

World Journal of *Clinical Cases*

World J Clin Cases 2021 July 16; 9(20): 5352-5753



Contents

Thrice Monthly Volume 9 Number 20 July 16, 2021

EDITORIAL

- 5352** COVID-19: Considerations about immune suppression and biologicals at the time of SARS-CoV-2 pandemic

Costanzo G, Cordeddu W, Chessa L, Del Giacco S, Firinu D

REVIEW

- 5358** Obesity in people with diabetes in COVID-19 times: Important considerations and precautions to be taken

Alberti A, Schuelter-Trevisol F, Iser Betine PM, Traebert E, Freiburger V, Ventura L, Rezin GT, da Silva BB, Meneghetti Dallacosta F, Grigollo L, Dias P, Fin G, De Jesus JA, Pertille F, Rossoni C, Hur Soares B, Nodari Junior RJ, Comim CM

- 5372** Revisiting delayed appendectomy in patients with acute appendicitis

Li J

MINIREVIEWS

- 5391** Detection of short stature homeobox 2 and RAS-associated domain family 1 subtype A DNA methylation in interventional pulmonology

Wu J, Li P

- 5398** Borderline resectable pancreatic cancer and vascular resections in the era of neoadjuvant therapy

Mikulic D, Mrzljak A

- 5408** Esophageal manifestation in patients with scleroderma

Voulgaris TA, Karamanolis GP

- 5420** Exploration of transmission chain and prevention of the recurrence of coronavirus disease 2019 in Heilongjiang Province due to in-hospital transmission

Chen Q, Gao Y, Wang CS, Kang K, Yu H, Zhao MY, Yu KJ

- 5427** Role of gastrointestinal system on transmission and pathogenesis of SARS-CoV-2

Simsek C, Erul E, Balaban HY

ORIGINAL ARTICLE

Case Control Study

- 5435** Effects of nursing care in fast-track surgery on postoperative pain, psychological state, and patient satisfaction with nursing for glioma

Deng YH, Yang YM, Ruan J, Mu L, Wang SQ

Retrospective Study

- 5442** Risk factors related to postoperative recurrence of dermatofibrosarcoma protuberans: A retrospective study and literature review

Xiong JX, Cai T, Hu L, Chen XL, Huang K, Chen AJ, Wang P

- 5453** Prediction of presence and severity of coronary artery disease using prediction for atherosclerotic cardiovascular disease risk in China scoring system

Hong XL, Chen H, Li Y, Teeroovengadum HD, Fu GS, Zhang WB

- 5462** Effects of angiotensin receptor blockers and angiotensin-converting enzyme inhibitors on COVID-19

Li XL, Li T, Du QC, Yang L, He KL

- 5470** Prognostic factors and its predictive value in patients with metastatic spinal cancer

Gao QP, Yang DZ, Yuan ZB, Guo YX

Clinical Trials Study

- 5479** Prospective, randomized comparison of two supplemental oxygen methods during gastro-scopy with propofol mono-sedation in obese patients

Shao LJZ, Hong FX, Liu FK, Wan L, Xue FS

SYSTEMATIC REVIEWS

- 5490** Herb-induced liver injury: Systematic review and meta-analysis

Ballotin VR, Bigarella LG, Brandão ABM, Balbinot RA, Balbinot SS, Soldera J

META-ANALYSIS

- 5514** Type 2 diabetes mellitus increases liver transplant-free mortality in patients with cirrhosis: A systematic review and meta-analysis

Liu ZJ, Yan YJ, Weng HL, Ding HG

CASE REPORT

- 5526** Duplication of 19q (13.2-13.31) associated with comitant esotropia: A case report

Feng YL, Li ND

- 5535** Multiple left ventricular myxomas combined with severe rheumatic valvular lesions: A case report

Liu SZ, Hong Y, Huang KL, Li XP

- 5540** Complete pathological response in locally advanced non-small-cell lung cancer patient: A case report

Parisi E, Arpa D, Ghigi G, Micheletti S, Neri E, Tontini L, Pieri M, Romeo A

- 5547** Successful reversal of ostomy 13 years after Hartmann procedure in a patient with colon cancer: A case report

