



Steroid Withdrawal Syndrome in Salted Fish Seller with Rheumatoid Arthritis: A Case Report

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Abstract

Background: Traditional and complementary medicine (TCM) is often seen as the more accessible and affordable version of medicine. One of the most commonly found substances in TCM is steroids, which can alleviate pain. However, long-term usage of steroids may cause several adverse effects, and an abrupt cessation can cause steroid withdrawal syndrome. This case report discusses the relationship

between a patient who worked as a salted fish seller with the diagnosis of steroid withdrawal syndrome.

Case Presentation: A 43-year-old man worked as a salted fish seller and encountered various potential hazards. He had been diagnosed with rheumatoid arthritis for 2 years and consumed a steroid-containing-TCM daily. He ceased the TCM consumption and started experiencing generalised weakness, nausea, dizziness, swollen feet, and weight loss. Upon further examination, the patient was diagnosed with a steroid withdrawal syndrome.

Discussion: There are seven steps required to establish the diagnosis of an occupational disease. In this case, it was found that the leading cause of steroid withdrawal syndrome is the sudden cessation of long-term improper usage of steroids.

Conclusion: The occupational exposures of a salted fish seller are not proven to cause or exacerbate the steroid withdrawal syndrome experienced by the patient.

Keywords: steroid withdrawal syndrome, salted fish seller, traditional and complementary medicine.

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Introduction

Modern health systems all around the world are facing major challenges, such as changing patient demographics, patients' diverse demands and needs, rapidly growing and increasingly complex technology innovations, and escalating healthcare costs. Both parties, patients and health care providers alike, demand the revitalisation of health care services towards patient-centred care. This includes expanding access to the utilisation of traditional and complementary medicine (TCM) in primary healthcare settings. TCM is often seen and believed as the more accessible, affordable, and acceptable version of medicine to local populations. TCM is commonly used and practised in large proportions of Africa, Asia, and Latin America. TCM's pattern of use varies among and within countries, related to a number of factors such as cultures, historical significance, regulations, or simply as the only sources of affordable healthcare and medicine.^{1,2}

In Indonesia, the use of TCM is attributed chiefly to cultural heritage despite the advancement of healthcare industries. TCM pattern of use in Indonesia has a multi-ethnic and multicultural character; therefore, a wide variety of TCM modalities coexist. If appropriately used, TCM can be a tool to help achieve universal health coverage in synergy with modern healthcare services. However, it is not uncommon that TCM is used inappropriately solely because of the lack of awareness and knowledge regarding what is contained within.^{2,3}

One of the most commonly found substances within varieties of TCM is steroids. Steroids are analogues of corticosteroids, hormone mediators produced inside the human body by the cortex of adrenal glands. Corticosteroids are further categorised into glucocorticoids, mineralocorticoids, and androgenic sex hormones. The most commonly used steroids are glucocorticoids, a group of drugs structurally and pharmacologically engineered to mimic the endogenous hormone cortisol, which regulates a variety of physiologic processes within the human body with its various functions like anti-inflammatory, immunosuppressive, anti-



proliferative, and vasoconstrictive effects. While being powerful and valuable drugs if used appropriately, the improper utility of steroids may introduce adverse effects that appear to be related to both their average dose and cumulative duration. One of the most commonly found cases in developing countries where usage of TCM, including steroids, is high in frequency but yet to be appropriately regulated is the usage of steroids' anti-inflammatory properties by workers with high physical demand to alleviate their pain and increase productivity. In the long run, it will cause various adverse effects on the many systems of the human body, including the cardiovascular, gastrointestinal, and immune systems, among many others. Furthermore, the problem remains with stopping steroid consumption. Steroid withdrawal syndrome occurs with abrupt cessation or reduction of glucocorticoid hormone levels in patients normally found in those who have had an external steroid source over a long period. The most commonly found symptoms are fatigue, light-headedness, dizziness, muscle weakness, nausea and vomiting (therefore, decreased appetite and weight loss), abdominal pain, and diarrhoea. Health professionals need to be aware of this condition to catch the situation thoroughly and improve the patient's quality of life.^{4,5}

Case

A 43-year-old man came with complaints of generalised weakness, nausea, and dizziness for four days. The patient had worked as a salted fish seller for 20 years and used to have employees helping him. Due to the pandemic, he had to fire his employees and began to work on his own. The patient had a history of myalgia, arthralgia, and morning stiffness on his hands and feet for two years. Since then, he started consuming 1 tablet of TCM named Montalin (containing Paracetamol, Dexamethasone, and Natrium Diclofenac) every day. He began to experience heartburn, nausea, abdominal discomfort, weight gain, and abdominal striae. Two weeks prior to admission, the patient started experiencing swollen feet, hematemesis, and melena. He stopped consuming the TCM 2 weeks before admission and has lost 10 kg ever since.



