World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(CASE REPORT)

Check for updates

Challenges in identifying oral lesions associated with renal disorders: Case report

Nurfitri Amaliah *

School of Dental Medicine, Universitas Ciputra, Surabaya, East Java, Indonesia.

World Journal of Advanced Research and Reviews, 2025, 26(03), 2702-2706

Publication history: Received on 19 May 2025; revised on 25 June 2025; accepted on 27 June 2025

Article DOI: https://doi.org/10.30574/wjarr.2025.26.3.2487

Abstract

Introduction: Oral conditions often indicate systemic disorders. This report presents an oral lesion in an undetected renal disorder.

Case report: A 69-year-old male patient presented complaints of pain and multiple ulcers, with a history of heart disease, hypertension, pneumonia, and suspected TB. At first visit, mild edema of the extremities was seen. IO showed multiple ulcerations, irregular in shape, surrounded by erythema, yellowish base, varying in size in the oral cavity. The working diagnosis of systemic aphthous-like ulcer was unclear. He was instructed to improve oral hygiene with 0.9% NaCl and 0.2%, Chlorhexidine mouthwash 100 mg Doxycycline for ulceration, referred to an internist. Patient was counselled to ensure that he maintain adequate oral hygiene throughout the treatment period. At the last visit, ulceration on the palate molle, irregular shape, solitary, surrounded by erythema with yellowish white pseudo membrane, lesion showed typical uremic stomatitis. He was referred for urea and creatinine examination. Two days after the last visit, the patient's condition worsened, and was brought to the ER. The results of the urea and creatinine tests showed high results (201 mg/dL; 4.69 mg/dL) and acute kidney injury. He eventually died due to worsening systemic conditions.

Discussion: Systemic diseases often affect the mouth. Understanding acute kidney damage and its oral symptoms and complete care are crucial for patients.

Conclusion: It is essential to identify and perform a comprehensive clinical examination of both systemic and oral conditions, to avoid undesirable consequences.

Keywords: Oral lesion; Clinical Examination; Renal disorder; Multiple ulceration

1. Introduction

Oral health is closely linked to systemic health and is influenced by all aspects of human life. The oral cavity can be an early or only sign of various systemic conditions.[1] Identification of oral lesions as manifestations of systemic diseases is crucial in the diagnosis and management of systemic diseases such as cardiovascular diseases,[2] chronic kidney disorder,[3] graft versus host disease,[4] and diabetes mellitus.[5] In general, oral lesions found in individuals with systemic diseases include periodontitis, oral ulceration, mucositis, oral candidiasis, burning sensation, changes in salivary composition and flow rate, pale-looking mucosa, and unnatural pigmentation.[3,6] Detecting the presence of certain oral lesions can be useful not only for identifying underlying systemic disorders but also assessing the severity of such diseases.[7] Acute kidney injury is a multifactorial pathological condition characterized by an increase in serum creatinine concentration or oliguria followed by a drastic decrease in glomerular filtration rate.[8] Such abnormalities in the kidneys can lead to several oral manifestation conditions including uremic stomatitis in individuals with chronic kidney disease, as well as in patients with acute or chronic renal failure who have not received treatment.[9] Oral lesion recognition of

* Corresponding author: Nurfitri Amaliah

this condition can be a means for early detection, avoiding subsequent complications and improving the patient's quality of life. This case report presents a case of the challenges in identifying oral lesions associated with renal impairment. The identification and diagnosis of oral lesions associated with renal impairment is challenging for clinicians, as these lesions are often diagnosed as other conditions.

2. Case Report

A 69-year-old male patient presented with a chief complaint of pain (VAS=8), and a large number of mouth ulcers. Oral ulcers were causing difficulty eating. The complete blood test showed abnormal values, with Hemoglobin (Hb) 11.6 g/dl and Hematocrit (Ht) 33.8%. At the first visit, the results of the extra oral examination (EO) were obtained dry desquamated upper and lower lips, right cervical lymph node examination palpated soft and painless, and mild oedema was found on the extremities. The intra oral (IO) examination showed poor oral hygiene, sub and supra gingival calculus, tongue papillae atrophy, and multiple ulcerations. On the right and left buccal mucosa areas, multiple ulcerations were found, irregular in shape with edges surrounded by yellowish-white basic erythema varying in size ±2-3 mm on the right and left buccal mucosa (Figure 1A and 1B).