Huang W, Chen ZZ, Wei ZQ

- 5556** Delayed papillary muscle rupture after radiofrequency catheter ablation: A case report

Sun ZW, Wu BF, Ying X, Zhang BQ, Yao L, Zheng LR

- 5562** Temporary coronary sinus pacing to improve ventricular dyssynchrony with cardiogenic shock: A case report

Ju TR, Tseng H, Lin HT, Wang AL, Lee CC, Lai YC

- 5568** Hemoglobin Fukuoka caused unexpected hemoglobin A_{1c} results: A case report
Lin XP, Yuan QR, Niu SQ, Jiang X, Wu ZK, Luo ZF
- 5575** Giant androgen-producing adrenocortical carcinoma with atrial flutter: A case report and review of the literature
Costache MF, Arhirii RE, Mogos SJ, Lupascu-Ursulescu C, Litcanu CI, Ciunanghel AI, Cucu C, Ghiciuc CM, Petris AO, Danila N
- 5588** Can kissing cause paraquat poisoning: A case report and review of literature
Ly B, Han DF, Chen J, Zhao HB, Liu XL
- 5594** Spinal dural arteriovenous fistula 8 years after lumbar discectomy surgery: A case report and review of literature
Ouyang Y, Qu Y, Dong RP, Kang MY, Yu T, Cheng XL, Zhao JW
- 5605** Perianal superficial CD34-positive fibroblastic tumor: A case report
Long CY, Wang TL
- 5611** Low-dose clozapine-related seizure: A case report and literature review
Le DS, Su H, Liao ZL, Yu EY
- 5621** Rapid diagnosis of disseminated *Mycobacterium mucogenicum* infection in formalin-fixed, paraffin-embedded specimen using next-generation sequencing: A case report
Liu J, Lei ZY, Pang YH, Huang YX, Xu LJ, Zhu JY, Zheng JX, Yang XH, Lin BL, Gao ZL, Zhuo C
- 5631** Cytomegalovirus colitis induced segmental colonic hypoganglionosis in an immunocompetent patient: A case report
Kim BS, Park SY, Kim DH, Kim NI, Yoon JH, Ju JK, Park CH, Kim HS, Choi SK
- 5637** Primary extra-pancreatic pancreatic-type acinar cell carcinoma in the right perinephric space: A case report and review of literature
Wei YY, Li Y, Shi YJ, Li XT, Sun YS
- 5647** Muscular atrophy and weakness in the lower extremities in Behçet's disease: A case report and review of literature
Kim KW, Cho JH
- 5655** Novel technique of extracorporeal intrauterine morcellation after total laparoscopic hysterectomy: Three emblematic case reports
Macciò A, Sanna E, Lavra F, Calò P, Madeddu C
- 5661** Rare isolated extra-hepatic bile duct injury: A case report
Zhao J, Dang YL, Lin JM, Hu CH, Yu ZY
- 5668** Gelfoam embolization for distal, medium vessel injury during mechanical thrombectomy in acute stroke: A case report
Kang JY, Yi KS, Cha SH, Choi CH, Kim Y, Lee J, Cho BS