The patient lived with his wife and three kids. He had a history of smoking one pack of cigarettes every day and mild to moderate alcohol consumption. The patient worked as a salted fish seller in a traditional market. He worked seven days a week from 6 am to 8 pm. The patient went to work by riding a motorcycle for about 15 minutes. Upon arrival, he would open the store, sort out the fish to sell, and serve the customers. He would weigh the fish, put them inside a plastic bag, and tie it up. Then, he would receive payment and store them inside a fanny bag. He usually received an average of five to six bags of fish weighing around seven to ten kilograms. Before closing the store at night, he would count his daily earnings and go home by riding his motorcycle.

While working as a salted fish seller, the patient had to encounter a number of potential hazards. Physical hazards included vibration, ultraviolet rays, hot temperature, noise, and dust. Chemical hazards included vehicle emission (CO) and salt (NaCl). Biological hazards included halophilic bacteria (*Vibrio*, *Aerius thalussinus*, *Lutjaus vivanus*). Ergonomic hazards included bending forward, lifting heavy weights, repetitive movements of bending forward and standing up, standing up for a long period of time, repetitive movement of sorting out the fish and measuring them, and sitting down for a long period of time while waiting for customers. Psychosocial hazards that he could experience included exhaustion and boredom.

Physical examination showed anaemic conjunctiva in both eyes, abdominal livid striae, and epigastric tenderness in the patient. Laboratory examination revealed anaemia, increased urea and creatinine, low eGFR, hyponatremia, and hypokalemia. He was diagnosed with steroid withdrawal syndrome, acute kidney injury, upper gastrointestinal bleeding, and rheumatoid arthritis.



Discussion

An occupational disease is an entity of diseases caused by exposure in the workplace. Diagnosing an occupational disease needs a special approach which consists of seven steps:

1. Establishing the clinical diagnosis
2. Determining the occupational exposure
3. Determining the relationship between occupational exposure and the clinical diagnosis
4. Determining whether the intensity of the exposure is enough to cause the diagnosis
5. Determining other individual factors that may be a risk factor or cause of the diagnosis
6. Determining other factors outside the workplace
7. Establishing the diagnosis of occupational disease.⁶

The first step in diagnosing an occupational disease is establishing the clinical diagnosis. Based on the patient's history and physical examination, the patient is diagnosed with a steroid withdrawal syndrome. The patient had consumed steroid-containing TCM for a prolonged period of time, and the sudden cessation of the TCM caused him to experience symptoms suggesting a steroid withdrawal syndrome. The hypothalamic-pituitary-adrenal (HPA) axis will be suppressed in people who have been exposed to improper exogenous steroids for an extended period. Due to the adrenal gland not having enough time to produce sufficient glucocorticoid hormones to meet the body's demands, a sudden withdrawal of the exogenous supply of steroids will result in symptoms similar to adrenal insufficiency. In patients with adrenal insufficiency, evidence of suppressed HPA axis is observed. If there is no evidence of HPA-axis suppression, the patient is thought to have steroid withdrawal syndrome. The patient in our case began to experience symptoms (weight loss, generalised weakness, nausea, abdominal pain) after ceasing his herbal medication, a typical illustration of steroid withdrawal syndrome.⁷

In the context of a confirmed normal HPA axis, steroid withdrawal syndrome is characterised by glucocorticoid deficiency symptoms such as general malaise, weakness, lethargy, headaches, postural dizziness, arthralgia, mood swings, and emotional instability. HPA axis integrity may be



assessed by measuring the 9 AM serum cortisol level, with patients having a suboptimal value within the range of 100-450 nmol/L is suggestive of steroid withdrawal syndrome. There are further stimulation tests to confirm adrenal insufficiencies, such as the short synacthen test, the glucagon, or the insulin tolerance test. We did not, however, proceed with the stimulation test in this patient because his history was already extremely suggestive, and we decided to treat the patient clinically with steroid replacement therapy.⁸

The mainstay of steroid withdrawal syndrome treatment is the proper reintroduction of steroids up until the body can respond and maintain the optimal cortisol level. Patients who have been taking exogenous steroids for an extended period of time should gradually reduce the dose of steroids to physiological levels (typically 5–7.5 mg of prednisolone). This is then further reduced by 1 mg every two weeks to 1 mg and then by 1 mg every other day for 14 days. In cases of steroid withdrawal syndrome, a longer and more drawn-out span for steroid cessation is required, which is then halted once the side effects are subsided.⁸ However, there are no established recommendations for steroid replacement in patients whose exogenous steroid intake is unknown. A brief course of low-dose prednisolone with further dosage adjustments might be the safest management approach for the patient.

The second step of diagnosing an occupational disease is determining occupational exposure. This can be achieved by doing thorough history taking. Various potential hazards encountered by the patient while working included:

- Physical hazards (hot temperature, noise, vibration, ultraviolet rays, and dust).
- Chemical hazards (NaCl, CO).
- Biological hazards (halophilic bacteria such as *Aerius thalussinus*, *Vibrio*, *Lutjaus vivanus*), ergonomic hazards (bending forward, lifting heavy weights, standing up for a long period of time, sitting down for a long period of time, repetitive movements of bending forward and standing up, repetitive movement of sorting out the fish and measuring them), and psychosocial hazards (exhaustion, boredom).



