to the patient three days prior to her death because the patient had informed him that she would need her pain medications since she would be discharged from the hospital soon.

A complete forensic autopsy was performed. Gross examination of the body showed fixed liver mortis presenting as nonblanchable erythema on the back, posterior arms, and posterior legs caused by gravity-related settling of blood in dependent sites (Figure 1). The erythema spared areas exposed to pressure (eg, the scapula and buttocks) as she had been lying on her back at the time of death.

Surgical drains were in place on the thighs bilaterally and the posterior aspect of the buttocks bilaterally (Figure 1). There were also multiple ecchymoses involving the upper and lower extremities bilaterally. In addition, tattoos on the right upper back and the lower central back were present (covered by black rectangles in images).

Multiple indurated pockmarks and healing scars were present on the lower right back, posterior right arm, and posterior thighs and calves bilaterally (Figure 1). The large linear ulcer on the right posterior arm had not healed (Figures 1,2). In addition, smaller wounds on the right posterior thigh were observed (Figure 3).

The internal examination showed that the lungs were pink-red and crepitant; the parenchyma was congested and edematous. The lungs were heavy; the right lung weighed 980g (normal, 445g) and the left lung weighed 820g (normal, 395g). There was frothy fluid within the bronchi.

The stomach contained 50mm of partially digested food. There were no intact pills in the stomach. Medication patches were not found anywhere on or within the body, including within the gastrointestinal tract.

Figure 1. *Dorsal view of body. The upper half of the body shows the posterior scalp, back, posterior arms, and buttocks. The decedent was lying on her back and livor mortis is fixed and appears as diffuse non-blanchable erythema that spares the scapula and buttocks; these were the areas that were exposed to pressure against the surface that she was lying against. Numerous scars were present on her arms, back, buttocks, and legs. The solid black rectangles are covering tattoos.*

Figure 2. *A non-healing ulcer was present on the right posterior arm.*

Figure 3. *The lower half of the body shows the buttocks and posterior legs with smaller ulcers. The solid black rectangle is covering a tattoo.*

Microscopic evaluation of the skin and subcutaneous tissues showed intense dermal and subcutaneous for-

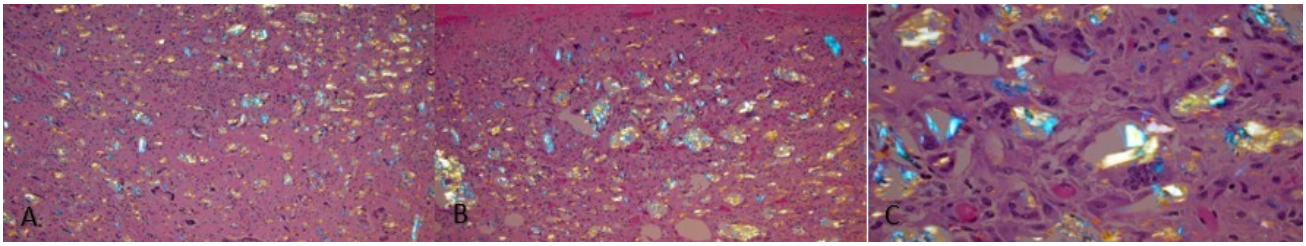

Figure 4. *Microscopic examination of right arm ulcer biopsy. Low **A)** and higher **B-C)** magnification views show granulomatous inflammation in the deep dermis and subcutaneous fat. There is a mixed inflammatory infiltrate consisting of multinucleated foreign body giant cells, neutrophils, and lymphocytes. Polarizable foreign bodies are present in the giant cells and in the tissue (hematoxylin and eosin: A, x10; B, x20; and C, x 40).*

