

Keratomalacia in a Neonate Born to a Mother with Night Blindness: A Case Report

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ABSTRACT

Introduction: Xerophthalmia, caused by vitamin A deficiency, is a significant public health problem that can lead to severe ocular surface damage, including keratomalacia and permanent blindness if not promptly treated.

Case: A 26-day-old male neonate presented with bilateral corneal clouding ten days after birth. Ocular examination revealed corneal xerosis in both eyes and a corneal perforation in the right eye, which was sealed with iris tissue. The mother reported a history of night blindness during the third trimester of pregnancy, suggestive of maternal vitamin A deficiency.

Observation: Both the mother and the neonate were treated with vitamin A supplementation. The neonate additionally received supportive ocular management with artificial tears and topical antibiotics. Following treatment, there was marked improvement in the neonatal ocular surface, and the mother's night blindness resolved.

Conclusion: Adequate maternal nutrition, proper antenatal care, and prompt diagnosis of Vitamin A deficiency are important for the prevention of xerophthalmia in both mother and neonate.

Key words: Keratomalacia; vitamin A deficiency; xerophthalmia.

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INTRODUCTION

Xerophthalmia, caused by vitamin A deficiency, ranges from night blindness and Bitot spots to keratomalacia, which can lead to corneal ulceration, necrosis, and blindness. (Gupta et al., 2005). Globally, 250,000–500,000 malnourished children lose vision annually due to this deficiency, predominantly in Southeast Asia and Africa (World Health Organisation, 2025). Neonatal xerophthalmia is rare. We report a case of neonatal keratomalacia born to a mother with night blindness.

CASE REPORT

A 26-day-old male infant presented with bilateral corneal clouding noted ten days after birth. He was exclusively breastfed and initially treated locally, but worsening opacity prompted referral. He was born full-term via home delivery. The mother, from a rural village in Bara, Nepal, had poor antenatal care, and a history of malnutrition, diarrhoea, and night blindness during the third trimester. Written informed consent was obtained from the patient's guardian for publication of clinical details and images.

Ocular examination revealed bilateral corneal haze. The right eye had a paracentral corneal perforation (1–3 o'clock) sealed by iris tissue with no leak on Seidel's test (Figure 1A). The

left eye showed corneal haze with an epithelial defect (Figure 1B). Conjunctivae were dry and lusterless, and fundus view was obscured (Figure 1C). The infant was diagnosed as Xerophthalmia X3A (right eye) and X2 (left eye). Serum vitamin A levels were not tested due to financial limitations, and the diagnosis was made clinically based on typical ocular findings and history.

Treatment included hourly 1% carboxymethyl cellulose drops, prophylactic ofloxacin 0.3% four times daily, and oral vitamin A (50,000 IU) on days 1, 2, and 14. The mother received 200,000 IU concurrently. Follow-up showed rapid corneal clearing, resolved epithelial defects, and a stable sealed perforation in the right eye, thereby avoiding surgery (Figure 2A and 2B).

Anterior fontanelle assessment showed slight bulging; paediatric evaluation and head ultrasound were normal. The supplementation course was completed safely. The mother's multifocal Electroretinogram (ERG) after supplementation was normal.

This case highlights the rare occurrence of neonatal keratomalacia due to maternal vitamin A deficiency and emphasises early recognition, prompt vitamin A supplementation, and careful follow-up to prevent irreversible visual loss.

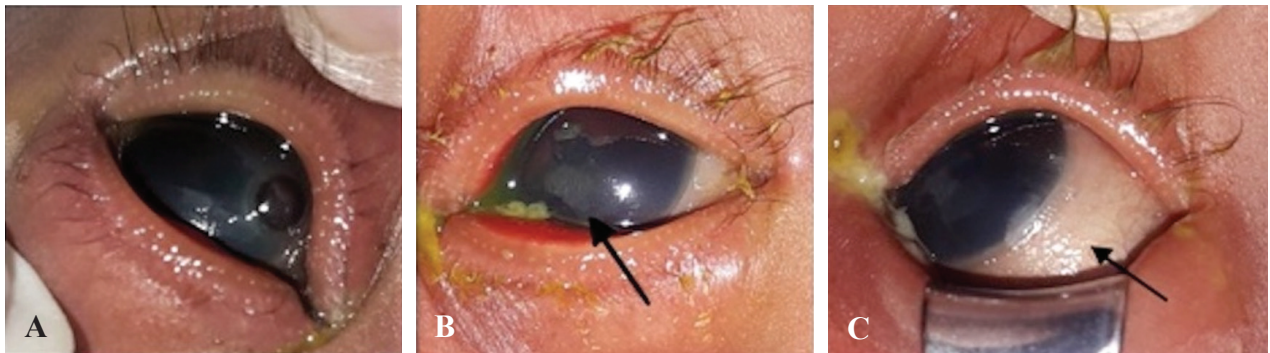


Figure 1A: Sealed paracentral perforation; B: Corneal haze with epithelial defect; C: Dry and lusterless conjunctiva.