Then there was a solitary ulceration, irregular shape, erythema surrounded edges, yellowish white base, with a diameter of ± 8-10 mm on the palate durum region 14-17 extending to the midline, and multiple ulcerations, irregular shape, erythema surrounded edges, on the palate durum region 25 and 26 (Figure 2). There was also a solitary ulceration of irregular shape, erythema surrounded edges, yellowish base, ±15 mm in diameter, induration (-), pus (-), on the ventrolateral of the right tongue in regions 45-47, and tongue mobility was within normal limits and there was a thorough coating of the tongue on the dorsum of the tongue with a total Winkel index score of 12 (Figure 3). Another solitary ulceration was found on the ventral tongue of region 34-37 with irregular shape, ulcer edge surrounded by yellowish erythema base ±7-10 mm in diameter. As a result of this examination, the working diagnosis was Suspected aphthous-like ulcer (ALU) with a suspected underlying cause related to anaemia confirmed by haemoglobin and haematocrit tests and possibly other systemic conditions associated with the oral lesion. The treatment plan was to provide education to improve oral hygiene with sterile gauze moistened with 0.9% NaCl to clean the entire oral mucosa and tongue 2 times a day, and wipe the surface of the teeth with gauze / cotton pellets moistened with 0.2% chlorhexidine by using gauze / cotton pellets to squeeze first then wipe the surface of the teeth in the direction from the cervical to the incisal done 2 times a day. Treatment for Suspect. ALU, Doxycycline 100 mg is given twice a day for 7 days. Doxycycline is used by mixing it into 1-2 tablespoons of water, then soak the mouth with ulceration, for 1-2 minutes, then discard. Thirty minutes after rinsing, do not eat/drink/rinse. In addition, the patient was also given Surbex Z® to be taken once a day, Vaseline® for the condition of cheilosis to be used 3 times a day and scheduled to come for a control seven days after the first visit. The patient was then referred to the Internist for examination of the systemic condition, and further management, and was scheduled for follow-up a week later.

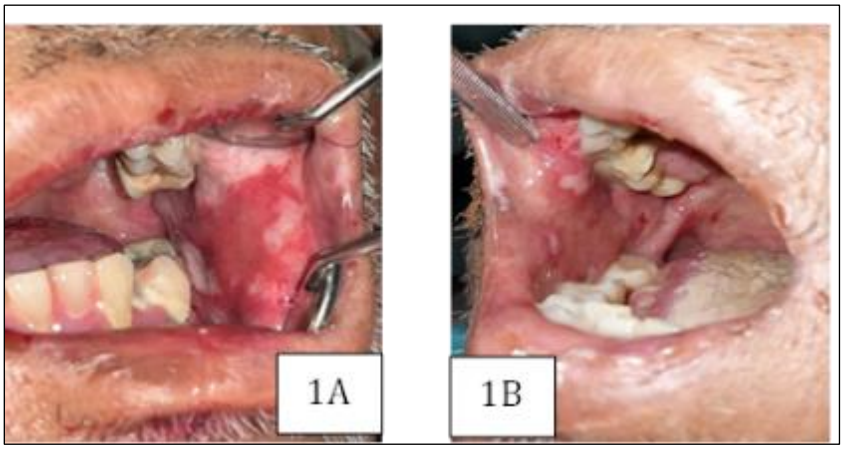

Figure 1A and 1B Loss of integrity lesions in the form of multiple ulcerations, irregular shape, edges surrounded by erythema, with a diameter of ± 5-7 mm on the right and left buccal mucosa

