



Leprosy-Info

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The Office of the Grand Hospitaller feels that the International Order should be particularly sensitive to the medical issues that pertain to Hansen's Disease. It is for this reason that the present initiative is being taken. The circulation of *Leprosy-Info* to the general membership of the Order will hopefully serve this purpose. While the contents include scientific leprological papers, the Grand Hospitaller hopes that some papers will also be of interest to the non-medically oriented members of the Order. An attempt will also be made to include items of a historical interest to further broaden the material presented for the interest of the members.

In this issue, a number of abstracts from different journals are provided. The first deals with an archaeological study linking the disease in England during the Medieval Period with the English Red Squirrel serving as a vector. The subsequent two papers address the medical perspective of the disease, while the final paper presented serves to remind us that the globalization process with the associated migration and movement of individuals can serve to re-introduce the disease in regions where it has now been eradicated, especially when immunologically compromised individuals are concerned. The final article reviews the role of AI.

I do hope that *Leprosy-Info* will serve to remind us of the suffering the victims of this dreaded infection go through and stimulate the jurisdictions to provide further resources to help ameliorate the suffering.

Ancient *Mycobacterium leprae* genome reveals medieval English red squirrels as animal leprosy host

Urban C, Blom AA, Avanzi C, et al. *Current Biology*. Elsevier BV. 2024;

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Abstract

Leprosy, one of the oldest recorded diseases in human history, remains prevalent in Asia, Africa, and South America, with over 200,000 cases every year. Although ancient DNA (aDNA) approaches on the major causative agent, *Mycobacterium leprae*, have elucidated the disease's evolutionary history, the role of animal hosts and interspecies transmission in the past remains unexplored. Research has uncovered relationships between medieval strains isolated from archaeological human remains and modern animal hosts such as the red squirrel in England. However, the time frame, distribution, and direction of transmissions remains unknown. Here, we studied 25 human and 12 squirrel samples from two archaeological sites in Winchester, a medieval English city well known for its leprosarium and connections to the fur trade. We reconstructed four medieval *M. leprae* genomes, including one from a red squirrel, at a 2.2-fold average coverage. Our analysis revealed a phylogenetic placement of all strains on branch 3 as well as a close relationship between the squirrel strain and one newly reconstructed medieval human strain. In particular, the medieval squirrel strain is more closely related to some medieval human strains from Winchester than to modern red squirrel strains from England, indicating a yet-undetected circulation of *M. leprae* in non-human hosts in the Middle Ages. Our study represents the first One Health approach for *M. leprae* in archaeology, which is centered around a medieval animal host strain, and highlights the future capability of such approaches to understand the disease's zoonotic past and current potential.

Hansen's Disease: A Practical Update on a Neglected Globally Significant Infection

Benlamkadam S, Errahmany A, Raymond K, et al. *Cureus*. Springer Science and Business Media LLC. 2024;

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Abstract

Leprosy is a great mimicker. It is caused by *Mycobacterium leprae* and *Mycobacterium lepromatosis*, together termed the *M. leprae* complex. Leprosy can result in systemic manifestations; however, the neurocutaneous syndrome is the most classic. There is a gap in recognizing the condition leading to misdiagnosis and delays in treatment. Leprosy remains an important cause of aesthetic and functional impairment. In this paper, we provide a practical review of leprosy touching on pathophysiology, clinical manifestation, classification, diagnostic approach and management of the condition in a way that can translate into clinical practice and help physicians better identify and manage potential cases of leprosy.

Characteristics of Leprae Lesions Based on the Ridley Jopling Classification: Literature Review

Asmin A, Amiruddin M. D, Miranti A. Jurnal Eduhealth. 2024; 15 (2) : 829-844.