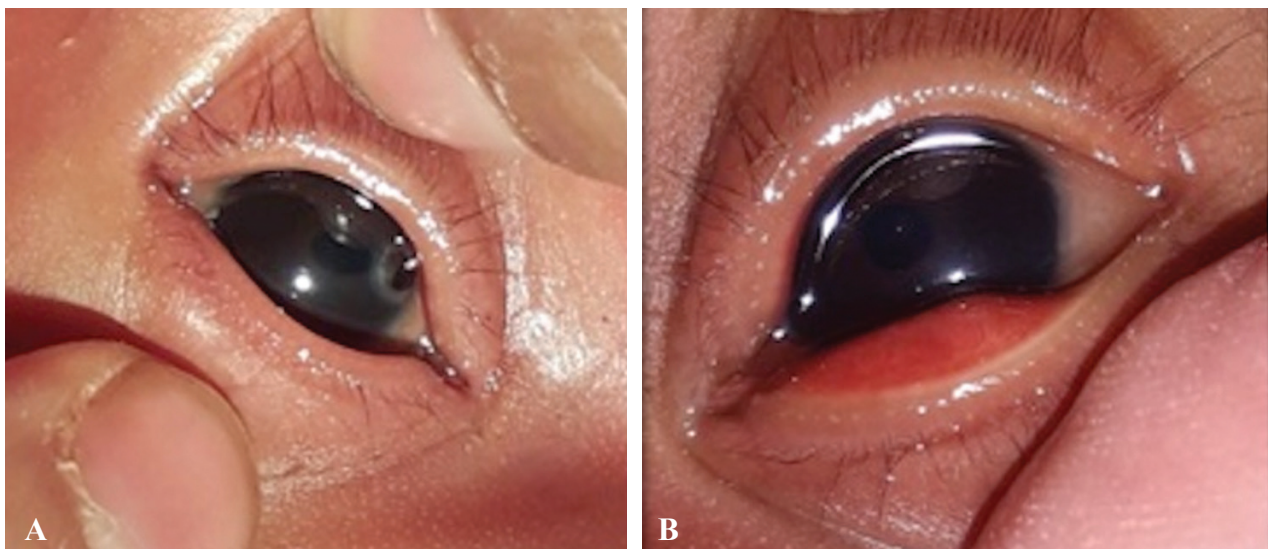


Figure 2A: Sealed perforation; B: Clearing of cornea and healing of the epithelial defect.

DISCUSSION

Vitamin A supplementation in Nepal has significantly reduced childhood mortality and the incidence of blindness, sustaining coverage above 80% for 25 years and reportedly saving over 45,000 children since achieving national coverage in 2022 (Thorne-Lyman et al., 2022). Despite this success, sporadic cases of xerophthalmia persist, indicating gaps in program reach or inadequate dietary intake.

Pregnant women are particularly vulnerable to vitamin A deficiency, especially in the third trimester, due to foetal growth demands and physiological blood volume increases. Supplementation is recommended in regions where deficiency poses a public health concern to prevent maternal night blindness (World Health Organisation, 2025b).

In our case, the mother experienced night blindness during late pregnancy, likely due to

poor nutrition, leading to severe neonatal vitamin A deficiency. The delay in presentation was due to initial treatment with topical medications at another eye care centre in a different province, which may have led to a delay in referral to a tertiary care facility. Newborns have minimal hepatic vitamin A stores and depend on breast milk for intake; maternal deficiency, early weaning, or formula feeding can precipitate neonatal deficiency (Underwood, 1994). Treatment of neonatal xerophthalmia involves oral vitamin A supplementation (50,000 IU on days 1, 2, and 14), careful monitoring for potential anterior fontanelle bulging, and supportive care with lubricants and prophylactic antibiotics as needed (Reddy, 2003). Early onset of deficiency carries a guarded visual prognosis due to corneal complications and risk of amblyopia. Similar cases have been reported in India and Nepal, highlighting the continued vulnerability in rural populations (Gupta et al., 2005; Panjiyar et al., 2016; Sapkota and Rana, 2022).

Limited dietary intake, seasonal availability of vitamin A-rich foods, economic constraints, and traditional food practices contribute to persistent deficiency. Hence, ongoing supplementation remains essential until dietary improvements are widespread.

CONCLUSION

Prompt recognition and vitamin A supplementation are crucial to prevent severe ocular complications such as keratomalacia and corneal perforation, preserving vision in both neonates and children.

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