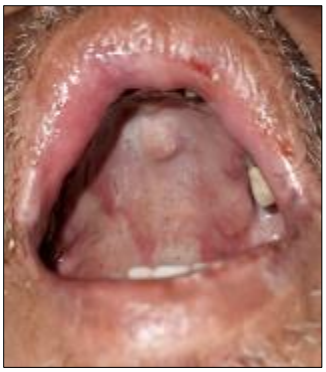

Figure 2 Loss of integrity lesion in the form of a solitary ulceration, irregular shape, erythema surrounded edges, yellowish-white base, with a diameter of ± 8-10 mm on the palate durum

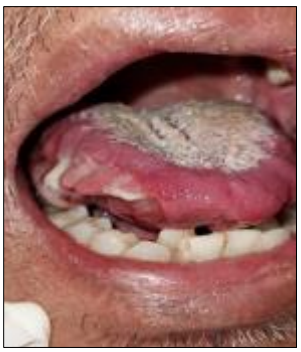

Figure 3 Loss of integrity lesion in the form of solitary ulceration, irregular shape, edges surrounded by erythema, yellowish base, with a diameter of ± 15 mm, induration (-), pus (-), tongue mobility within normal limits on the right ventrolateral tongue region 45-47 and visible tongue coating on the tongue dorsum (total score of Winkel index 12)

Three days after the last visit, the patient developed fever and breathing difficulties. His family immediately brought the him to the ER. His GCS was E3M5V2, breathing 40x/min, SPO2 64%, heart rate 147x/min, blood pressure 89/54 mmHg, body temperature 38.8^{0}C. The results of the CBC examination were obtained as follows: Hb 9.0 g/dl (L), Ht 29.1% (L), E 3.22 (L), MCHC 30.9 g/dL (L), Eosinophils 0.1% (L), Neutrophils 77.8% (H), Lymphocytes 9.9% (L), Monocytes 11.8% (H), POCT Glucose 187 mg/dL (H), Urea 201 mg/dL (H), Creatinine 4.69 mg/dL (H), eGFR 12.8 mL/min (L), Blood sodium (Na) 149 mEq/L (H), Blood potassium (K) 6.06 mEq/L (H), Blood chloride (Cl) 117.7 mEq/L (H). He was planned to be admitted to the ICCU the next day, but his condition deteriorated further. He was intubated with ett 7.5 depth 22, pcv ventilator. The working diagnosis of the patient in the ED, including NSTEMI, ARDS et causa susp pneumonia aspiration dd / sputum retention, ADHF, AKI dd acute on CKD (based on the results of Urea, Creatinine, and eGFR examination), Hyperkalemia, Metabolic Acidosis, Suspect sepsis, and Suspect lung clinical TB, but in the end the patient was passed away.

3. Discussion

Oral lesions generally appear due to factors such as poor diet, malnutrition, poor oral hygiene, a weak immune system, and the impact of drugs and uremic toxins on the oral tissues.[10] The causative relationship between oral infections and systemic disorders has not been fully established. However, there have been notable reports of improvements in systemic disease conditions following treatment of associated oral lesions.[11] This emphasizes the importance of dental health care in the treatment of systemic diseases.[12] In this patient, there were several systemic diseases when correlated with the intra oral condition at the third appointment, revealed a typical lesion common in patients with renal impairment, namely uremic stomatitis. Uremic stomatitis can occur as a result of a significant increase in the amount of urea and other nitrogenous wastes in the bloodstream of patients with chronic renal failure.[13] Stomatitis ulceration lesions in this patient were found to be evident at the third appointment in the form of a solitary ulceration surrounded by a yellowish-white pseudo membrane that extended to the palate molle, this finding led the patient to be tested for

urea and creatinine immediately and the results confirmed the suspicion of the appearance of oral lesions related to the patient's renal impairment.

A common kidney condition is acute kidney injury (AKI), which is associated with a higher likelihood of developing chronic kidney disease (CKD). AKI and CKD are closely related conditions. When AKI occurs on top of CKD, the prognosis is often unfavourable.[14,15,16] In this patient, the condition of AKI was established on admission to the emergency department, accompanied by a worsening general condition so that AKI treatment had not been performed. The cause of the rapid deterioration of kidney function may be due to advanced age, anaemia, and chronic diseases. However, further investigation is needed to find other factors causing the rapid decline in renal function in this patient.