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Abstract

Morbus Hansen (MH), also known as leprosy or leprosy, is an infectious disease that causes health problems throughout the world. There were 127,558 new cases of leprosy detected globally in 2020, based on data from 139 countries from 6 World Health Organization regions. Ridley-Jopling classified leprosy based on the patient's immune response into intermediate (I), tuberculoid (TT), borderline-tuberculoid (BT), borderline-borderline (BB), borderline-lepromatous (BL) and lepromatous (LL). This literature aims to look at the characteristics of leprosy lesions based on Ridley Jopling's classification. This research uses a literature review method with the Preferred Reporting Items for Systematic Reviews & Meta-Analyses (PRISMA) protocol. Scientific articles or journals are downloaded from PubMed, Garuda Portal, and Google Scholar with SINTA IV and V standards in the 2018-2023 period. The keywords in the search for this article were characteristics, description of leprosy lesions, Ridley Jopling classification, 937 articles were obtained in the search results. All articles were selected based on the inclusion criteria, resulting in 20 research articles that would be reviewed. In this literature, there were 20 research articles that reported the characteristics of leprosy lesions based on the Ridley Jopling classification. E4 Characteristics of the appearance of leprosy lesions based on the Ridley Jopling classification, it was found that the borderline category was the most frequently reported with borderline tuberculoid as the most common subtype followed by borderline lepromatous, intermediate leprosy, tuberculoid leprosy and lepromatous type.

A case of leprosy in an immunocompromised traveller.

Pelser S, Geluk A, Vissers W, et al. Journal of travel medicine. 2024;

[PubMed](#)

Abstract

We describe a case of leprosy in an immunocompromised Dutch male whose parents were born in a leprosy-endemic country. The use of immunosuppressive drugs in Mycobacterium leprae infected individuals therefore increases the risk of development of leprosy. Exposure and infection at a young age through his parents is another possible risk factor.

Leprosy in Malta: Not to be forgotten

Monique Cachia M, Alicia Dimech A, Alexandra Betts A, et al. Malta Medical Journal, 2021

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Abstract

Leprosy is a granulomatous infection that was once endemic on the Maltese Islands. Locally this disease was eradicated thanks to the Leprosy Eradication Programme which was concluded in 1999 and utilized a multidrug therapy regime. However, in view of the influx of migrant populations over the years we are starting to encounter leprosy in nationals of countries where the disease is still endemic. We report a case of a Filipino man presenting with nodular lesions over the face, trunk and limbs and a hypoaesthetic patch over the arm. A skin biopsy supported the clinical suspicion of midline borderline/borderline lepromatous leprosy and triple therapy with clofazimine, dapsone and rifampicin was initiated. Despite having a wide clinical differential diagnosis, leprosy must always be kept in mind by clinicians, especially when treating nationals from endemic areas.

THE POTENTIAL ROLE OF ARTIFICIAL INTELLIGENCE IN THE CLINICAL MANAGEMENT OF HANSEN'S DISEASE (LEPROSY)

Deps PD, Yotsu R, Furriel BCRS, et al. Frontiers in Medicine. Frontiers Media SA. 2024;

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Abstract

Missed and delayed diagnoses of Hansen's disease (HD) are making the battle against it even more complex, increasing its transmission and significantly impacting those affected and their families. This strains public health systems and raises the risk of lifelong impairments and disabilities. Worryingly, the three countries most affected by HD witnessed a growth in new cases in 2022, jeopardizing the World Health Organization's targets to interrupt transmission. Artificial intelligence (AI) can help address these challenges by offering the potential for rapid case detection, customized treatment, and solutions for accessibility challenges—especially in regions with a shortage of trained healthcare professionals. This perspective article explores how AI can significantly impact the clinical management of HD, focusing on therapeutic strategies. AI can help classify cases, ensure multidrug therapy compliance, monitor geographical treatment coverage, and detect adverse drug reactions and antimicrobial resistance. In addition, AI can assist in the early detection of nerve damage, which aids in disability prevention and planning rehabilitation. Incorporating AI into mental health counselling is also a promising contribution to combating the stigma associated with HD. By revolutionizing therapeutic approaches, AI offers a holistic solution to reduce the burden of HD and improve patient outcomes.