



Case report

Burn caused by exposure to giant hogweed (*Heracleum sosnowskyi*, Sosnowsky's hogweed) and delayed wound healing in a 46 years old HIV and HCV positive patient – a case report

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ABSTRACT

Introduction: Chemical burn due to giant hogweed (*Heracleum sosnowskyi*) has been reported as a cause of burn injury in the literature. However, there have been no published articles in the literature presenting a course of this kind injury in patients with any kind of immune deficiency.

Aim: The aim of this review and case report is to raise awareness of phytophotodermatitis and burns caused by plants.

Case study: We report the case of a 46-year-old man with a full thickness chemical burn on his right pretibial area due to phytophotodermatitis (PPD) following contact with giant hogweed. The patient was diagnosed with HIV and HCV infections in 2006. He is on ARV therapy with a good immunological outcome. At first, the wounds were surgically dressed and a pharmacological procedure was introduced. He was discharged with a recommendation to treat the affected areas with a steroid cream. After almost two years (II.2017) the wound is still in process of healing. The area of open wound decreased by 50% compared to V.2015.

Results and discussion: Human immunodeficiency virus (HIV), HAART, low CD4 cell count and high incidence of wound infections results in impaired wound healing process in HIV(+) patients. There is a lack of information on burns caused by plants in HIV positive patients, who are put on aggressive ART therapy that may lead to increased photosensitivity of the skin.

Conclusions: It is crucial to alert all patients from the risk groups to the risk of being in areas with high-dense vegetation in the condition of high sunlight exposure.

1. INTRODUCTION

Chemical burn due to giant hogweed (*Heraclium sosnowskyi*) has been reported as a cause of burn injury in the literature both in humans and animals. There have been no published articles in the literature presenting a course of this kind injury in patients with any kind of immune deficiency. We report the case of a 46-year-old Caucasian HIV positive and HCV positive man presenting delayed healing of a full thickness chemical burn on his right pretibial area due to phytophotodermatitis (PPD) following contact with giant hogweed (*H. sosnowskyi*) in May 2015. After almost two years (February 2017) the wound is still in process of healing in spite of implemented treatment. It is crucial to alert all patients to the risk of being in areas with high-density vegetation in condition of high sunlight exposure. There is lack of information on burns caused by plants in HIV positive patients, who are put on aggressive ART therapy that may lead to increased photosensitivity of the skin.

2. AIM

The aim of this review and case report is to raise awareness of PPD and burns caused by plants.

3. CASE STUDY

We report the case of a 46-year-old man with a severe burn on his right pretibial area due to PPD following contact with giant hogweed (*H. sosnowskyi*) in May 2015. As a homeless person the patient in the summer spends some of his nights in areas with high-density vegetation (forests, parks, river banks). Based on the anamnesis his burn-like lesion appeared right after the contact with a plant identified by him as giant hogweed (when he was shown the pictures by the medical staff). He presented with an extensive and quite shallow wound measuring 6–7 × 3–4 cm with slow epidermization from the sides and no granulation tissue. The patient was diagnosed with HIV in 2006 with CD4 count of 240 cells/mm³ at the time. His past medical history includes chronic HCV infection (current HCV-RNA 1.28 × 10⁵, genotype 1a), abscess of the right cornea (2013) and deteriorating vision ever since, fibroid changes in right lung apex. He is on ARV therapy (Truvada, Prezista, Norvir) with a good immunological outcome – CD4 count 630 cells/mm³ (November 2016) and undetectable viral load, however he had an episode of self-willed treatment disruption. He has no other known co-morbidities or chronic treatment. The first attempt at treating the wound included dressings with calcium alginate, which did not bring significant improvement. On admission, the patient was consulted by a dermatologist and surgeon, both of whom suggested ready-made dressings like Granuflex or Argosulfan in cream twice a day under a gauze dressing, used in alteration with Solcoseryl (only on the surrounding skin). He was discharged with a

recommendation to continue the suggested treatment and attend the scheduled surgical follow up once a week. After almost two years (April 2017) the wound is still in process of healing (Figures 1 and 2). The area of open wound decreased by approximately 50% compared to May 2015.

This article does not contain any studies with animals performed by any authors.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

4. RESULTS AND DISCUSSION

PPD is a well-known condition in dermatology. It has been reported in animals and humans. It arises as a result of phytotoxic plant compounds – such as furocoumarines and psoralens activation by UV light and may be the cause of painful burns.¹ The plant's toxicity is a consequence of DNA damage in the presence of UV light.²

Plants generating PPD include garden parsley, dill and giant hogweed, which caused the burn in our patient. Giant hogweed is of high prevalence in Europe, especially alongside rivers and woods. The highest concentration of phytotoxic psoralens was reported in the summer (and the peak in leaves happens in June).³ Cutaneous burns induced by giant hogweed are caused by contact with its photoactive sap containing plant furocoumarins.^{1,4}



Figure 1. Burn caused by giant hogweed in HIV patient 23 months after the exposition.



Figure 2. Burn caused by giant hogweed in HIV patient on the day the patients was discharged from the hospital.

Usually, giant hogweed-related PPD leads to mild skin burn-like lesions.¹ However, under certain circumstances it may cause a severe skin damage as this case report highlights. The severity of PPD may be exacerbated by HIV related immunodeficiency that can predispose to photosensitization and prolonged wound healing both of which might have affected our patient.⁵

Literature review suggests that HIV infection alone facilitates photosensitivity reaction that may give variable dermatologic presentations.⁵ Moreover, according to Bilu et al.⁶ patients on HAART were also 2.82 times more likely to develop photosensitivity than those who were not. The other factors predisposing patients to photosensitization include CD4 count under 350, Afro-American ethnicity or the use of certain medications often given to immunocompromised patients (such as TMP-SMX, azithromycin, dapson, ketoconazole).⁶

HIV infection was proved also to impair wound healing process, which correlates with a low CD4 count.^{7–9} HIV positive patients present significantly higher rates of wound infections. HAART was proved as well to interfere wound healing process. It is crucial also to remember that another significant factor in our population impairing wound healing process is diabetes mellitus.¹⁰

5. CONCLUSIONS

- (1) HIV, HAART, low CD4 cell count and high incidence of wound infections results in impaired wound healing process in HIV positive patients.
- (2) There is lack of information on burns caused by plants in HIV positive patients, who are put on HAART therapy that leads to increased photosensitivity of the skin. It would thus be beneficial raise awareness of PPD and burns caused by plants and open a discussion on management of the wounds caused by phototoxicity in immunocompromised patients.
- (3) It is crucial to alert all patients – especially those with potential worse wound healing – to the risk of being in areas with high-dense vegetation in condition of high sunlight exposure and high humidity.

Conflict of interest

All authors declare that they have no conflict of interest.

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Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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