- 5675** Oncocytic adrenocortical tumor with uncertain malignant potential in pediatric population: A case report and review of literature
Chen XC, Tang YM, Mao Y, Qin DR
- 5683** Submucosal hematoma with a wide range of lesions, severe condition and atypical clinical symptoms: A case report
Liu L, Shen XJ, Xue LJ, Yao SK, Zhu JY
- 5689** Chorioamnionitis caused by *Serratia marcescens* in a healthcare worker: A case report
Park SY, Kim MJ, Park S, Kim NI, Oh HH, Kim J
- 5695** Endoscopic management of biliary ascariasis: A case report
Wang X, Lv YL, Cui SN, Zhu CH, Li Y, Pan YZ
- 5701** Role of ranulas in early diagnosis of Sjögren's syndrome: A case report
Chen N, Zeng DS, Su YT
- 5709** Sacral chondroblastoma — a rare location, a rare pathology: A case report and review of literature
Zheng BW, Niu HQ, Wang XB, Li J
- 5717** Primary liver actinomycosis in a pediatric patient: A case report and literature review
Liang ZJ, Liang JK, Chen YP, Chen Z, Wang Y
- 5724** Splenosis masquerading as gastric stromal tumor: A case report
Zheng HD, Xu JH, Sun YF
- 5730** Hemorrhagic transformation of ischemic cerebral proliferative angiopathy: A case report
Xia Y, Yu XF, Ma ZJ, Sun ZW
- 5737** Multidisciplinary team therapy for left giant adrenocortical carcinoma: A case report
Zhou Z, Luo HM, Tang J, Xu WJ, Wang BH, Peng XH, Tan H, Liu L, Long XY, Hong YD, Wu XB, Wang JP, Wang BQ, Xie HH, Fang Y, Luo Y, Li R, Wang Y
- 5744** Histopathology and immunophenotyping of late onset cutaneous manifestations of COVID-19 in elderly patients: Three case reports
Mazzitelli M, Dastoli S, Mignogna C, Bennardo L, Lio E, Pelle MC, Trecarichi EM, Pereira BI, Nisticò SP, Torti C

CORRECTION

- 5752** Corrigendum to "Probiotic mixture VSL#3: An overview of basic and clinical studies in chronic diseases"
Sang LX

ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Fan-Zheng Meng, MD, PhD, Director, Professor, Department of Pediatrics, The First hospital of Jilin University, Changchun 130021, Jilin Province, China. mengfanzheng1972@163.com

AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (WJCC, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING

The WJCC is now indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, PubMed, and PubMed Central. The 2021 Edition of Journal Citation Reports® cites the 2020 impact factor (IF) for WJCC as 1.337; IF without journal self cites: 1.301; 5-year IF: 1.742; Journal Citation Indicator: 0.33; Ranking: 119 among 169 journals in medicine, general and internal; and Quartile category: Q3. The WJCC's CiteScore for 2020 is 0.8 and Scopus CiteScore rank 2020: General Medicine is 493/793.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Jia-Hui Li; Production Department Director: Yu-Jie Ma; Editorial Office Director: Jin-Lai Wang.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Thrice Monthly

EDITORS-IN-CHIEF

Dennis A Bloomfield, Sandro Vento, Bao-Gan Peng

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

July 16, 2021

COPYRIGHT

© 2021 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>

Can kissing cause paraquat poisoning: A case report and review of literature

Bing Lv, Dong-Feng Han, Jing Chen, Hai-Bin Zhao, Xiao-Liang Liu

ORCID number: Bing Lv 0000-0002-3356-027X; Dong-Feng Han 0000-0002-4497-2923; Jing Chen 0000-0002-2425-3892; Hai-Bin Zhao 0000-0002-4804-2977; Xiao-Liang Liu 0000-0001-5878-3990.

Author contributions: All of the authors contributed to the conception and writing of the article; all of the authors approved the version to be submitted.

Informed consent statement: Informed written consent was obtained from the patient for publication of this report and any accompanying images.

Conflict-of-interest statement: The authors declare that they have no competing interests.

CARE Checklist (2016) statement: The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build

Bing Lv, Dong-Feng Han, Xiao-Liang Liu, Emergency Department, First Hospital of Jilin University, Changchun 130000, Jilin Province, China

Jing Chen, Hai-Bin Zhao, Department of Endocrinology and Nephrology, Central Hospital of Tonghua, Tonghua 134000, Jilin Province, China

Corresponding author: Xiao-Liang Liu, PhD, Doctor, Emergency Department, First Hospital of Jilin University, No. 71 Xinmin Street, Changchun 130000, Jilin Province, China.
l_xl@jlu.edu.cn

Abstract

BACKGROUND

Paraquat is an effective, broad-spectrum, highly toxic quaternary ammonium herbicide. Paraquat poisoning has been reported frequently in recent years. It has severe lung, kidney, liver, and nervous system toxicity, and there is currently no specific antidote. Paraquat poisoning may follow ingestion, inhalation, and skin contact. There have been no previous reports of paraquat poisoning that resulted from kissing. This rare case provides a new reference for the prevention of paraquat poisoning.

