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Fissure tongue condition in a patient with down syndrome: A case report

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ABSTRACT

Fissured tongue is a normal variation of the tongue in which the surface of the dorsum of the tongue has fissures, with varying depths. This condition is commonly found in patients with Down's syndrome. The patient comes with complaints of increasing tongue sensitivity to spicy and sour tastes. In general, patients do not feel any complaints or pain if the fissures are not too deep but there is a risk of food ingesting in these cracks. Fissured tongue will become a pathological condition if the depth reaches >5mm, causing the patient to seek treatment. The purpose of this case report is to provide an overview of patients who have Down's syndrome accompanied by fissured tongue. The patient in this case report was not given any medication and was only given oral health education and oral hygiene instructions both directly and to the patient's guardian.

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INTRODUCTION

The tongue is known as an early sign of general health problems. A fissured tongue is a normal variation that generally does not require treatment (Nurfianti et al., 2024),(Nur'aeny & Sari, 2016). Mostly, a longitudinal fissure (median sulcus) initially develops in the middle of the dorsum of the tongue (Damaryanti et al., 2022),(Ardhiansyah, 2023). This condition may be associated with the use of removable dentures, geographic tongue, pernicious anemia, Sjögren's syndrome, psoriasis, acromegaly, macroglossia, oral-facial-digital syndrome type I, Pierre Robin syndrome, Down's syndrome, and Melkersson Rosenthal syndrome. The etiology of fissured tongue remains unknown (LM Sari et al., 2023),(NDAM Sari & Mujayanto, 2021).

Fissured tongue of varying depth can extend laterally and can be clearly seen on the dorsal surface of the tongue (Fitriasari et al., 2021),(Asmaul Husna et al., 2023). This condition is generally limited to the anterior two-thirds of the tongue, which is of ectodermal origin. Histologically, the epithelium, lamina propria, and muscle are all involved in the formation of the fissure. Deeper fissures may lack filliform papillae due to bacterial inflammation (Cahyati & Septina, 2023),(Judge, 2022).

The diagnosis of fissured tongue is clinical, and treatment includes education and instruction on good oral hygiene and regular tongue cleaning. Fissured tongue is also believed to be a congenital abnormality that can vary in size and depth (Dermawan et al., 2024),(Nurfianti et al., 2024). A fissured tongue is asymptomatic unless debris becomes trapped within the fissure. This occurs when the fissure is deeper (>5-6mm), and food can easily become lodged, resulting in tongue inflammation, a burning sensation, and halitosis (Nerazuri, 2022),(Budiarti, 2023).

RESEARCH METHOD

Patien Ms. J, a 17-year-old female, came with her older sister complaining of fissures on her tongue since she was a toddler and wanted to be examined. The patient reported frequent sensitivity on the dorsum of her tongue when consuming hot, spicy, or sour foods or drinks. She reported that cold or sweet foods or drinks alleviated these symptoms.

At the initial visit, it was discovered that the patient had no history of systemic illness but did have Down's syndrome. Neither the patient nor her family had previously had their condition examined due to a lack of knowledge about the condition. The patient was cooperative and was able to slowly understand simple history questions (Rudy Joegijantoro, nd),(Press, 2023).

The patient's extraoral examination results were within normal limits. The patient's face was symmetrical, and the eye examination revealed non-icteric sclera, non-anemic conjunctiva, and isochoric pupils. The patient's nose and ears were within normal limits. The lymph nodes (submandibular, submental, and cervical) were normal, non-palpable, and non-tender. The patient's TMJ examination was within normal limits, with no clicking, crepitation, deviation, or pain. The patient's lips and circumoral area were within normal limits (Rintoko et al., 2022),(Ramadhan et al., 2019).

Intraoral examination of the gingiva revealed calculus and plaque throughout the region, with moderate oral hygiene. On the right and left buccal mucosa, the patient had a flat, painless, non-ulcerated white plaque lesion approximately 2 cm long in the molar region of teeth 36-37 and 46-47. Examination of the hard and soft palates revealed a palate, as evidenced by the invisibility of a mouth mirror no. 4 when inserted. On the dorsum of the tongue, the patient had a larger-than-normal tongue (covering the occlusal plane of the mandibular teeth) and multiple, painless, depressed fissure lesions of normal variation, varying in depth from 2-4 mm. Sublingually, another normal variation was found, with bilateral, painless, flat, blue lesions on the ventral surface of the tongue. The labial mucosa, frenulum, and floor of the mouth were within normal limits. Based on clinical examination and anamnesis, the patient was diagnosed with a fissured tongue on the entire dorsum of the tongue, bilateral sublingual varices, and macroglossia (Dewi, nd),

After a thorough examination of the patient's oral cavity, documentation was performed by taking photographs of the patient's tongue area (Figure 1). The patient also had the depth of the fissures measured, and the examination results showed that the deepest depth was 4 mm (Figure 2), so the patient's fissured tongue condition was not considered pathological. The patient's treatment plan consisted of non-pharmacological treatments. The patient was given oral health education and oral hygiene instructions. The patient was advised to clean the tongue regularly with a toothbrush twice a day and to avoid foods that could irritate the fissured tongue.