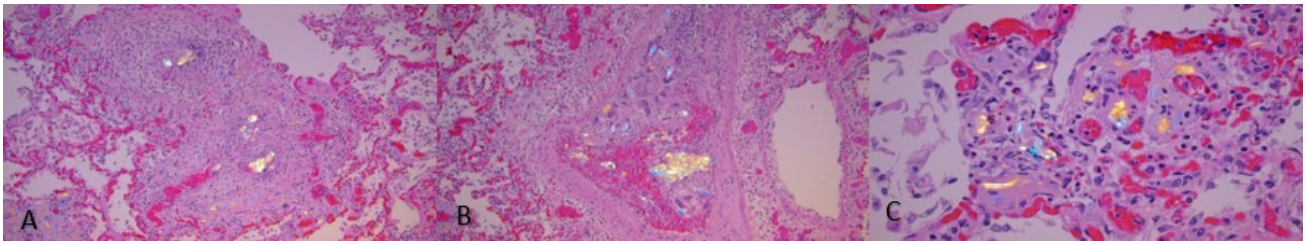

Figure 5. *Microscopic examination of lung biopsy. Low **A)** and higher **B-C)** magnification views show granulomatous inflammation in the alveoli and pulmonary interstitium. The inflammation is similar to that observed in the skin biopsy. Polarizable foreign bodies are present in the giant cells and in the tissue (hematoxylin and eosin: A, x10; B, x20; and C, x 40).*

eign body granulomatous inflammation with abundant polarizable foreign material (Figure 4 A-C). Similar changes were observed in the lungs. In addition to pulmonary interstitial fibrosis, there were numerous foreign body granulomas containing abundant polarizable foreign material (Figure 5 A-C).

Postmortem toxicology testing of blood taken from the femoral vein revealed hydromorphone (480ng/ml), fentanyl (38 ng/ml), norfentanyl (44ng/ml), and diphenhydramine (620ng/ml). Analysis of gastric contents demonstrated fentanyl level (6ng/ml) and a markedly elevated level of hydromorphone (2044ng/ml). Vitreous electrolyte evaluation showed a low level of both sodium (94mEq/l; normal range135-150mEq/l) and chloride (74mEq/l; normal range 105-135mEq/L); the potassium was 7.4mEq/l (normal range, less than 15mEq/L) and the vitreous non-electrolytes evaluated showed creatinine (0.38mg/dl, normal range 0.6-1.3), glucose (15 mg/dl, normal range less than 200 mg/dL), and urea (10mg/dl, normal range 8-20mg/dl).

In summary, the cause of death was determined to be the result of the combined toxic effects of hydromorphone and fentanyl. The mechanism of death was anoxic encephalopathy. The manner of death was undetermined since it could not be established with any degree of certainty, whether this death was accidental or suicidal.

Discussion

Munchausen syndrome was first reported by Richard Asher in 1951.[21] Individuals with Munchausen syndrome feign acute illness and cause self-inflicted wounds; the purpose of their actions are often to gain admission to a hospital and assume the role of a sick patient. Munchausen syndrome patients are generally women who, like our patient, are uncharacteristically willing to undergo extensive and invasive diagnostic procedures. Many individuals with Munchausen syndrome have extensive knowledge about medicine.[1,2,22,23]

The etiology of the Munchausen syndrome remains to be determined; biological and psychological factors are likely to have a contributory role in the development of the syndrome.[24] Predisposing conditions for Munchausen syndrome include the presence of other mental diseases or personality disorders. Indeed, a history of abuse or neglect as a child is prevalent in many of the patients with Munchausen syndrome.[21,24,25] The reported woman had a history of depression.

The diagnosis of Munchausen syndrome can be difficult to establish as it is a diagnosis of exclusion. Munchausen syndrome is a form of factitious disorder with physical symptoms. However, based on the behavior patterns of the patient, the possibility of the condition is often not entertained by the patient's clinicians. Criteria for factitious disorders, in the Diagnostic and Standard Manual of Mental Disorders, include not only motivation to assume the sick role in the absence of external incentives, but also the intentional production of signs (phys-

ical or psychological) or symptoms. In contrast to factitious disorder, malingering is pretending to have an illness to get a benefit.[7,26-28]