Nonetheless, there is no evidence of a direct connection between the aforementioned exposures and steroid withdrawal syndrome.

Evidence showed that steroid withdrawal syndrome cases were always linked with previous sudden cessation of exogenous glucocorticoid administration, especially long-term and in high doses.⁹ There is an indirect correlation between the patient's occupation and the clinical diagnosis. His job as a salted fish seller exposed him to a number of ergonomic hazards which could have worsened the pain of his previously diagnosed rheumatoid arthritis, especially after the pandemic, where he had to dismiss his employees and began to work on his own. This condition might have driven the patient to take the steroid-containing-TCM, which acted as a pain reliever continuously. The long-term administration of steroids in unknown doses eventually caused HPA axis suppression. Thus, after the patient ceased the consumption of the TCM due to some side effects (i.e. heartburn, nausea, abdominal discomfort, weight gain, abdominal striae, swollen feet, hematemesis, and melena), he began showing signs and symptoms of steroid withdrawal syndrome.

The fourth step of diagnosing an occupational disease is determining whether the intensity of the exposure is enough to cause the diagnosis. In this case, the patient had worked as a salted fish seller for 20 years. He worked seven days a week from 6 am to 8 pm, and his workload had increased significantly since the pandemic due to the dismissal of his employees. Although the patient's occupation does not have a direct correlation with his diagnosis, his workload warranted the improper usage of the steroid-containing TCM.

The fifth step is determining other individual factors that may be a risk factor or cause of the diagnosis. In this case, the patient and his family have no history of allergy, atopic, or other familial diseases. The sixth step is determining other factors outside the workplace. The patient had a history of long-term TCM consumption, which is the leading cause of his diagnosis.



There are common themes underlying the reasons why the number of TCM consumption in Indonesia is high, most notably cultural heritage and availability in the market. Most TCM is being traded in the market, especially in developing countries, branded as herbal medicine or natural remedies, giving it a safer impression for traditional people than the unfamiliar use of evidence-based-medicine used in modern healthcare. They are also sold at a much lower price relative to modern pharmaceutical medicine, giving people a more affordable option. However, the problem in developing countries such as Indonesia, TCM is considered to be in a state of being constantly unregulated. This condition is caused by the lack of appropriate and proper legislation, governance, institutionalisation, and final integration into the national health service system as a whole. There are many cases of TCM being sold every day uncertified and unregulated in practice. Instead of giving the proper benefits, it may cause harm due to improper doses of ingredients contained inside.¹⁰

The TCM consumed by the patient is one of many common herbal medicines available over the counter, which means it is accessible without any prescription. The herbal product is procured from various tree roots or herbs and processed into pills. However, sometimes these traditional medicines do not explicitly describe and state every ingredient used in the mix. One study regarding traditional medicine in 2005 showed that about half of the products tested positive for undeclared and unregistered steroids.¹¹ The TCM consumed by the patient also contained steroids in unknown doses. Daily consumption of the steroid-containing-TCM over time caused the observed exogenous Cushing's syndrome (weight gain, abdominal striae). This phenomenon is also reported in other case reports in Indonesia.¹² Improper use of the steroid-containing-TCM also caused other health problems in the patients, including acute kidney injury and upper gastrointestinal bleeding. The sudden cessation of the TCM, later on, caused the patient to experience symptoms of adrenal insufficiency, as detailed in the first step.

The seventh and last step of diagnosing an occupational disease is establishing the diagnosis of occupational disease. From the thorough examination of the patient and the available evidence, it



can be concluded that occupational exposures are not proven to cause or exacerbate the patient's illness.

The patient has been diagnosed with rheumatoid arthritis for the last two years. Rheumatoid arthritis is an inflammatory chronic musculoskeletal disorder associated with autoimmune that causes joint pain and swelling, reduced mobility, and physical weakness. Rheumatoid arthritis is clearly not an occupational disease, however, because of the ergonomic hazards he encountered while working such as lifting heavy weight and doing repetitive movement, the pain worsen and be the reason the patient consumed steroid-containing-TCM. That showed that the ergonomic hazard was related and exacerbate the pain from rheumatoid arthritis, but not to the steroid withdrawal symptoms which mainly discussed in this report. An adjustment in the workplace should be done especially in ergonomic factors. By modifying the workplace and the work habit of the patient, it can prevent pain and the urge to consume any steroid-containing-TCM.

Conclusion

A thorough examination is required in diagnosing an occupational disease. Besides considering various potential hazards at work and their relation to the clinical diagnosis, other potential hazards outside of the workplace have to be taken into account as well. In this case, the occupational exposures of a salted fish seller are not proven to cause or exacerbate the steroid withdrawal syndrome experienced by the patient. Evidence showed that the patient's sudden cessation of steroids is the fundamental cause of his diagnosis.



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