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Measles Keratitis in a Nigerian Child: Experience from a Rural Community

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Abstract

Measles is a highly contagious viral disease associated with various systemic and ocular complications, including potentially blinding keratitis. Early recognition and prompt treatment greatly improve visual outcomes. We report the case of a one-year-old child who developed keratitis following a measles infection. Despite timely clinical diagnosis and treatment after presentation, the child healed with a visually significant corneal opacity. This report highlights that measles-related ocular morbidity remains a public health challenge in rural, underserved communities, underscoring the need for strengthened preventive measures and improved access to eye care. This case also underscores the role of harmful traditional practices and incomplete immunisation in worsening outcomes. It illustrates the intersection between infectious disease, cultural beliefs, and health system limitations, and calls for integrated strategies that combine vaccination, maternal education, and community-based eye health programs.

Keywords: *Childhood blindness, Conjunctivitis, Kerato-conjunctivitis, Rubeola, Vaccination.*

Introduction

Measles, also called Rubeola, is a highly contagious viral infection spread by droplets. The measles virus is a helical symmetry RNA virus from the Paramyxoviridae family. ¹ Measles has an infectivity rate of greater than 90%, which peaks 2-4 days before and 2-5 days after the rash erupts. ² The clinical picture of measles is characterised by high-grade fever, Koplik's spots in the oral cavity, conjunctivitis, runny nose and maculopapular rashes. ³ The conjunctivitis in measles typically has a papillary-follicular

pattern of conjunctival reaction with hyperaemia, which may or may not lead to damage to the cornea. ⁴ Complications that can arise from corneal complications include keratitis, corneal perforation and chorioretinitis, all of which can result in blindness. ⁵

Childhood blindness remains a public health issue as it has been shown to have a significant impact on the early and long-term psychological and intellectual development of these children. ⁶ In addition, childhood blindness has been

associated with higher mortality compared to sighted children.⁷

The World Health Organisation (WHO) estimates that about 7 million people acquire measles annually, resulting in over 100,000 deaths globally.⁸ In 2000, the WHO introduced the Measles Initiative, a global partnership aimed at accelerating measles control and elimination, which led to a 73% decline in global measles deaths between 2000 and 2018.⁹ In Nigeria, the Centre for Disease Control recorded 18,187 cases of measles between January and October 2024, which is in line with the global trend of resurgence in the number of measles cases globally.¹⁰

The burden of measles has markedly reduced through vaccination. However, complete protection against the disease is achieved with two doses of the vaccine.¹¹ Measles vaccine administrative coverage as of March 2023 increased to about 128%, as globally, there has been a resurgence of measles cases since 2018.¹² This may imply a likely resultant increase in the number of measles-related eye complications requiring a high index of suspicion. Without early diagnosis and treatment, prognosis tends to be poor, resulting in blindness.¹³ Furthermore, since 2024, all World Health Organisation regions have reported rising numbers of measles cases, with 395,521 laboratory-confirmed measles cases reported in 2024 and 16,147 reported during the first 2 months of 2025.¹⁴

This is a report of keratitis complicating measles in a child to raise awareness that measles keratitis remains a public health concern deserving of interventions.

Case Presentation

A one-year-old male presented with a white patch and redness in the right eye. His illness began one month prior with fever, cough, catarrh, and bilateral eye redness. Five days after the onset, he developed a generalised skin rash. During this

period, he was treated at home with ampicillin capsules and traditional remedies, including locally prepared mixtures of Coke® and sugarcane juice, which were also instilled directly into his eyes. The child had received only the first dose of the measles vaccine. He lived with his parents—both farmers—in a poorly ventilated one-room apartment. He was still breastfeeding and also on a family diet at the time of presentation.

After the resolution of the skin rash, the mother noticed a persistent white corneal opacity and redness in the right eye. She instilled gentamicin eye drops without improvement, prompting presentation to the hospital.

On examination, he had marked conjunctival injection and multiple superficial punctate corneal lesions that stained with fluorescein (Figure 1). Appropriate medical therapy, including topical antibiotics and lubricants, was initiated. The corneal ulcer healed over a period of three weeks, but left behind a dense central corneal opacity, significantly impairing vision. The corneal scarring persisted during follow-up visits to the clinic, with no immediate access to keratoplasty or advanced surgical intervention due to financial and geographic constraints.

Written informed consent was obtained from the mother to use the child's data in this research.