Individuals with Munchausen syndrome are also at risk for coexisting health problems and death.[6,29] Consultation with a psychiatrist may be helpful to identify an individual with Munchausen syndrome. The lack of identification of the underlying psychiatric disturbance may lead to many unnecessary laboratory tests and procedures, which may prolong hospitalizations and consume additional resources of the health care system.[22,29-31]

Scene investigation can also be important, as it may disclose evidence of medications, foreign materials used for self-injury, or other important findings, which may be useful in identifying at-risk people. Hospital room and personal-belonging searches can also provide evidence that shows that the patient is feigning symptoms. The use of video monitoring or a bedside sitter may be helpful as they can decrease the patient's ability to cause self-harm. However, research and the use of video monitoring should only be performed after approval has been granted by the institution's legal counsel.[4,32]

Our decedent had been observed by the medical personnel in the hospital to be "doing something" to her skin lesions. In addition, examination of the woman's personal items in her room demonstrated ten empty fentanyl packages. Also, a recently prescribed bottle of 120 hydromorphone tablets from Walgreens pharmacy was found that only contained 19 tablets.

Cutaneous Munchausen syndrome is a subcategory of Munchausen syndrome in which the patient causes self-inflicted cutaneous lesions.[4] Most patients cause these self-inflicted cutaneous lesions by injecting foreign material into the skin and soft tissue, resulting in inflammation of the skin.[2,33,34] Typical findings seen in cutaneous Munchausen syndrome caused by the presence of foreign material are erythema, swelling, necrosis, and tissue breakdown.[4] In addition to abscesses, the most common presentation for cutaneous Munchausen syndrome are recurrent chronic non-healing ulcers, which can be confused with malignancy, infection, vasculitis, intrinsic wound healing problems, or an autoimmune disease.[24, 30,33,35,36]

The differential diagnosis of Munchausen syndrome-related cutaneous lesions includes the mucocutaneous manifestations of other types of skin trauma, sexual abuse, or even burns.[37] In addition, primary dermatologic disorders can mimic the morphology of Munchausen syndrome lesions. In addition to being secondarily infected, lesions of infectious diseases can masquerade as Munchausen syndrome-associated mucosal and cutaneous lesions.[38,39]

Cutaneous Munchausen syndrome should be considered in the differential diagnosis of skin lesions that do not heal or continue to recur despite appropriate management. The syndrome is also characterized by skin lesions occurring not only in the setting of laboratory results and workups that are negative, but also in a patient who has a history of being evaluated by multiple clinicians at several health care facilities for the same complaints. Evaluation by a dermatologist and biopsy of the lesions may provide evidence of a non-suspected foreign material as the source of the skin lesion.[2,22,40]

A skin biopsy can be helpful to establish the diagnosis of cutaneous Munchausen syndrome when there are cutaneous lesions. Pathologic changes typically exhibit diffuse polymorphous dermal inflammation with numerous neutrophils, lymphocytes, histiocytes, foreign body giant cells, and lipophages without primary vasculitis changes.[2] Deeper inflammation can present as subcutaneous fat necrosis, with few or no changes noted in the overlying dermis and epidermis.[28,34,35]

The woman in this report presented to the hospital for both new wounds and chronic, recurrent, and non-healing ulcers. She underwent an extensive workup to determine an underlying etiology for her skin lesions. All of the tests were negative, which subsequently excluded vasculitis, connective tissue diseases, and autoimmune disorders. Although she had several surgical drains placed, biopsies for microscopic evaluation and cultures (bacterial, fungal, mycobacterial, and viral) had never been obtained.

The postmortem skin biopsy, in the reported woman, demonstrated abundant polarizable foreign material with associated granulomatous inflammation in the dermis and fat. This finding strongly suggests that the patient was causing self-inflicted wounds. Indeed, she was injecting foreign materials to form new ulcers and to keep the current ulcers from healing.