CASE SUMMARY

A 27-year-old man came to the emergency department complaining that he had come into contact with paraquat by kissing his girlfriend, who had taken 80-120 mL 20% paraquat. After admission, his lung computed tomography (CT) showed increased lung markings. Redness and a burning sensation developed on his tongue, which progressed to painful erosions and coalescent ulcers. The final diagnosis was mild paraquat poisoning. Anti-inflammatory, antioxidant, and symptomatic treatment were initiated and continued for 7 d. Dyspnea did not occur, subsequent lung CT showed no significant changes, and the tongue pain was slightly improved. One month after discharge, the tongue injury was resolved.

CONCLUSION

This case indicated that the tongue and lung tissues are particularly vulnerable to paraquat toxicity, even after a limited exposure.

Key Words: Paraquat; Poisoning; Pesticides; Tongue; Lung; Case report

upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

Manuscript source: Unsolicited manuscript

Specialty type: Emergency medicine

Country/Territory of origin: China

Peer-review report's scientific quality classification

Grade A (Excellent): 0
Grade B (Very good): 0
Grade C (Good): 0
Grade D (Fair): 0
Grade E (Poor): 0

Received: December 26, 2020

Peer-review started: December 26, 2020

First decision: April 29, 2021

Revised: May 7, 2021

Accepted: May 20, 2021

Article in press: May 20, 2021

Published online: July 16, 2021

P-Reviewer: Chuang PC

S-Editor: Zhang L

L-Editor: Filipodia

P-Editor: Wang LYT



©The Author(s) 2021. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: We report a rare case of exposure to a trace amount of paraquat by kissing, which has never been reported before. This case was accidental, but it reminds us that we should pay attention to trace paraquat poisoning because it has damaging effects, especially on the tongue.

Citation: Lv B, Han DF, Chen J, Zhao HB, Liu XL. Can kissing cause paraquat poisoning: A case report and review of literature. *World J Clin Cases* 2021; 9(20): 5588-5593

URL: <https://www.wjgnet.com/2307-8960/full/v9/i20/5588.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v9.i20.5588>

INTRODUCTION

Paraquat is an effective broad-spectrum, highly toxic quaternary ammonium herbicide that is widely used in agriculture and animal husbandry in developing countries[1,2]. Paraquat poisoning has been reported frequently in recent years and it remains a serious challenge in both public health and emergency medicine[3-5]. It is quickly distributed after intake, and results in kidney, lung, liver, and nervous system toxicity. There is currently no specific antidote[6,7]. Paraquat is reported to cause multiple organ failure, with a fatality rate as high as 40%-80%[8]. The main routes of paraquat poisoning are ingestion, inhalation, and skin contact[9-11]. Recently, a patient with paraquat poisoning was admitted of the Central Hospital of Tonghua from the emergency department. He was exposed to paraquat by kissing. At that route has never been reported before, we decided to report this case to provide a new reference for the prevention of paraquat poisoning.

CASE PRESENTATION

Chief complaints

A 27-year-old Han Chinese man came to the emergency department complaining of oral contact with paraquat 3 h previously.

History of present illness

Approximately 3 h before admission, the patient's girlfriend took 80-120 mL 20% paraquat to commit suicide. He kissed her several times. Because he was drunk and emotional, the unusual smell that he noticed did not alert him. During these events, he swallowed at least once. After presentation at the emergency department, he did not feel any discomfort.

History of past illness

There is no history of past illness to disclose.

Personal and family history

There is no special family history to disclose.

Physical examination

The patient's vital signs on admission were body temperature 36.5°C, pulse 82 beats/min, respiratory rate 19 breaths/min, and blood pressure 16.7/10.0 kPa. The patient was in a normal mental state. His chest auscultation breath sounds were clear without rhonchi and rales. His heart rate was 82 beats/min, his heart rhythm was regular, and no heart murmur was heard. Although no damage to the oral cavity or pharynx was observed on admission, redness and burning sensations of his tongue occurred the next day and gradually progressed to painful erosions and coalescent ulcers (Figure 1). During hospitalization, his percutaneous arterial oxygen saturation remained above 95%.