Common signs and symptoms of acute or chronic kidney disease include sudden weight loss, increased blood pressure, and unexplained headaches, insomnia, pruritus, persistent loss of appetite, erectile dysfunction, nocturia. Typical signs and symptoms of acute and chronic kidney disease include dark urine, cognitive impairment, reduced urine production, oedema of the feet, hands and ankles (or face in severe cases), fatigue, muscle cramps and twitching, nausea, pelvic or low back pain, dyspnoea, proteinuria. [17,18] In this patient, only a few common and typical signs and symptoms of acute or chronic renal failure were found such as weight loss and elevated blood pressure as well as slight swelling of the patient's feet and hands at the first visit but by the time of the second and third visits the swelling was no longer found. This was one of the challenges in diagnosing renal failure in this patient.

Acute or chronic kidney disease can generally cause ammonia-like odour, altered taste sensation, gingival inflammation, reduced salivary flow, dry mouth, and parotitis due to decreased erythropoietin levels, leading to anaemia, bruising, and bleeding in the oral cavity, pain and inflammation of the tongue and oral mucosa.[17] The oral manifestations found in this patient included chronic gingivitis and multiple ulcerations which from the beginning of arrival until the end of the treatment period, the working diagnosis was susp. aphthous like ulcer (ALU) considering the blood urea and creatinine results obtained after the third visit which confirmed the patient's AKI condition so that the working diagnosis of susp. ALU in this patient changed to uremic stomatitis. His uremic stomatitis was exacerbated by poor oral hygiene and chronic gingivitis. Therefore, in addition to providing treatment for his uremic stomatitis condition in the form of Doxycycline 100 mg for its inflammatory effects including cytokine regulation, antioxidants, protease-activated receptor 2 (PAR2) inhibition, matrix metalloproteinase (MMPS) inhibition, collagen degradation inhibition, and leukocyte chemo tactics, he was also treated with Doxycycline 100 mg,[19] and asked to improve oral hygiene by wiping the oral mucosal surfaces with sterile gauze soaked in NaCl 0.9% and CHX 0.2% to clean all dental surfaces.

As knowledge of the relationship between dental health problems and underlying systemic conditions increases, the role of the dentist becomes crucial in providing comprehensive health care to patients with CKD as well as managing the oral manifestations of the disease.[20] Uremic stomatitis is not generally considered to be the first sign of AKI, but given that not all patients will show signs and symptoms typical of AKI or CKD conditions, it is important to study and observe oral conditions in patients with suspected systemic diseases that have not been or have been confirmed through supporting examinations. Although in this patient, the signs and symptoms of an AKI condition were not consistent, the uremic stomatitis found can be used as an indicator for healthcare professionals to immediately perform the necessary supporting examinations.

This case report emphasises that oral lesions can indicate systemic problems associated with several disease states, one of which is renal impairment and provides an understanding of the importance of conducting a comprehensive assessment of the patient's medical history to ensure a proper diagnosis so as to provide more effective and efficient treatment.

4. Conclusion

In an effort to avoid undesirable outcomes, it is imperative to identify and conduct a thorough clinical assessment of systemic disorders and their oral manifestations in order to provide and best prognosis and treatment.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from individual participant included in the study.

References

[1] Kulkarni R. The Mouth is the Mirror to the Body: Oral-Systemic Health. Delaware J Public Heal. 2023;9(1):10-11. doi:10.32481/djph.2023.04.011

[2] Bell S, Gibson JT, Harshfield EL, Markus HS. Is periodontitis a risk factor for ischaemic stroke, coronary artery disease and subclinical atherosclerosis? A Mendelian randomization study. Atherosclerosis. 2020;313(June):111-117. doi:10.1016/j.atherosclerosis.2020.09.029

[3] Dioguardi M, Caloro GA, Troiano G, et al. Oral manifestations in chronic uremia patients. Ren Fail. 2016;38(1):1-6. doi:10.3109/0886022X.2015.1103639

[4] Ramachandran V, Kolli SS, Strowd LC. Review of Graft-Versus-Host Disease. Dermatol Clin. 2019;37(4):569-582. doi:10.1016/j.det.2019.05.014