Biopsy from our patient's lungs showed similar pathological changes. The possible etiologies of her pulmonary lesions were either lymphatic drainage from the skin lesions or intravenous injection of the foreign material or both. The character of the foreign material within the skin and lungs was morphologically like what is seen in confirmed drug abusers who inject themselves with crushed and dissolved oral medications. We were not able to perform specific testing to determine the composition of the foreign material so we cannot unequivocally state that the patient's opiates were the injected substance.

When a death occurs because of suspected Munchausen syndrome, the decedent should be referred to the local medicolegal death investigation agency (coroner or medical examiner). A complete autopsy should be done including not only a gross examination, but also an internal examination with histological evaluation of any lesions suspected of being self-inflicted. Unfixed samples of lesions may be saved for additional testing if warranted and available resources allow for such testing. Toxicology studies should be performed of bodily fluids and the stomach contents. The gastrointestinal tract and other body cavities should be thoroughly examined, to rule out the presence of foreign materials.

Fatal Munchausen syndrome, including the decedent in this report, has been described in 19 decedents to the best of our knowledge.[5-20] Some of the individuals took excessive medication (either insulin or thyroid)[5,15]

Table 1. *Characteristics of Fatal Munchausen Syndrome With Undetermined Manner of Death*[a].

Case	Year	Comment	Reference
1-3	1981	Three individuals (a 39-year-old-man and women aged 50 and 72 years) presumably died due to ventricular fibrillation with hyperthyroidism due to deliberate intake of excessive amounts of L-thyroxine. Autopsy from the man showed an acute posterior myocardial infarction due to acute coronary thrombosis and focal areas of leukocytic infiltration and fibrosis in the anterior wall not involved in the infarction process. Autopsy of the 50-year-old woman showed local myocarditis with leukocytic infiltration.	5
4	1990	A 31-year-old woman (hospital security guard) with borderline personality disorder died in the emergency department rest room while being evaluated for admission; her death was attributed to foreign body pulmonary arterial and capillary embolization. During the preceding three years, she had 11 hospitalizations. In the rest room with the decedent was a package of brewer's yeast, corn starch powder, and a slurry (corn starch)-containing syringe. At least three recent venipuncture sites and diffusely edematous lungs with multiple visceral pleural petechiae were seen at autopsy. In addition, not only multiple intraarterial and intracapillary partially refractive crystalline starch granules were observed, but also brewer's yeast (*Saccharomyces cerevisiae*) was demonstrated in the pulmonary arteries. Retrospective evaluation of the patient's medical history showed multiple signs of Munchausen syndrome.	6
5	2003	A 25-year-old woman (nurse) with factitious anemia resulting from bloodletting by inserting an 18-gauge needle without a syringe into her vein; she confessed her habit. Subsequently she entered formal psychiatric care for her factitious disorder (Munchausen syndrome). She died after self-bloodletting 18 months later; it was not known whether the death was intentional suicide or an accident.	7
6	2005	A 53-year-old woman (former nurse) had a self-reported history of cystic fibrosis diagnosed in infancy and prior resection of the middle and lower lobes of her right lung. She had many hospital admissions for her lung condition and psychiatry (being diagnosed with Munchausen syndrome). During her last pulmonary hospitalization she developed increased dyspnea, progressively deteriorated, and died. A limited autopsy to the chest was performed, which demonstrated severe interstitial fibrosis and talc within the airspaces and the fibrotic interstitium; this supports a respiratory route of talc acquisition. The talc was not localized to intravascular or perivascular spaces establishing that the talc was not injected.	8
7	2007	A 52-year-old man (Israeli Defense Force veteran) who had suffered a spinal cord injury during military action 20 years earlier died in an attempt to prove factitious allegations of persecution by using a device that he constructed to shoot himself from a distance greater than one meter. He had post-traumatic stress disorder and had filed numerous, unsubstantiated complaints, with police authorities claiming that government agents were not only trying to perform medical experiments on him but also to harm him. In summary the investigators concluded that this was an accidental death; the gunshot wound was an intentional self-inflicted injury, which was not meant to be lethal and had been performed by the decedent to demonstrate harassment by government agents.[b]	9
8	2009	A 25-year-old man with type 2 diabetes mellitus and schizophrenia accompanied by Munchausen syndrome stopped taking his metformin and biperiden; he only continued his haloperidol and consumed large amounts of carbonated beverages and candies. He developed hyperthermia, rigidity, autonomic dysfunction, and mental status changes establishing the diagnosis of haloperidol-induced neuroleptic malignant syndrome; this was complicated by a hyperosmolar hyperglycemic state and severe rhabdomyolysis. He developed multiorgan failure and died. The man exhibited direct self-injurious behavior by intentionally stopping his diabetic medication and altering his diet that resulted in the hyperosmolar hyperglycemic state, which was considered responsible for the development of haloperidol-induced neuroleptic malignant syndrome.	10
9	2014	A 29-year-old woman (nurse practitioner) had a history of multiple medical conditions, beginning at age 12 years. Approximately four months before her death she was admitted to a hospital and experienced hypoxic respiratory failure requiring intubation; a computerized tomographic of the chest showed right ventricular	11