Figure 1 Five days after admission, deep fissures were interposed in the areas of coalescent ulcers on the tongue.

Laboratory examination

On admission, routine blood tests showed leukocytosis ($14.07 \times 10^9/L$) with predominant neutrophils (90.90%), which were considered as a stress response. The plasma paraquat concentration was 0.117 $\mu g/mL$. Liver and renal function, routine urine tests, and arterial blood gas analysis remained within normal limits during his hospitalization.

Imaging examinations

Twenty-four hours after admission, lung computed tomography (CT) showed an increase of lung markings (Figure 2). The patient reported that previous medical examination reports had not shown any lung abnormalities.

FINAL DIAGNOSIS

The final diagnosis was mild paraquat poisoning.

TREATMENT

The patient was treated with gastric lavage following admission to the emergency department. Inpatient treatment during 7 d of hospitalization (7 d) were once daily dexamethasone 80 mg intravenous drip and reduced glutathione 2.4 g intravenous infusion, twice daily pantoprazole 40 mg intravenous drip and torasemide 20 mg intravenous infusion drip, and rinsing the mouth with water several times a day.

OUTCOME AND FOLLOW-UP

The clinical course was uneventful. The patient recovered well and was discharged on day 7. He did not develop dyspnea, lung CT scans revealed no progressive lung lesions. His liver, lung, and kidney functions remained normal. Other than a slight improvement of pain, there was no significant resolution of the tongue lesion, but 1 mo after hospital discharge, the tongue had healed well.

DISCUSSION

The International Program for Chemical Safety classifies paraquat as a class II, moderately dangerous, pesticide[9]. It causes liver, kidney, digestive tract, and

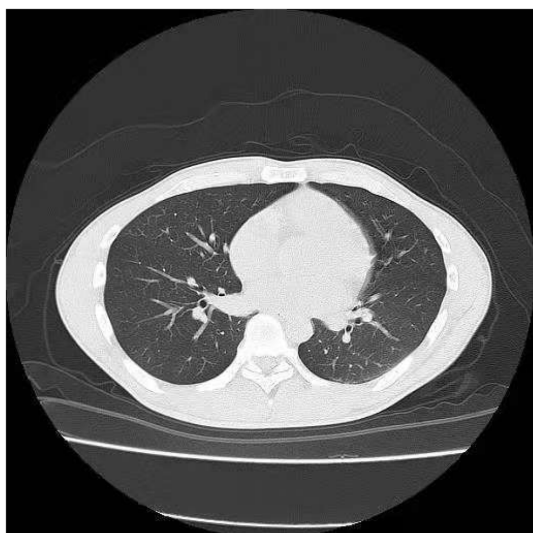


Figure 2 Twenty-four hours after admission, lung computed tomography showed increased lung markings.

especially lung toxicity[12]. Its toxicity depends on the route of exposure and the dose taken. The absorption rate of paraquat in the gastrointestinal tract is 5%-15%, and the paraquat plasma concentration reaches a peak within 0.5-4.0 h after absorption[13]. Approximately 15 h after oral administration, the concentration of paraquat in the lungs reaches a peak, which is 10-90 times the plasma concentration[14]. An oral dose of 5-15 mL of 20% paraquat is usually fatal[15-18]. Considering the patient's chief complaint, the course of illness, and good recovery, we considered his actual intake to have been less than 5 mL.

The specific mechanism of paraquat-induced lung injury is complex and it is considered to involve diffuse alveolar collapse, vascular congestion, adherence of activated platelets, and inflammatory-cell infiltration caused by oxidative stress[19, 20]. Because of a lack of specific drugs to treat the lung injury, palliative treatment is mainstream in clinical practice. This patient received anti-inflammatory, antioxidant, and symptomatic treatment, but clinical studies have suggested that the benefits of those treatments are limited[6], which is consistent with our experience. We believe that the main reason for his satisfactory recovery was that the intake dose was too small to cause any significant oxidative damage.