[5] Luo H, Wu B, Kamer AR, et al. Oral Health, Diabetes, and Inflammation: Effects of Oral Hygiene Behaviour. Int Dent J. 2022;72(4):484-490. doi:10.1016/j.identj.2021.10.001

[6] Tadakamadla J, Kumar S, Mamatha GP. Comparative evaluation of oral health status of chronic kidney disease (CKD) patients in various stages and healthy controls. Spec Care Dent. 2014;34(3):122-126. doi:10.1111/scd.12040

[7] Wahid A, Chaudhry S, Ehsan A, Butt S, Khan AA. Bidirectional relationship between chronic kidney disease and periodontal disease. Pakistan J Med Sci. 2013;29(1):211-215. doi:10.12669/pjms.291.2926

[8] Levey AS, James MT. Annals graphic medicine - The problem list. Ann Intern Med. 2017;167(9):ITC65-ITC79. doi:10.7326/AITC201711070

[9] Adi Ahmad Yusuf, Yanie Febby Martina Lefaan, Riani Setiadhi. The Challenges in Treating Uremic Stomatitis Patient with Chronic Renal Failure Disease. Denta. 2022;16(2):103-108. doi:10.30649/denta.v16i2.7

[10] Oyetola EO, Owotade FJ, Agbelusi GA, Fatusi OA, Sanusi AA. Oral findings in chronic kidney disease: Implications for management in developing countries. BMC Oral Health. 2015;15(1):1-8. doi:10.1186/s12903-015-0004-z

[11] Aarabi G, Eberhard J, Reissmann DR, Heydecke G, Seedorf U. Interaction between periodontal disease and atherosclerotic vascular disease - Fact or fiction? Atherosclerosis. 2015;241(2):555-560. doi:10.1016/j.atherosclerosis.2015.04.819

[12] Sarumathi T, Saravanakumar B, Datta M, Nagarathnam T. Awareness and knowledge of common oral diseases among primary care physicians. J Clin Diagnostic Res. 2013;7(4):768-771. doi:10.7860/JCDR/2013/5419.2908

[13] Kuravatti S, Priscilla David M. Oral Manifestations of Chronic Kidney Disease-An Overview. Int J Contemp Med Res ISSN. 2016;3(4):2393-2915. www.ijcmr.com

[14] Teeple E, Collins J, Shrestha S, Dennerlein J et al. AKI on CKD. Physiol Behav. 2018;176(1):139-148. doi:10.1016/j.kint.2017.06.030.AKI

[15] Rustagi RS, Arora K, Das RR, Pooni PA, Singh D. Incidence, risk factors and outcome of acute kidney injury in critically ill children–a developing country perspective. Paediatr Int Child Health. 2017;37(1):35-41. doi:10.1080/20469047.2015.1120409

[16] Farida LS, Thaha M, Susanti D. Characteristics of Patients with End-Stage Renal Disease at Dialysis Unit Dr. Soetomo General Hospital Surabaya. Biomol Heal Sci J. 2018;1(2):97. doi:10.20473/bhsj.v1i2.9400

[17] Gupta H, Bhateja S, Arora G. Oral manifestations , dental considerations and treatment protocols for chronic renal disease or end-stage renal disease. 2019;2(3):48-53.

[18] Forni LG, Darmon M, Ostermann M, et al. Renal recovery after acute kidney injury. Intensive Care Med. 2017;43(6):855-866. doi:10.1007/s00134-017-4809-x

[19] Piacentini M, Borghetti RL, Zancanaro de Figueiredo MA, Cherubini K, Gonçalves Salum F. Doxycycline: An option in the treatment of ulcerated oral lesions? J Clin Pharm Ther. 2019;44(6):838-843. doi:10.1111/jcpt.13022

[20] Arabpour F, Kuzekanani M, Walsh LJ, Mirzaei M. Knowledge, Attitudes and Performance of Iranian Endodontists to Patients with Kidney Diseases. Eur Endod J. 2023;8(1):90-95. doi:10.14744/eej.2022.27247