Case	Year	Comment	Reference
		enlargement and pulmonary edema, yet no pulmonary embolism. Prior to discharge, nurses observed her manipulating her peripheral intravenous lines. Shortly thereafter, she had a syncopal episode, was admitted to another hospital, had a negative workup; her clinicians were contacted by a care provider from the other facility that she might have Munchausen syndrome. She refused psychiatric evaluation and was discharged. A month later, she was admitted to the original hospital (where nurses noted she had multiple medications and syringes in her purse), was resuscitated after experiencing a pulseless electrical activity arrest, and demonstrated right ventricular hypokinesis with sparing of the apex consistent with right ventricular strain (on echocardiogram), consistent with an air embolism; she recovered and was discharged. Within three weeks, she again hospitalized for chest pain and dyspnea; after discharge, she was found dead at home by her husband who did not permit an autopsy. The woman had recurrent right ventricular failure resulting from air emboli and died from her self-injurious behavior.	
10	2019	A man in his 20s had 41 hospitalizations (medical, surgical, and psychiatric) within a four-year period. Several exploratory laparotomies had been performed, bilateral orchiectomy, and diagnosis of Munchausen syndrome. His behavior pattern was characterized by wandering around Italy aimed at obtaining unnecessary and dangerous surgical interventions. He developed peripheral edema in the lower limbs and was voluntarily admitted to a local psychiatric ward; he died suddenly. His psychiatrist suspected that he had a genuine organic illness (that had resulted in acute heart failure) that not only had not been evaluated and treated but also coexisted with his mimicked physical disorders. An autopsy was not performed.[c]	12
11	2021	A 49-year-old woman with a history of colostomy and urostomy was seen in consultation by psychiatry for depression, poor oral intake and insistence on the placement of a feeding tube. During the previous four years, she had 40 inpatients hospital admissions and 70 emergency department visits. A diagnosis of severe factitious disorder (Munchausen syndrome) was made; indeed, two years earlier a clinician suspected Munchausen syndrome, but psychiatry had not been consulted. Eight months after discharge, the same diagnosis was confirmed when a psychiatrist evaluated her in the hospital. She did not follow up with psychiatry; within the next two months she had died at another hospital following a prolonged hospitalization with multiorgan failure and septic shock.	13
12	2025	A 31-year-old woman with a history of anxiety and depression with multiple skin infections and hospitalizations since college; Munchausen syndrome had been suspected at that time. During her current hospitalization she had an acute respiratory event and died 19 days after admission; empty fentanyl envelopes and missing hydromorphone was noted in her room. Autopsy revealed elevated serum and gastric levels of both drugs; skin and lung biopsies demonstrated granulomas containing polarizable foreign material in the dermis and lungs. Her manner of death was undetermined since it could not be confidently stated that her death was accidental or suicidal.	CR