Paraquat-induced lung injury pathophysiologically manifests as reduced pulmonary ventilation, reduced lung compliance, and ventilation/perfusion defects [21]. In the early stage, lung CT shows no abnormality or only an increase of lung markings and mild ground-glass-like changes. In the middle and late stages, the lung CT shows diffuse ground-glass changes, pulmonary fibrosis and lung consolidation [22-25]. Two days after admission, this patient's lung CT showed increased lung markings. Subsequent lung CTs showed no further aggravation of the lung injury. We were surprised that exposure to such a small dose of paraquat led to pulmonary imaging changes without dysfunction of other organs. Consequently, we believe that the lung is very vulnerable and susceptible to paraquat toxicity.

Oral paraquat can damage the tongue and pharynx. Initial responses include erythema and swelling of the tongue that gradually progress to erosions and ulcerations covered with yellow necrotic tissue[26,27]. The symptoms include severe pain, difficulty swallowing, and excessive salivation[28,29]. In previous cases of tongue injury, the patients took at least 10-15 mL of 20% paraquat orally[28,30]. The patient did not directly take paraquat orally, but was indirectly exposed to a mixture of paraquat and saliva through kissing. This is a route of intoxication that was previously unknown to us. That is what we were interested in. Initially, we thought that exposure to such a small amount of paraquat was not enough to cause tongue damage. However, to our surprise, the patient developed damage to his tongue on the second day of admission, indicating that the tongue is particularly vulnerable and susceptible to paraquat. We did not find any studies on the minimum concentration or dose of paraquat that can cause tongue damage, which deserves investigation.

CONCLUSION

This case shows that even exposure to trace paraquat can lead to tongue damage and pulmonary imaging changes, suggesting that the tongue and lung tissues are particularly vulnerable and susceptible to paraquat. Poisoning by kissing was accidental, but it reminds us that we should pay attention to the prevention of trace paraquat poisoning caused by some surprising routes, such as using containers that once contained paraquat to drink water, close contact with the sparger spraying paraquat, and others.

