Night blindness and xerophthalmia after surgery for morbid obesity

Ceguera nocturna y xeroftalmía tras cirugía de obesidad mórbida

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Abstract

Case report: We describe ocular findings due to a vitamin A deficiency in a 50-year-old man. The patient had undergone intestinal bypass surgery two years before. After therapy with oral vitamin A the symptoms improved.

Discussion: The incidence of morbid obesity is increasing throughout much of the developed world, with intestinal bypass surgery the treatment of choice for most people with the condition. This type of surgery can lead to a vitamin A deficiency, with remarkable ophthalmological consequences, which without correct treatment may ultimately cause blindness. For this reason, the pathology, even though rare at present, must considered seriously (Arch Soc Esp Oftalmol 2007; 82: 133-136).

Key words: Vitamin A deficiency, xerophthalmia, night blindness, morbid obesity, bariatric surgery.
INTRODUCTION

Vitamin A is a liposoluble vitamin that, at the ocular level, assists in maintaining mucous membranes and plays a major role in retinal adaptation to light. There are a number of reasons for vitamin deficiency, including malabsorption due to an intestinal bypass as in the instant case.

CASE REPORT

Male, aged 50 who, in January 2004, underwent a Scopinaro biliumpancreatic derivation due to morbid obesity. The patient exhibited liver steatosis and malabsorption syndrome. He was currently in treatment with vitamin B12 due to chronic anemia and vitamin K due to diminished protrombine activity.

In January 2006, the patient underwent a pieloinfundibulus nephrolitotomy with post-op urinary fistula. The following April, the patient was referred to the Ophthalmology Service due to night blindness with 3-month evolution. In addition, the patient referred foreign body feeling and red eye. Upon exploration, visual acuity was of 1 in both eyes. The slit lamp assessment showed a highly reduced BUT (fig. 1), conjunctival xerosis and Bitot spots (fig. 2) in both eyes. A thin conjunctival corneal epithelial line of dots in fluorescein dyeing. Schirmer’s test under anesthesia showed values above 15 mm. The ophthalmoscopy revealed whitish dots in the middle surface without macular involvement (fig. 3). The plasmatic retinol level was of 0.07 mg/l (normal level 0.30-0.8 mg/l).

Considering the potential severity of the condition, oral vitamin A and pancreatic enzymes treatment was initiated to enhance absorption while awaiting to receive intramuscular treatment. This barely produced an improvement.

Concurrently, due to the complicated nephrolithiasis (inter-renal abscess), the patient was submitted to nephrectomy with intense bleeding which required five concentrates of red blood corpuscles. After this process, the patient referred a slight improvement in his symptoms, even though oral

Fig. 1: Reduced BUT.

Fig. 2: Conjunctival xerosis and Bitot spots.

Fig. 3: Whitish spots in the middle surface without macular involvement.
treatment had been suspended due to post-surgery fasting.

Finally, 300,000 UI of vitamin A were administered intramuscularly, which produced an immediate improvement of subjective symptoms, even though the ophthalmoscopic expressions took three months to disappear.

**DISCUSSION**

A low intake of vitamin A for long periods of time is the most common cause of vitamin A deficiency. However, said deficiency can be influenced by other factors such as malabsorption of fats due to pancreatic disease or intestinal bypass surgery, or by defects in the transport or storage of fats such as with liver pathologies.

In the case of the instant patient, the liver was fatty and this limited its storage capacity, together with a malabsorption syndrome with steatorrhea caused by the intestinal bypass, which explained the very low levels of seric retinole.

The first expression of vitamin A deficiency is usually night blindness, which appears about 2 years later. However, with the use of the adaptive electroretinogram for darkness it can be detected much earlier (about six months after the beginning of said deprivation) (1).

The instant case is more severe, with important xerophthalmia and eye fundus involvement. In cases described in the past (2,3), patients with similar retinol levels only exhibited night blindness. This made us assume that additional factors intervened to make this case so severe. Perhaps the nephrolitotomy and the subsequent infectious condition gave rise to metabolic stress which reduced protein synthesis and increased catabolism of proteins including the protein linked to retinol (in charge of carrying vitamin A to the target tissues) and this worsened the vitamin deficiency condition (4).

At present we are witnessing a progressive increase of obesity in developed countries. Due to the failure of diet regimes, surgery is increasingly the way to get rid of overweight. There are two types of surgery: restrictive (focused on the stomach) and malabsorption-based (intestinal bypass). The latter is more effective but it also involves greater risk of losing proteins, minerals and liposoluble vitamins, including vitamin A.

For the above reasons, a pathology like xerophthalmia, which is highly infrequent in developed countries, may rise exponentially. And, as its complications can be severe and irreversible, we must be alert. Operated patients should be controlled jointly by surgeons and ophthalmologists in the first months after surgery in order to identify any vitamin deficiency and assess the possibility of administering supplements prior to the appearance of symptoms. In addition, before the surgery the patient should be given detailed information about possible risks for the eyesight as well as of the very likely need of post-op treatment in order to prevent said risks. (5).

**REFERENCES**