



## A CASE REPORT- XEROPHTHALMIA WITH NASO-TEMPORAL BITOT'S SPOTS

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### ABSTRACT

Xerophthalmia refers to the spectrum of ocular manifestations due to deficiency of vitamin A such as structural changes of conjunctiva and cornea and biophysical disorder of rods and cones.

A 12 years old male came with a complaint of gradual painless diminution of vision associated with continuous dull aching pain and redness in right eye for the last past 1 month. He also had defective night vision for the last 6 months. The conjunctiva of right eye has both ciliary and conjunctival congestion and cornea has 3x4mm paracentral, dry looking greyish white lesion at 5 to 6 o'clock position. There are bitot's spots on left eye nasally and temporally. He was treated with vitamin A supplementation, aggressive artificial tears and ointment in both eye, topical gatifloxacin (0.3%) and atropine sulphate 1% right eye.

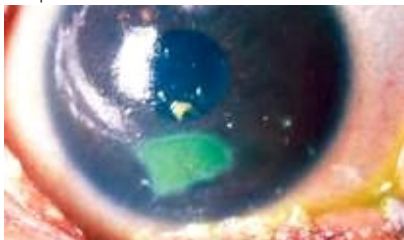
### KEYWORDS

xerophthalmia, bitot's spot, vitamin A

### INTRODUCTION

The term "xerophthalmia" refers to the spectrum of ocular manifestations due to vitamin A deficiency. Such signs include those involving impaired sensitivity of the retina to light (night blindness), and (in order of their appearance and severity) epithelial disruptions of the cornea and conjunctiva, such as conjunctival xerosis, Bitot spots, corneal xerosis and keratomalacia (1, 2)

Night blindness, a condition in which a person cannot see in dim light, is generally the earliest clinical manifestation of vitamin A deficiency(3, 4). Historically, the most characteristic sign of ocular problems related to vitamin A deficiency has been Bitot spots – opaque whitish deposits on the scleral conjunctiva (5). At this point, conjunctival xerosis is already present, with the conjunctiva appearing dry and dull. Spots of keratinized epithelial cells with the appearance of foam are also present (2, 5). If vitamin A deficiency continues, corneal xerosis may set in, with the appearance of a hazy cornea, followed by keratomalacia where there is liquefaction of part or



**Fig 1: corneal ulcer of right eye with fluorescein stain**

all of the cornea (2).

Vitamin A deficiency remains a major cause of paediatric ocular morbidity. Currently, it is estimated that there are about 1.5 million blind children in the world, of whom one million live in Asia. Every year there are half a million new cases, 70% of which are due to VAD which leads to Xerophthalmia.(6) Xerophthalmia can occur in any age group and especially in preschool-age children i.e. from 6 months to 6 years of age, adolescents and pregnant women. However, children are at higher risk owing to their greater vitamin

requirements for growth. Children are also at higher risk of intestinal infestations and infections, which may impair the absorption of vitamin A and increase its loss. Pregnant and lactating women are also at risk for night blindness. Neonates of vitamin A-deficient mothers are born with decreased vitamin A reserves (7,8).

**Case History:** A 12 years old male came with a complaint of gradual painless diminution of vision associated with continuous dull aching pain and redness in right eye for the last past 1 month. He also had defective night vision for the last 6 months.

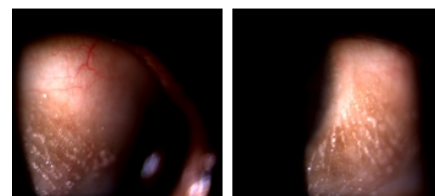
On general examination the patient was average Indian build, poorly nourished and skin was scaly dry. Systemic examinations were within normal limit. Ocular examination of right eye revealed visual acuity of 2/60, conjunctiva has both ciliary and conjunctival congestion and cornea has 3x4mm paracentral, dry looking greyish white lesion at 5 to 6 o'clock position and stained with fluorescein stain.(Fig 1) The left eye visual acuity was 6/9 and bitot's spots are seen nasally and temporally on bulbar conjunctiva.(Fig2).

All routine investigations were within normal limits.

He was diagnosed with corneal xerosis with ulceration( grade X3A) in right eye and conjunctival xerosis with Bitot's spot( grade X1B) in left eye.

Nasal aspect

Temporal aspect



**Fig 2: Bitot's spot on left eye**

He was treated with vitamin A supplementation 2 lac IU on day 0, 1 & 14 along with aggressive corneal lubrication with artificial tears

and ointment in both eyes. Topical gatifloxacin (0.3%) and atropine sulphate 1% in right eye.

Patient was followed till 6 months and showed great improvement.

#### Discussion:

Vitamin A deficiency is a systemic disease that affects cells and organs throughout the body, the resultant changes in epithelial architecture are termed "keratinizing mataplasia" Keratinizing metaplasia of the respiratory and urinary tracts and related changes in intestinal epithelia probably occur relatively early in the disease, even before the appearance of clinically detectable changes in the eyes. However, since these non-ocular changes are largely hidden from view, they do not provide a ready basis for specific clinical diagnosis among vitamin-A-deficient populations, therefore children with measles, respiratory disease, diarrhea, or significant protein energy malnutrition should be suspected of being deficient and treated accordingly.

Uncomplicated, gradual depletion of vitamin A stores results in xerophthalmia of increasing severity, manifest as night blindness, conjunctival xerosis and Bitot's spot, corneal xerosis, and corneal ulceration/keratomalacia (1) All these conditions usually respond rapidly to vitamin A therapy, and the milder manifestations generally clears up without significant sequelae. The loss of deep corneal tissue from ulceration/keratomalacia, however, results in scarring and residual opacification. Sudden decompensation of marginal vitamin A status, as occurs in measles, can result in corneal ulceration that precedes the appearance of milder signs of xerophthalmia (9,10)

#### CONCLUSIONS

Xerophthalmia describes eye dryness and can potentially lead to ulcerations of the cornea and blindness if not properly treated. Prevention, early detection and prompt treatment is the only way to prevent Xerophthalmia and its complications.

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