Abbreviations: CR, current report.
[a]An undetermined manner of death refers to either direct self-injurious behavior, or accident versus suicide, or natural versus self-injury.
[b]The researchers considered their decedent like the man reported by McDowell to be presenting with a sub-category of Munchausen syndrome in which individuals factitiously present themselves to law enforcement authorities as victims of crime and their self-inflicted wounds serve to add credibility to the complaint.[14]
[c]The investigators cited a report of Munchausen syndrome mimicking psychiatric disease with concomitant genuine physical illness in a 45-year-old man who presented with auditory hallucinations and delusions of control and progressive mutism; Munchausen syndrome was suspected, and he was admitted to a psychiatry ward. He developed new symptoms of respiratory distress and pointed to his chest; he was transferred to the internal medicine ward; an echocardiogram documented moderate effusion with no signs of tamponade. Severe acute pericarditis was diagnosed; his symptoms resolved after treatment that consisted of bed rest and aspirin.[29]

or stopped taking essential medicine (such as insulin or metformin).[10,17] The reported woman, to the best of our knowledge, is the only decedent with fatal cutaneous Munchausen syndrome.

Determining the cause of death in fatal Munchausen syndrome decedents may present a challenge to the autopsy pathologist. The cause of death in fatal Munchausen syndrome was variable.[5-20] In the reported woman, the cause of death was relatively straightforward, as her death was attributable to intoxication.[41-44] There were markedly elevated drug levels. Hence, her death was determined to be a result of the combined toxic effects of fentanyl and hydromorphone. However, in other cases, the circumstances and contributing fac-

Table 2. *Characteristics of Suicide Cases of Fatal Munchausen Syndrome.*

Case	Year	Comment	Reference
1	1987	A 27-year-old man (trained as an emergency medical technician and working as an Air Force Security police staff sergeant) staged his suicide to mimic a murder by gunshot. He had 41 instances of visits to military hospitals or clinics during the prior 35 months and a history of substance abuse and fabricated medical reports. The man shot himself and created a scene that presented the appearance that he had been killed during an altercation with an intruder while on active duty; he had false claims of post-traumatic stress disorder and nervous breakdowns. His motivation for suicide was to avoid persecution for stealing and to die as a hero. This unique presentation of Munchausen syndrome has the affected individual falsely presenting themselves to law enforcement authorities as a victim of crime; the man's suicide was performed under circumstances calculated to make it appear like a murder.	14
2-3	1988	Two unrelated cases of factitious hypoglycemia due to surreptitious administration of insulin are reported: a 60-year-old male hospital administrator and a 48-year-old married housewife. The man was non-diabetic and had emergency room visits for abdominal pain and four subsequent visits for unresponsiveness during the next six months; he was depressed, contemplating suicide, and admitted self-injection of insulin. Both the patient's mother and twin sister had insulin-dependent diabetes. Prior hospitalization for severe hypoglycemia showed that his plasma contained anti-insulin antibodies, in appropriately elevated insulin, and very low C-peptide levels during his hypoglycemic episodes. He was admitted to an inpatient psychiatric service. However, two months later he was found dead in a motel; his blood glucose was 0.4 mmol/L (very low) and his plasma amitriptyline level was 2870 nmol/L. The woman was previously insulin-treated because of a prior total pancreatectomy; she refused to admit the excessive administration of insulin and refused to accept psychiatric referral; she was found dead within four months of diagnosis, and no autopsy was performed.	15
4	1988	A 27-year-old woman with epileptic Munchausen syndrome (a form of pseudo seizures) had at least 25 hospital admissions for pseudo seizures establishing a diagnosis of Munchausen syndrome. She had been transferred to a psychiatric ward on several occasions. After an admission for 'status epilepticus' she was committed to a psychiatric center and placed in seclusion and close observation; however, she hanged herself by her sneaker laces from the doorknob of her room.	16
5	1990	A diabetic 22-year-old woman (with a history of dysthymic disorder, substance abuse, and psychogenic pain disorder) had been hospitalized and evaluated by the psychiatric service; her factitious behavior (Munchausen syndrome) included insulin noncompliance. She denied inducing illness and did not attend psychiatric follow-up. She was readmitted to the hospital four months later in ketoacidosis; her physicians concluded that this occurred because of her deliberately withholding insulin therapy. She had a cardiopulmonary arrest and died three days after admission.	17
6	2007, 2008	A 38-year-old woman presented to the emergency department with severe respiratory distress and stridor. She was intubated and successfully extubated within four hours; she demanded to again be re-intubated and psychiatry consultation confirmed a suspected diagnosis of a contrived disorder. Her medical history revealed similar admission at four other hospitals and prior psychiatry evaluation diagnosing Munchausen syndrome and three clinic visits for treatment. The day, and one week, after her current admission she presented to the same emergency department; on the second presentation she was again offered psychiatric treatment, which she refused and discharged herself against medical advice. The researchers were informed that following the final emergency department visit that the woman committed suicide; additional details were not provided in the report.	18, 19