REFERENCES

- 1 **Blanco-Ayala T**, Andérica-Romero AC, Pedraza-Chaverri J. New insights into antioxidant strategies against paraquat toxicity. *Free Radic Res* 2014; **48**: 623-640 [PMID: [24593876](#) DOI: [10.3109/10715762.2014.899694](#)]
- 2 **de Pont ACJM**, Volbeda M. Extracorporeal Treatment for Paraquat Poisoning. *Crit Care Med* 2018; **46**: e1015-e1016 [PMID: [30216323](#) DOI: [10.1097/CCM.0000000000003282](#)]
- 3 **Wesseling C**, Corriols M, Bravo V. Acute pesticide poisoning and pesticide registration in Central America. *Toxicol Appl Pharmacol* 2005; **207**: 697-705 [PMID: [16153991](#) DOI: [10.1016/j.taap.2005.03.033](#)]
- 4 **Konthonbut P**, Kongtip P, Nankongnab N, Tipayamongkhogul M, Yoosook W, Woskie S. Paraquat Exposure of Pregnant Women and Neonates in Agricultural Areas in Thailand. *Int J Environ Res Public Health* 2018; **15** [PMID: [29865285](#) DOI: [10.3390/ijerph15061163](#)]
- 5 **Shadnia S**, Ebadollahi-Natanzi A, Ahmadzadeh S, Karami-Mohajeri S, Pourshojaei Y, Rahimi HR. Delayed death following paraquat poisoning: three case reports and a literature review. *Toxicol Res (Camb)* 2018; **7**: 745-753 [PMID: [30310653](#) DOI: [10.1039/c8tx00120k](#)]
- 6 **Gawarammana IB**, Buckley NA. Medical management of paraquat ingestion. *Br J Clin Pharmacol* 2011; **72**: 745-757 [PMID: [21615775](#) DOI: [10.1111/j.1365-2125.2011.04026.x](#)]
- 7 **Dinis-Oliveira RJ**, Duarte JA, Sánchez-Navarro A, Remião F, Bastos ML, Carvalho F. Paraquat poisonings: mechanisms of lung toxicity, clinical features, and treatment. *Crit Rev Toxicol* 2008; **38**: 13-71 [PMID: [18161502](#) DOI: [10.1080/10408440701669959](#)]
- 8 **Feng N**, Bian Z, Zhang X, Wang C, Chen J. Rapamycin reduces mortality in acute-stage paraquat-induced toxicity in zebrafish. *Singapore Med J* 2019; **60**: 241-246 [PMID: [30402654](#) DOI: [10.11622/smedj.2018132](#)]
- 9 **Zhou Q**, Kan B, Jian X, Zhang W, Liu H, Zhang Z. Paraquat poisoning by skin absorption: Two case reports and a literature review. *Exp Ther Med* 2013; **6**: 1504-1506 [PMID: [24250726](#) DOI: [10.3892/etm.2013.1320](#)]
- 10 **Yu HS**, Lee CH, Jee SH, Ho CK, Guo YL. Environmental and occupational skin diseases in Taiwan. *J Dermatol* 2001; **28**: 628-631 [PMID: [11770720](#) DOI: [10.1111/j.1346-8138.2001.tb00049.x](#)]
- 11 **Lee K**, Park EK, Stoecklin-Marais M, Koivunen ME, Gee SJ, Hammock BD, Beckett LA, Schenker MB. Occupational paraquat exposure of agricultural workers in large Costa Rican farms. *Int Arch Occup Environ Health* 2009; **82**: 455-462 [PMID: [18762966](#) DOI: [10.1007/s00420-008-0356-7](#)]
- 12 **Sun S**, Jiang Y, Wang R, Liu C, Liu X, Song N, Guo Y, Guo R, Du L, Jiang S, Li Y, Qiu Z, Zhao G, Zhou Y. Treatment of Paraquat-Induced Lung Injury With an Anti-C5a Antibody: Potential Clinical Application. *Crit Care Med* 2018; **46**: e419-e425 [PMID: [29293144](#) DOI: [10.1097/CCM.0000000000002950](#)]
- 13 **Xu W**, Wang L, Wang Q, Li XH, Hu D, Li C, Wu T, Mohan C, Peng A, Shi Y. Paraquat Poisoning Followed by Toxic Epidermal Necrolysis: A Report of Two Cases and Published Work Review. *Dermatology* 2015; **231**: 209-212 [PMID: [26228174](#) DOI: [10.1159/000433578](#)]
- 14 **Schaper A**, Ceschi A, Deters M, Kaiser G. Of pills, plants, and paraquat: the relevance of poison centers in emergency medicine. *Eur J Intern Med* 2013; **24**: 104-109 [PMID: [23245927](#) DOI: [10.1016/j.ejim.2012.11.013](#)]
- 15 **Khazraei S**, Marashi SM, Sanaei-Zadeh H. Ventilator settings and outcome of respiratory failure in paraquat-induced pulmonary injury. *Sci Rep* 2019; **9**: 16541 [PMID: [31719587](#) DOI: [10.1038/s41598-019-52939-3](#)]
- 16 **Gao Y**, Guo S, Wang Y, Yu S, Wang M, Lu X, Li Y. Lymphocyte and its CD4+ and CD8+ subgroup changes after paraquat poisoning. *Hum Exp Toxicol* 2019; **38**: 1024-1030 [PMID: [31104516](#) DOI: [10.1177/0960327119851252](#)]
- 17 **Huang J**, Xuan D, Li X, Ma L, Zhou Y, Zou H. The value of APACHE II in predicting mortality after paraquat poisoning in Chinese and Korean population: A systematic review and meta-analysis. *Medicine (Baltimore)* 2017; **96**: e6838 [PMID: [28746171](#) DOI: [10.1097/MD.0000000000006838](#)]
- 18 **Ko DR**, Chung SP, You JS, Cho S, Park Y, Chun B, Moon J, Kim H, Kim YH, Kim HJ, Lee KW, Choi S, Park J, Park JS, Kim SW, Seo JY, Park HY, Kim SJ, Kang H, Hong DY, Hong JH. Effects of Paraquat Ban on Herbicide Poisoning-Related Mortality. *Yonsei Med J* 2017; **58**: 859-866 [PMID: [28541002](#) DOI: [10.3349/ymj.2017.58.4.859](#)]
- 19 **Dinis-Oliveira RJ**, Sousa C, Remião F, Duarte JA, Navarro AS, Bastos ML, Carvalho F. Full survival of paraquat-exposed rats after treatment with sodium salicylate. *Free Radic Biol Med* 2007;

