Giant Oral Ulcers Following Suicide Attempt by Paraquat Herbicide

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1. Introduction
Paraquat poison (N,N’-dimethyl-4,4’-bipyridinium dichloride) is one of the most widely used herbicides in the world. Herbicide poisoning has been elaborated to be very common in developing countries, particularly in regions with agriculture economy. One of the most common presentations of paraquat poisoning is oropharyngeal burns. Herein, we report a patient from a dry and warm district in the geographic center of Iran where agriculture and, as a result, paraquat poisoning are not commonly reported.

2. Case Presentation
A 25-year-old married man presented to emergency medical services less than 2 hours after orally ingesting 6 grams of paraquat poison. He attempted an impulsive suicide after marital discord by deliberately consuming paraquat.

Immediately after ingestion of the herbicide, the patient experienced nausea, vomiting, and abdominal pain. His vital signs were normal at admission; thereafter, he developed drowsiness without loss of consciousness. In less than 3 days, oral ulcers appeared on his tongue; he experienced odynophagia and was unable to open his mouth because of sore throat. The patient could barely swallow or chew which could represent trismus. Intraoral examination revealed a large ulcer with a white necrotic base covering two thirds of the tongue (Figure 1). Bleeding from the surface was seen between the areas of necrosis.

The patient received fluid therapy, antiemetic, intravenous vitamin E 200 IU/daily, spray lidocaine, and H2 blockers. Based on lab data, the patient underwent 9 sessions of hemodialysis due to acute renal failure. The lab data revealed abnormalities as shown in Table 1.

For tongue burn, topical application of metronidazole oral gel was prescribed to prevent secondary infection. The
necessity of serial monitoring for renal, hepatic, and lung injuries and follow-up were justified for the patient after discharge.

During hospitalization, psychiatry consultation for substance use disorder was considered for the patient based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), because the patient reported smoking 0.5 mg opium per day with cigarettes. He was a sensitive person and had poor coping mechanisms, and he had previously attempted suicide with benzodiazepine. Based on his recent marital discord, adjustment disorder was also probable for him. Ultimately, couple therapy and pharmacotherapy were started for the patient.

3. Discussion
Suicide attempt with herbicide is not only attributed to developing countries.\(^9\) In a certain period of time, 56% of all human deaths from pesticides in England was attributed to paraquat. In 2008, paraquat more than any other pesticide was responsible for deaths in the United States.\(^10\) Nonetheless, paraquat poisoning has not been previously reported in the geographic center of Iran where agriculture activities are not common. Once the patient reported herein was evaluated in his first psychiatry consult, severe muscular spasm in his jaws was the most predominant presentation. Drug-induced dystonia was suspected as the first differential diagnosis, but further exploration revealed giant oral ulcers throughout his buccal area and tongue, which gave him trismus. In the current case, serum paraquat poison levels were not available for confirmation. This common laboratory deficit in addition to less-frequent reports on paraquat poisoning may lead to misdiagnoses and eventual underestimation of the number of poisoning incidences. Therefore, physical examination plays an important role in identifying such cases. As reported in previous paraquat poisoning case reports,\(^11,12\) paraquat poisoning by oral ingestion may have varying effects on oral mucosa and the tongue, which may differ from pseudo diphtheria to prominent pharyngeal membrane\(^11,13\); to paraquat tongue to large and extensive oral ulcers (Figure 1). This may, in turn, give the mouth a trismus-like appearance.

Mucosal lesions of the mouth and tongue, however, cannot specifically predict the severity of poisoning. Mucosal lesions in the pharynx, esophagus, and gastric area are also very common and much more ominous. These can eventuate in perforation, mediastinitis, and/or pneumomediastinum.\(^2\) The mortality rate of paraquat poisoning in suicide attempts is about 70%; that percentage accounts for the acute systemic effects presented by pulmonary edema, convulsion, and cardiac, renal, and hepatic failure.\(^14\) According to the lab data, hepatic failure, thrombocytopenia, and also bleeding were ruled out, and dialysis was ordered to hinder renal failure. Despite the high probability of death for the current case, the patient survived this situation.

4. Conclusion
Paraquat poisoning is very rare in regions with lower rates of agricultural activities. In any patient with poisoning, however, it is necessary to consider intraoral examination to rule out any other suspected diagnoses.

Authors’ Contributions
All authors contributed equally to current case report.

Conflict of Interest Disclosures
The authors declare that they have no conflicts of interest.

Ethical Approval
The authors obtained permission from the patient to report this case.

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