Noma (Cancrum Oris): A Neglected Tropical Disease Associated with Poverty and Malnutrition

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Key points:

- Introduction to Noma Disease
- Causes and Risk Factors
- Clinical Manifestations and Disease Progression
- Treatment and Multidisciplinary Management
- Global initiatives and WHO recognition
- Conclusion

Introduction

Noma or Cancrum Oris affects malnourished kids from the age of 2 to 6 years living in under developed countries. Noma can be described as a severe form of necrotizing disease along with ordinary to extreme gangrene which can kill the child if help is not provided in a right time. The condition starts as a gingival ulcer and can lead to orofacial gangrene. If help is not provided in a timely manner, Noma can be lethal within days. To enlighten on such issues, WHO has now classified
Noma as neglected tropical disease in December 2023. By doing so, they aim to focus the efforts towards the prevention, control and overall treatment of Noma. Deadly disease has often gone neglected but now NGOs are looking on the condition it's treatment realising it along with other childhood diseases can save millions of kids suffering from Noma disease.[1]

Noma treats one the symptoms of the struggle of poverty across the world map. The documentation hints at its presenting since past times but now mankind can be outlined back to some parts of sub-Saharan Africa. Such areas do not have proper health infrastructure which results in privation of indulgent of Noma and its effects along with awareness about its concerns among professionals. Noma was ignored for a long period of time but now with the increased scope of development can be brought to areas now with proper monies and advanced technologies in mental and physical health.[2,3]

Etiology and Risk Factors

Noma's etiology is vast with biological, environmental, and socio-economic factors at play.

• Malnutrition: Severe PMC (Protein- calorie Malnutrition) and lack of A, C, iron, and zinc dreadfully compromises the immune system of children by weakening mucosal layers, making them more liable to oral infections.[2,4]

• Poor Oral Care: Lack of proper oral care pointers to plaque build-up which promotes necrotizing gingivitis (spre noma).[5]

• Infectious Diseases: Measles, malaria, AIDS, alongside other imuno-suppressive diseases cause the onset of noma, weakening the ability of the body to control the bacterial infection.[6,7]

- Socioeconomic Factors: Extreme poverty to whole some foods, clean water, good sanitary conditions, and vaccinations which in turn enables the spread of noma.[8]

- Worsening Environmental Factors: The combination of teeming living conditions, maternal under-nutrition, small gaps between child births, and non-breastfeeding in many common regions act as contributory factors.[9]

Signs and Symptoms of Diagnosis and How the Illness Develops

These are the five stages:

1. Necrotizing Gingivitis – ulcers in the gums that are bleeding and very painful.[8]
2. Edema and Halitosis- instant welling, high temperature, and very bad breath.
3. Gangrene – necrosis of deep tissues and facial perforation.
4. Sequestration – shedding of necrotic tissue.
5. Scarring, deformity of face, and disability.[10]

Remaining untreated can lead an 80% impermanence rate, while the few survivors are often stricken with lifelong difficulties such as trismus (jaw rigidity), as well as eating, speaking, and socially excluding due to altered facial appearance.[11]

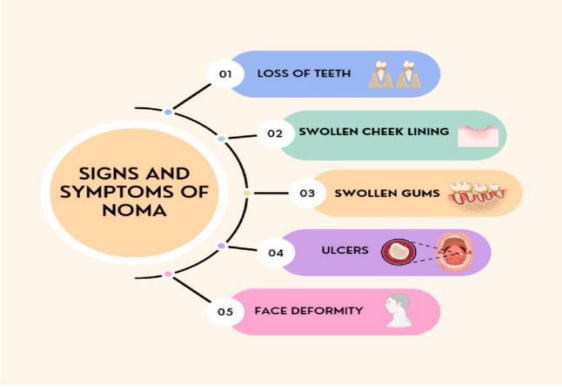

Figure 1: *Symptoms of NOMA*.[15]

Treatment and Multidisciplinary Management:

- Medical Intrusion: The initial stage of the disease can be managed effectively with the use of broad-spectrum antimicrobials (like metronidazole, penicillin), anti-inflammatory treatment, and wound care.[12]

- Nutritional Rehabilitation: Caloric intake along with micronutrient fortification must be given concerned as it is key to control immunity and fasten the recovery.[13]

- Surgical Management: In some advanced scheme, individuals may be left with intense functional and aesthetic reconstructive needs, including stealth flap grafting bone repair, which is sometimes performed to facilitate facial restoration.[14]

- Rehabilitation: Physiotherapy aids the recovery of jaw functions and speech therapy fosters communication skills. For recovery and alleviation of social exclusion, psychological care is fundamental to facilitate the social acceptance syndrome.[15]

International Campaigns and WHO Acknowledgement

The WHO has officially recognized Noma as an NTD, a concerning milestone that was probably registered amongst the outbreak of news coming from Geneva this past time. This decision aims to:

- Allow global monitoring and information gathering.
- Encourage research funding to examine etiology and novel pointed therapies.
- Contact to healthcare like never before in under developed areas.
- Encourage hygiene, nutrition, and early symptoms education in the community
- Other organizations that work in prevalent areas include MSF, UNICEF and the IDEAL

Foundation who all run Noma prevention and treatment programs.[1]

Conclusion

To eliminate this forgotten disease and safeguard helpless children around the world in especially remote areas, inclusive strategies directing on prevention, early diagnosis, multidisciplinary care, and global awareness are important .Noma is a disease of silence and suffering that is completely preventable but tragically tenacious in remote areas, entrenched inequalities in nutrition, healthcare, and social justice.

References

1. WHO. (2023). https://www.who.int/news/item/15-12-2023-who-officially-recognizesnoma-as-a-neglected-tropical-disease
2. Gezimu, W., et al. (2022). https://doi.org/10.1177/20503121221098110
3. The Guardian. (2021). https://www.theguardian.com/globaldevelopment/2021/nov/04/noma-the-hidden-childhood-disease-known-as-the-face-ofpoverty
4. Baratti-Mayer, D. et al. (2013). https://doi.org/10.1016/S1473-3099(13)70091-1
5. Enwonwu, C. O. et al. (2006). https://doi.org/10.1016/S0140-6736(06)69006-2
6. Falkler, W. A., & Enwonwu, C. O. (1999). https://doi.org/10.1111/j.16010825.1999.tb00220.x
7. Srour, M. L. et al. (2017). https://www.righttofoodandnutrition.org/files/Noma_Overview_2017_EN.pdf
8. WHO AFRO. (2018). https://www.afro.who.int/publications/evaluation-who-africaregional-programme-noma-control-2013-2017
9. UNICEF. (2019). https://data.unicef.org/resources/jme-report-2019/
10. Bourgeois, D. et al. (2015). https://doi.org/10.1111/tmi.12559
11. Marck, K. W. (2003). https://doi.org/10.1097/01.PRS.0000054862.43719.49
12. Petersen, P. E. (2003). https://www.who.int/publications/i/item/9241591496
13. IDEAL Foundation. https://idealnoma.org/what-is-noma/
14. Hotez, P. J. (2020). https://doi.org/10.1371/journal.pntd.0008618
15. Verma A, Zaheer A, Ahsan A, Anand A, Serhan HA, Khatib MN, Zahiruddin QS, Gaidhane AM, Kukreti N, Rustagi S, Satapathy P. Noma in the WHO's list of neglected tropical diseases: A review of its impact on undeveloped and developing tropical regions. Preventive Medicine Reports. 2024 Jul 1;43:102764