Figure 1. There are gaps on the entire surface of the patient's tongue dorsum and the tongue is larger than normal

Figure 2. Measuring the depth of the cleft on the patient's tongue using the UNC'15 probe instrument and the deepest depth is 4mm

RESULTS AND DISCUSSIONS

A 17-year-old female patient came with her older sister complaining of fissures on her tongue since she was a toddler and wanted to be examined. The patient reported frequent sensitivity on the dorsum of her tongue when consuming hot, spicy, or sour foods or drinks. She reported that cold or sweet foods or drinks alleviated these symptoms. At the initial visit, it was discovered that the patient had no history of systemic illness but did have Down's syndrome. Neither the patient nor her family had previously had their condition examined due to a lack of knowledge about the condition (Hasna Rafida Purwandini, 2021),(Yantie et al., 2025).

Intraoral examination of the gingiva revealed calculus and plaque throughout the region, with moderate oral hygiene. Multiple painless, depressed fissure lesions varying in depth from 2 to 4 mm were found on the dorsum of the tongue. Based on clinical examination and history, the patient was diagnosed with fissured tongue on the entire dorsum of the tongue.

Fissured tongue is a condition in which the dorsum of the tongue has fissures of varying depth. This condition is commonly found in patients with Down's syndrome (78%). 5,6 The reason for this condition remains unknown, but it is believed to be a normal variation of the tongue. Most cases of fissured tongue are asymptomatic, but the fissures can become a site for food debris to be

retained, which can chronically lead to more serious conditions. Most patients are unaware that their sensitivity to hot, sour, and spicy foods or drinks is due to this condition. This condition may impact the patient's quality of life by interfering with aesthetics and normal functions such as eating, speaking, and smiling (Handayani et al., 2025),(Harlim, 2017).

In this case, the patient was only identified and also given oral health education along with oral hygiene instructions (Riring, 2024),(Mahardika et al., 2024). Education in the form of an appeal to clean the tongue regularly using a toothbrush twice a day is given with the aim of removing food residue or debris trapped in the gaps. Toothbrushes are chosen over tongue scrapers because tongue scrapers cannot reach the gaps of fissures that vary in depth. Another appeal to avoid eating foods that can cause irritation in the condition of the fissured tongue is intended to prevent inflammation that can occur due to consuming spicy or acidic foods (Febriyanti, 2023).

CONCLUSION

Fissured tongue and macroglossia are very common in patients with Down's syndrome and can cause discomfort when eating spicy, sour, or hot foods. Although generally asymptomatic, this condition can become pathological if the fissure reaches a depth of more than 5 mm. In these cases, patients should be identified, given oral health education, and oral hygiene instructions explained to both the patient and their guardian.

References

Ardhiansyah, A. O. (2023). *KANKER RONGGA MULUT DAN KELENJAR LIUR-Dari Teori Preklinik Hingga Aplikasi Klinik Edisi 2*. Airlangga University Press.

Asmaul Husna, S. K. M., Mery Erfiani, A., Budi Suryana, S. S. T., SKM, M. P. H., Desih Welliam, S., & Fradita Fernanda, S. (2023). *Ilmu Penyakit Gigi dan Mulut*. CV Eureka Media Aksara.

Budiarti, I. S. (2023). *Indra Pengecap; Lidah*. Bumi Aksara.

Cahyati, M., & Septina, F. (2023). *Tips dan Trik Klinis Radiografis Mendeteksi Abnormalitas Kelenjar Saliva*. Universitas Brawijaya Press.

Damaryanti, E., Abidin, Z. Z., Roeswahjuni, N., Puspitasari, A., Wulan, K. A., Hartami, E., Rachmawati, Y. L., Lodra, E. H., Sumarta, N. P. M., & Rizqiawan, A. (2022). *Pertumbuhan dan Perkembangan Kraniofasial dalam Perspektif Ilmu Kedokteran Gigi: Buku Ajar*. Universitas Brawijaya Press.

Dermawan, I. G. N. P., Sari, N. N. G., & Febriyanti, N. P. A. D. (2024). Prevalence of Geographic Tongue Disorders in Pregnant Women at Gianyar I Public Health Center Period June–July 2023. *Interdental Jurnal Kedokteran Gigi (IJKG)*, *20*(2), 218–222.

