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Case Report

Leprosy mimicking sinonasal tumor: A case report

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Abstract Leprosy is a chronic granulomatous infection caused by Mycobacterium leprae and the respiratory tract, the entry point of leprosy. A 29-year-old man was diagnosed with a sinonasal tumor based on a history of chronic rhinosinusitis symptoms and planned to undergo surgery. Before surgery, the patient was referred to a dermatologist for complaints of generalized erythematous nodules with pain and was diagnosed with leprosy based on histopathologic examination. After three weeks of treatment, the patient's condition improved significantly in both skin lesions and sinonasal tumors.

Key words
Leprosy; Mimicry; Sinonasal tumor.

Introduction

Leprosy is a chronic granulomatous infectious disease caused by *Mycobacterium leprae* (*M. leprae*). It is also known as morbus hansen. This disease is stigmatized globally and has a high mortality rate.[1,2] As a great imitator, it affects skin and peripheral nerves, as well as other body parts such as the respiratory tract, the entry point for leprosy. All paranasal sinuses are the most commonly affected area.[3]

Case report

A 29-year-old man was diagnosed with a sinonasal tumour based on 6 month's history of frequent symptoms of chronic rhinosinusitis, a decrease of smell, and epistaxis with CT-Scan findings described sinonasal tumour **(Figure 1)**, and was planned to undergo an operation by the otolaryngologist. Before the operation, the patient was referred to the dermatologist due to complaints of generalized erythematous nodules accompanied by pain noted one day prior. Initially, the lesions appeared on the hands, expanding to the entire body, including the face. The patient had a similar complaint several years ago, but it was spontaneously resolved. Previous medical history revealed a history of incomplete MDT medication taken four years ago.

Physical examination revealed a weak general condition; body temperature 37.9^{o}C (subfebris). Dermatology examination **(Figure 2)** noted generalized erythema tender nodules, infiltration and thickening of earlobes; sensibility examination showed hypoesthesia, but nerve thickening was not found.

Ziehl-Neelsen staining was negative; skin histopathology confirmed the diagnosis of leprosy **(Figure 3)**. Hence, leprosy with the involvement of paranasal sinuses and ENL reaction were diagnosed. He was prescribed ROM therapy, Rifampicin 600mg, Ofloxacin 400mg, Minocycline 100mg thrice a week for 12 weeks, Methylprednisolone 32 mg/day tapering

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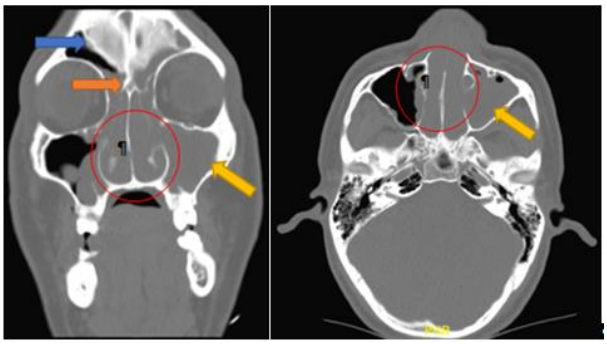

Figure 1 CT-Scan examination revealed a sinonasal tumor.

off every two weeks, Paracetamol as needed for pain, and Vitamin B complex was given as neurotropic. Three weeks later, the patient's condition improved significantly; the skin lesion **(Figure 4)** and the "sinonasal tumor" were resolved.

Discussion

Leprosy is a public health issue in Indonesia, with over 10,000 new cases reported in 2021.[4] A three-year retrospective study conducted in Indonesia between 2018 and 2020 found that the prevalence of leprosy was dominated by age >14 years (95.3%) and males (66.8%). The most common type of leprosy was multibacillary (86.2%), and the most common leprosy reaction was erythema nodosum leprosum (ENL) (20.3%).[5] Sinonasal tumors are commonly associated with symptoms such as nasal obstruction, nasal discharge, epistaxis, and headache, as demonstrated in this patient.[6] The nose is the first site of involvement in lepromatous leprosy and the portal of entry for *M. leprae*. The most common findings in the anterior aspect of the inferior turbinate and nasal septum are edema and mucosal thickening. The involvement of the paranasal sinuses is important in MB leprosy patients because the sinuses are a large reservoir of *M. leprae*. CT-scan finding based on a study of leprosy involving the paranasal sinuses reveals localized or diffuse thickening of the mucosa and sinus opacity. Bone destruction demonstrates granulomatous infiltration.[3]

Figure 2 Dermatologic examination revealed generalized erythema, infiltration and thickening of the auricle.

