

CASE REPORT

Reversible bilateral visual loss in a young adult

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Bariatric surgery, dry eye, visual impairment, Vitamin A deficiency, xerosis

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**Abstract**

A 34 years old female presented with extreme ocular dryness sensation and bilateral blurred vision (hand motion). Past medical history included duodenal bypass 6 years prior to presentation and bipolar disorder. Drastic malnutrition and avitaminosis were diagnosed, leading to xerosis. Following treatment with Total Parenteral Nutrition, intravenous vitamin supplementations, and topical ocular treatment with lubricants her visual acuity improved to 6/7.5 in both eyes within two weeks. One month following surgical revision of the duodenal bypass, she regained visual acuity of 6/6 in both eyes.

Introduction

Obesity is one of the leading public health problems in western society. Bariatric surgery is commonly performed in young adolescents, despite multiple possible post-operative complications. Here we discuss severe visual impairment as a result of avitaminosis following bariatric surgery.

Case Report

A 34-year-old female presented to the ER, due to irritation, extreme ocular dryness sensation, and bilateral blurred vision. The symptoms had started 4 months before arriving to our medical outpatient examination and were unsuccessfully treated with tear substitutes for a while. On her examination, her visual acuity for both eyes was counting finger from 2 m, there were bilateral lower fornix shortening and significant conjunctival and corneal xerosis. The fundus could not be observed due to the severe xerosis of her corneas [Figure 1]. Ophthalmic ultrasound did not demonstrate any ophthalmic abnormalities.

Her medical history included duodenal bypass 6 years before presentation and bipolar disorder. Differential diagnosis of post-bariatric surgery – xerosis led to blood tests

examination and reassessment of her bypass by abdominal surgeon and gastroenterologist. The examination revealed drastic malnutrition and avitaminosis. Vitamin A levels were 73.4 MCG/DL (normal range 60–200 MCG/DL).

She was hospitalized and was treated with total parenteral nutrition, received IV vitamins cocktails, and local eye treatment with Vita-Pos lubrication ointment (138 ug/g retinol palmitate (equivalent to Vitamin A 250 IU/g) at night and Hylo Gel artificial tears (0.25 hyaluronan preservative-free drops) every hour during the day.

After a week of intensive treatment, she described improvement in her visual acuity and less irritation in both eyes. On examination, her VA improved to 6/36 BE, with partial exchange of epithelial membrane by normal corneal epithelium which was noted [Figure 2]. Two weeks later, her nutrition deficit was normalized and her VA improved to 6/7.5 BE. The superficial opacification of the cornea improved, and corneas became clear [Figure 3]. Fundus examination was normal BE, with no signs of retinal degeneration. OCT revealed normal foveal contour, with no intraretinal or subretinal fluid.

Surgically, she underwent repair of duodenal bypass without complications and continued multivitamins treatment orally.

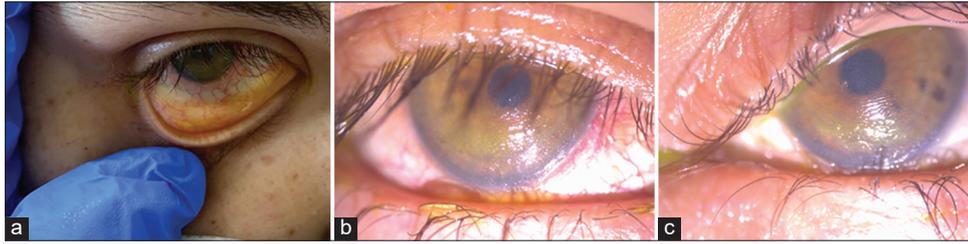


Figure 1: Eye examination on arrival. Lower fornix shortening (a), and significant conjunctival and corneal xerosis (b and c)

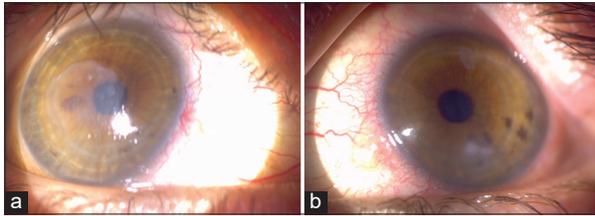


Figure 2: Eye examination after a week of intensive treatment. Partial peeling of epithelial membrane from the cornea (a and b)

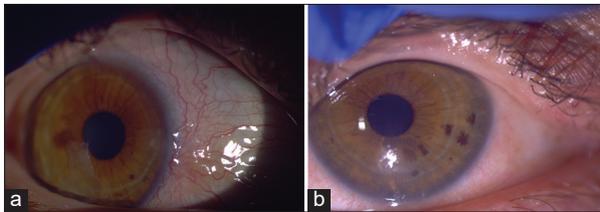


Figure 3: Eye examination 2 weeks after starting treatment. Most of the superficial opacification of the cornea disappeared, and corneas became transparent (a and b)

One month after surgery, she was asymptomatic at the eye outpatient clinic, with normal examination, VA of 6/6 each eye, no corneal opacities or lower fornices synechiae.

Discussion

Corneal xerosis (X2, WHO classification) is a sign of acute severe deficiency of Vitamin A that can cause blindness. This is in contrast to long standing Vitamin A deficiency that is not blinding and involves mainly the conjunctiva (X1) or retina

(night blindness, XN). While xerophthalmia was reported in the 80s in developing countries,^[1-3] it is gradually becoming a clinical concern secondary to the rising incidence of bariatric surgeries.^[4] While not all patients with Vitamin A are symptomatic, those with visual loss need early diagnosis and treatment to prevent blindness.^[5] Surprisingly, her Vitamin A levels were not reduced significantly, and clinical alert of eye doctors changed the management of her completely, including nutritional, surgical, and emotional.

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