Dewi, P. K. (n.d.). *Case Report: GEOGRAPHIC TONGUE DAN FISSURED TONGUE PADA PASIEN LAKI-LAKI UMUR 78 TAHUN*.

Febriyanti, N. P. A. D. (2023). *Prevalensi Kelainan Geographic Tongue pada Ibu Hamil di Puskesmas Gianyar I Periode Juni-Juli 2023*. Universitas Mahasaraswati Denpasar.

Fitriasari, N., Dewi, T. S., & Rahayuningtyas, E. D. (2021). Kelainan variasi normal lidah yang dipicu makanan pedas dan panas pada pasien dengan kondisi anemia Abnormalities in normal tongue variation triggered by hot and spicy food in anaemic patients. *Jurnal Kedokteran Gigi Universitas Padjadjaran*, *32*(3), 150–156.

Hakim, R. F. (2022). *Anatomi, Histologi, Fisiologi Sistem Rongga Mulut*. Syiah Kuala University Press.

Handayani, B., Syahdinda, M. R., Firmantini, H., Brahmanta, A., Tammama, T., & Nugroho, D. I. (2025). *Ilmu Kedokteran Gigi Komprehensif: Teori dan Praktik Klinis untuk Kesehatan Mulut yang Optimal*. PT Bukuloka Literasi Bangsa.

Harlim, A. (2017). *Buku Ajar Ilmu Kesehatan Kulit dan Kelamin Dasar Diagnosis Dermatologi*. Fakultas Kedokteran UKI.

Hasna Rafida Purwandini, H. R. P. (2021). *ASUHAN KEPERAWATAN KELUARGA DENGAN DOWN SYNDROME DI DESA JATISARONO KECAMATAN NANGGULAN*. Poltekkes Kemenkes Yogyakarta.

Mahardika, M. R., Heriyanto, Y., & Restuning, S. (2024). Asuhan Kesehatan Gigi dan Mulut Pada Klien TN. A (19 THN) Dengan Kasus Karang Gigi. *Jurnal Terapi Gigi Dan Mulut*, *4*(1), 129–136.

Nerazuri, A. M. (2022). *PENGARUH DAN PENYEBAB HALITOSIS*. Poltekkes Tanjungkarang.

Nur'aeny, N., & Sari, K. I. (2016). Profil lesi mulut pada kelompok lanjut usia di Panti Sosial Tresna Wreda Senjarawi Bandung. *Majalah Kedokteran Gigi Indonesia*, *2*(2), 74–79.

Nurfianti, N., Wulandari, A. R., Audiawati, A., & Ronal, A. (2024). Prevalensi Varian Normal Lidah pada Lansia di Panti Tresna Werdha Budi Mulia 1. *Sinnun Maxillofacial Journal*, *6*(02), 79–86.

Press, U. G. M. (2023). *Prinsip Dan Refleksi Kedokteran Keluarga Di Layanan Primer*. Ugm Press.

Ramadhan, R., Pramanik, F., & Epsilawati, L. (2019). Deskripsi Bentuk Kepala Kondilus Pada Pasien Kliking dan Tidak Kliking Di RSGM FKG UNPAD dengan Menggunakan Radiograf Panoramik Digital. *Padjadjaran Journal of Dental Researchers and Students*, *3*(2), 134–140.

Rintoko, B., Farida, S., & Prihastari, L. (2022). Diagnosis gangguan sendi temporomandibular pada kasus kehilangan gigi dengan metode dc/tmd. *J. Ilm. Dan Teknol. Kedokt. Gigi*, *18*(1), 31–37.

Riring, J. (2024). Edukasi Perawatan Mulut Pada Anak Sekolah Dasar Dengan Karies Gigi Di Wilayah Kerja Puskesmas Masohi. *Jurnal Keperawatan Indonesia Timur (East Indonesian Nursing Journal)*, *4*(2), 90–102.

Rudy Joegijantoro, M. (n.d.). *Teknik Anamnesis Yang Efektif Dalam Praktek Kedokteran*. Guepedia.

Sari, L. M., Ossa, Y. F., & Rezeki, S. (2023). *Penyakit dan Kelainan Jaringan Lunak Mulut*. Syiah Kuala University Press.

Sari, N. D. A. M., & Mujayanto, R. (2021). Geographic Tongue With Burning Mouth Syndrome (Case Report). *Odonto: Dental Journal*, *8*(2), 18–24.

Yantie, N. P. V. K., Suwarba, I. G. N. M., Nilawati, G. A. P., Wati, K. D. K., Suparyatha, I. B. G., Sidiartha, I. G. L., Arimbawa, I. M., Windiani, I. G. A. T., Subanada, I. B., & Kardana, I. M. (2025). *Optimalisasi Penatalaksanaan Penyakit dan Pedoman Pelayanan Anak di Era JKN*. Penerbit Salemba.