Discussion

Measles keratitis is the most worrisome ocular complication of measles and can vary from simple punctate keratitis to more complex corneal perforation. It may also be self-limiting or resolve with appropriate medications. In the index patient, factors contributing to a poor visual outcome included delayed presentation and the use of harmful eye medications. The patient was also partially immunised, as he had not yet received the full dose of the measles vaccine.⁵

Measles keratitis has been observed to be worse in malnourished patients,¹¹; however, the index patient was not malnourished, perhaps he was still breastfed at the time of presentation. On the other hand, there was no documented evidence of Vitamin A supplementation as part of the treatment for measles. Remaya *et al.*, in their study of 30 patients with measles, reported a high incidence (66.7%) of corneal involvement with eventual good visual outcome. They reported that 50% of their patients received vitamin A

supplementation as part of the treatment for measles, even though they did not attribute the good visual outcome to the vitamin A supplementation.³ It is established that vitamin A deficiency affects the severity of measles, delays recovery and can lead to measles-related complications such as blindness. Furthermore, the American Academy of Paediatrics and the World Health Organisation recommended vitamin A supplementation for hospitalised children with measles.¹⁵

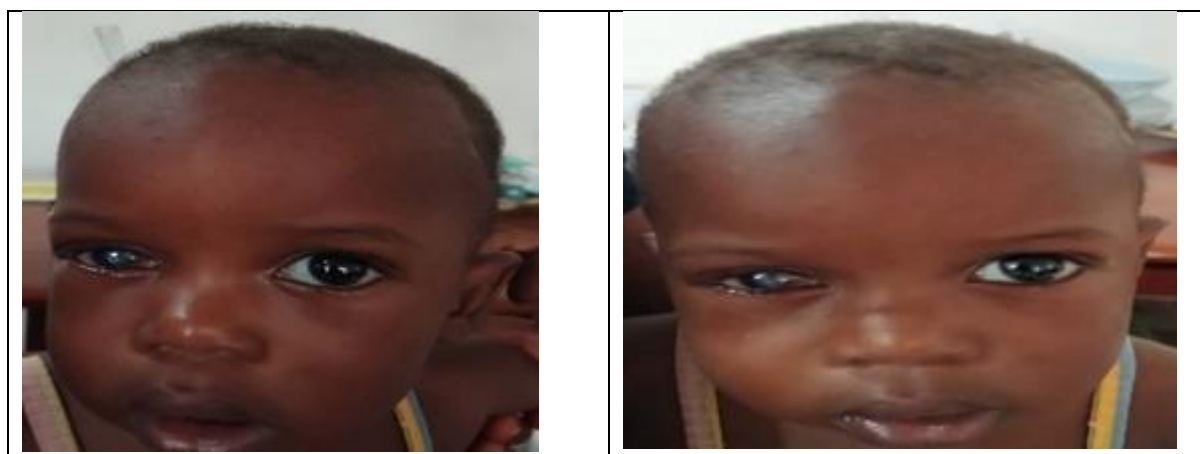


Figure 1: Right eye of the child showing dense central corneal opacity and features of measles keratopathy

The use of traditional eye medication is common in rural, underserved areas of society, largely due to traditional beliefs.¹⁶ Considering that the index patient was a rural dweller, her decision to administer local remedies may have been influenced by the usual traditional practices in her locality. Factors that predispose to poor morbidity and mortality in measles include poor immunisation coverage, cultural practices that influence health-seeking attitudes and early age of occurrence of disease.^{17, 18} Uchendu *et al.*, in their study of knowledge of measles among caregivers of children with measles, reported that despite having good knowledge of measles (52.8%), most mistook the complications of measles for the main signs and symptoms of measles. A worrisome finding, as this may result in prolonged home treatment and late

presentation at health facilities, resulting in poor morbidity and mortality outcomes.¹⁹ The use of traditional eye medications is still a common practice in Nigeria, particularly in the rural areas. A review of the literature on the use of traditional eye medication in Nigeria reported a prevalence of 15.5%, while noting that those who used it presented with varying degrees of visual impairment: 14.5% and 13.1% for moderate and severe visual impairment, respectively, and 51.3% were blind at presentation.¹⁶

The diagnosis of measles is mainly clinical, especially in resource-poor settings where the diagnostic investigations may be out of reach.

Conclusion

Measles continues to be an important cause of ocular morbidity, including irreversible

blindness, especially in underserved rural areas. This case highlights the clinical course and complications of measles keratitis. It also underscores the urgent need for improved vaccination coverage, community health education, and accessible eye care services in rural communities. Strengthening immunisation programs, discouraging harmful traditional practices, and expanding access to specialised ophthalmic care are essential steps toward reducing measles-related blindness.

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Conflicts of Interest: None declared.

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