Generalized erythematous nodules with pain and constitutional symptoms indicate a type II reaction to leprosy/ ENL is an immune complex syndrome, type III hypersensitivity reaction. This autoimmunity may also play a role in tissue damage, as revealed by histopathology. Infiltration of neutrophils is seen in the superficial dermis until the subcutaneous tissue, superimposed on an already existing lepromatous granuloma. Neutrophils are gradually replaced by lymphocytes during the healing phase.[7]

Corticosteroids are the first-line treatment for severe ENL, and they work by inhibiting both the early and late phases of inflammation, decreasing neutrophil chemotaxis, and inhibiting the enzyme prostaglandin synthetase. Furthermore, cell-mediated immunity is suppressed by depleting T cells, particularly T Helper cells, which reduces proinflammatory cytokines.[8,9]

The patient was not complying with their previous MDT-WHO therapy. ROM regimens were given in this case because they have a shorter regimen and achieved favorable outcomes in several studies.[10] After three weeks,

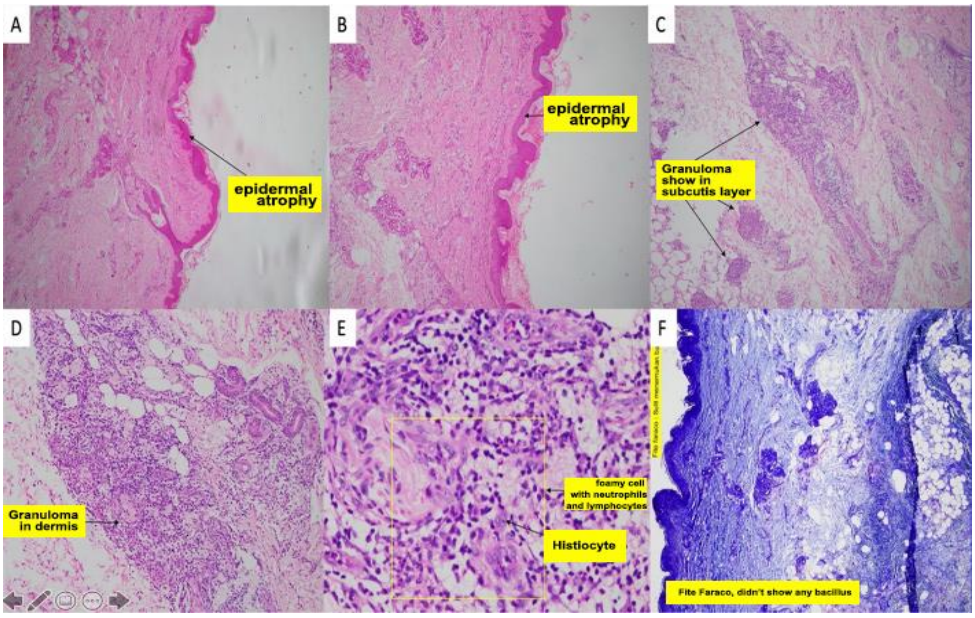

Figure 3 Histopathologic examination of the skin.

Figure 4 Follow-up of the patient after three weeks of treatment, the patient's condition improved significantly; skin lesions and sinonasal tumor resolved.

the patient's condition had significantly improved, with the skin lesion resolved and the sinonasal tumor resolved as expected.

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Author's contribution

AAN, SA, KD: Diagnosis and management of the case, manuscript writing, final approval of the version to be published.

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