tors may be quite complex with resultant difficulty in determining the cause of death.

Determination of the manner of death in fatal Munchausen syndrome decedents can be difficult. Indeed, the manner of death most frequently was undetermined (Table 1)[5-14,29] since the circumstances regarding the death did not permit the medical examiner to differentiate whether the death was an accident or a suicide. Less common manners of death were suicide (Table 2)[14-19] and unclassified (Table 3).[20-46]

Table 3. *Characteristics of Fatal Munchausen Syndrome With an Unclassified Manner of Death*[a].

Case	Year	Comment	Reference
1	2004	A 17-year-old boy had 37 episodes of prolonged psychogenic nonepileptic seizures and presented to 11 different hospitals over three months; he was referred to psychotherapy for treatment of the factitious disorder (Munchausen syndrome), which was unsuccessful. At age 19 years, he had hoax calls to most of the neurologic centers in his home country for epileptological emergencies. At age 21 years while seeking admission with a prolonged seizure, the paralyzing agent atracurium was used during the induction of general anesthesia for refractory seizure; he had an anaphylactic reaction and had to be resuscitated. Within a few days he was admitted to another hospital; the doctors, unaware of his prior reaction to atracurium, gave him the medication to obtain further muscle relaxation. Within 30 seconds after he received the atracurium, he had a cardiorespiratory arrest and resuscitation was unsuccessful.	20

[a]Unclassified manner of death is an option on death certificates in limited regions of the United States and refers to cases that occurred because of iatrogenic harm or medical misadventure or invasive procedures[45]; in New York State, the medical examiners have the options to classify this manner of death as therapeutic complication.[46] In many other jurisdictions, where "unclassified" and "therapeutic complication" are not options for the manner of death-on-death certificates, the manner of death in this case might variably be considered "accident" or "undetermined."

The manner of death for the woman in this report, was undetermined since it could not be confidently stated that her death was accidental or suicidal. The opioid overdose was the major factor in her death. It is not possible to definitively discern whether the woman ingested the excessive amount of opioid with the intent of killing herself or mistakenly took too much in an effort to produce symptoms in order to remain ill. The woman had a history of depression, but none of the hospital notes documented any depressive symptoms or suicidal thoughts. A psychiatry consultation would have provided more insight into the patient's current mood and may have been able to provide a definitive antemortem diagnosis of Munchausen syndrome and possibly prevented this death from occurring.

Conclusion

Munchausen syndrome is a psychiatric disorder. Individuals purposely injure themselves to create signs and symptoms of disease with the intention of receiving attention and sympathy associated with being ill and having a spectacular disease. Cutaneous Munchausen syndrome is a subcategory of Munchausen syndrome in which the patient causes self-inflicted cutaneous lesions. Skin biopsy may be especially useful in identifying cases of cutaneous Munchausen syndrome owing to the identification of the injected foreign material. Clinicians and pathologists must be aware of Munchausen syndrome and its potential cutaneous manifestations since significant morbidity and even mortality may be associated with Munchausen syndrome. In conclusion, forensic dermatology methods can aid in establishing the diagnosis of fatal Munchausen syndrome.

Potential conflicts of interest

The authors declare no conflicts of interest.

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