- 42: 1017-1028 [PMID: [17349929](#) DOI: [10.1016/j.freeradbiomed.2006.12.031](#)]
- 20 **Dearden LC**, Fairshier RD, Morrison JT, Wilson AF, Brundage M. Ultrastructural evidence of pulmonary capillary endothelial damage from paraquat. *Toxicology* 1982; **24**: 211-222 [PMID: [6927641](#) DOI: [10.1016/0300-483x\(82\)90003-8](#)]
 - 21 **Wu Q**, Xu Q, Jian X, Wang H, He X, Gao B, Wang K, Kan B. A new sight for paraquat poisoning from immunology. *Immunopharmacol Immunotoxicol* 2018; **40**: 269-272 [PMID: [30040510](#) DOI: [10.1080/08923973.2018.1490319](#)]
 - 22 **Yanling W**, Duo G, Zuojun G, Zhongqiang S, Yankai W, Shan L, Hongying C. Radiomics Nomogram Analyses for Differentiating Pneumonia and Acute Paraquat Lung Injury. *Sci Rep* 2019; **9**: 15029 [PMID: [31636276](#) DOI: [10.1038/s41598-019-50886-7](#)]
 - 23 **Im JG**, Lee KS, Han MC, Kim SJ, Kim IO. Paraquat poisoning: findings on chest radiography and CT in 42 patients. *AJR Am J Roentgenol* 1991; **157**: 697-701 [PMID: [1892020](#) DOI: [10.2214/ajr.157.4.1892020](#)]
 - 24 **Bartlett RM**, Murali D, Nickles RJ, Barnhart TE, Holden JE, DeJesus OT. Assessment of fetal brain uptake of paraquat in utero using *in vivo* PET/CT imaging. *Toxicol Sci* 2011; **122**: 551-556 [PMID: [21546347](#) DOI: [10.1093/toxsci/kfr104](#)]
 - 25 **Isha IT**, Alam ZHMN, Shaha BK, Bari MS, Bari MZJ, Chowdhury FR. Paraquat induced acute kidney injury and lung fibrosis: a case report from Bangladesh. *BMC Res Notes* 2018; **11**: 344 [PMID: [29843773](#) DOI: [10.1186/s13104-018-3425-3](#)]
 - 26 **Dobson RS**, Smith AC. Effect of paraquat on the oral mucosa. *Br Dent J* 1987; **163**: 160 [PMID: [3478057](#) DOI: [10.1038/sj.bdj.4806227](#)]
 - 27 **Adams JR**, Nusrath M, Bryant DG. Oral mucosal response to exposure to diquat: a rare occupational injury. *Br J Oral Maxillofac Surg* 2008; **46**: 601-602 [PMID: [18400346](#) DOI: [10.1016/j.bjoms.2008.03.003](#)]
 - 28 **Patel RK**, Sa DK, Behra A, Meher K. A Rare Case of "Paraquat Tongue". *Indian J Dermatol* 2020; **65**: 245-246 [PMID: [32565580](#) DOI: [10.4103/ijd.IJD_659_18](#)]
 - 29 **Kumar S**. Paraquat tongue. *Indian J Gastroenterol* 2016; **35**: 321 [PMID: [27435617](#) DOI: [10.1007/s12664-016-0673-9](#)]
 - 30 **Hudson M**, Patel SB, Ewen SW, Smith CC, Friend JA. Paraquat induced pulmonary fibrosis in three survivors. *Thorax* 1991; **46**: 201-204 [PMID: [2028434](#) DOI: [10.1136/thx.46.3.201](#)]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

Telephone: +1-925-3991568

E-mail: bpgoffice@wjgnet.com

Help Desk: <https://www.f6publishing.com/helpdesk>

<https://www.wjgnet.com>

