

SHORT COMMUNICATION

# Release hallucinations and visual loss as first manifestations of postoperative unilateral blindness

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**PURPOSE.** Release hallucinations (RH) with insight into the unreality of the hallucination have been reported in association with severe vision loss. Postoperative blindness following nonocular surgery may appear associated with central retinal artery occlusion (CRAO) caused by incorrect head positioning during surgery, intraoperative hypotension, and atherosclerosis. RH may initially mask the loss of vision.

**METHODS.** Case report.

**RESULTS.** A 27-year-old woman who had undergone lumbar spinal surgery for right L4-L5 discal herniation developed left eye visual loss and complex visual hallucinations immediately after surgery. Her symptoms were initially considered hallucinations related to the anesthesia and not taken into consideration until 4 days later. Ophthalmic examination disclosed CRAO probably caused by ocular compression during surgery. Optic nerve atrophy appeared during the following 6 years.

**CONCLUSIONS.** Doctors and auxiliary personnel should be aware that visual hallucinations may be a sign of actual vision damage. (*Eur J Ophthalmol* 2007; 17: 844-6)

**KEY WORDS.** Central retinal artery occlusion, Postoperative blindness, Release hallucinations

Accepted:

## INTRODUCTION

The appearance of release hallucinations (RH) in visually impaired patients with insight into the unreality of the hallucination has been described as the Charles Bonnet syndrome. RH have been reported after severe uni- or bilateral visual impairment as central retinal artery occlusion (CRAO) (1), or conditions affecting central vision such as age-related macular degeneration (2), and have been found to be more frequent among elderly patients (3).

Postoperative unilateral blindness associated with nonocular surgery is a potentially devastating entity which may be associated with CRAO, optic ischemic neuropathy, or occipital lobe infarcts. This condition frequently appears immediately after spinal surgery in elderly patients (4, 5).

The pathogenesis of this condition seems to be related to incorrect head positioning during surgery in prone or lateral position causing eye compression and may follow intraoperative hypotension and atherosclerosis (5, 6). Unilateral blindness upon awaking from anesthesia is the most frequently reported complaint from these patients. However, the association of the RH may initially mask the loss of vision.

## MATERIALS AND METHODS

We report a case with unilateral vision loss immediately after spinal surgery in which RH was the initial complaint, and referral was deferred on the suspicion that hallucina-

tions had been induced by the anesthesia. Data gathering was approved by the local ethics committee and performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. The patient gave informed consent prior to inclusion in the study.

## Case report

A 27-year-old woman reported painless visual loss in her left eye (LE) immediately after lumbar discectomy (L4-L5) under general anesthesia in a prone position. Systemic controlled hypotension was carried out during surgery. Her clinical history was positive for reactive depression under treatment with fluoxetine and bromazepam and right L4-L5 discal herniation.

Immediately after awaking from anesthesia the patient reported complete visual loss in her LE. She also reported being able "to see her recently deceased mother" with her LE, while vision with her right eye (RE) was normal. The auxiliary personnel believed she was having hallucinations and her complaint was not taken into consideration until 4 days later, when she was referred to the Ophthalmology Unit. Corrected visual acuity (CVA) was 20/20 in her RE and counting fingers at 1 meter in her LE, with left afferent pupillary defect. Fundus examination showed retinal edema with macular cherry red spot and retinal artery thinning without arterial segmentation in her LE. A cilio-retinal artery was observed which caused some macular sparing. No systemic or local conditions which might be related to low ocular perfusion, such as anemia, low blood pressure, or high intraocular pressure, were noticed and no therapy was started.

CVA improved to 20/20 in her LE by the second month; however, pupillary afferent defect and retinal arterial thinning persisted and optic nerve atrophy appeared. A computerized visual field was performed showing peripheral loss with preservation of central sensitivity.

In the last examination performed 6 years after the initial surgery, CVA was RE 20/20 and LE 20/200. Visual hallucinations were not reported again.

## DISCUSSION

RH has recently been described upon recovery from CRAO (1). However, to our knowledge, this is the first report of RH as the primary manifestation of postoperative

blindness. RH is frequently not recognized in clinical practice due to lack of awareness among doctors and auxiliary personnel.

Early referral to an ophthalmologist is recommended when postoperative blindness caused by eye compression is suspected (5). In this case referral and diagnosis were delayed on the suspicion of anesthesia-induced hallucinations.

Most of the cases reported in the literature usually have no attempt of treatment since the causes of vision loss (eye compression, prone positioning, arterial hypotension, and low hematocrit) are usually resolved by the time the patient notices decreased vision. Recently, the American Society of Anesthesiologists Task Force on Perioperative Blindness (7) has reported on the possible risk factors involved in postoperative visual loss, and the prevention of postoperative blindness recommending therapies such as raising blood pressure for hypotensive patients and correcting anemia and volume depletion if present. No attempt of treatment was performed in the case reported since it was diagnosed 4 days after the compressive episode.

CVA became almost normal spontaneously for the presence of a cilio-retinal artery. CVA improvement has been previously described in patients with CRAO more than 1 month after the event (8).

Medical caregivers should be mindful that RH may mask visual loss; if such hallucinations are present, the diagnosis of postoperative visual loss should be entertained and the patient should be assessed via ophthalmologic examination without delay.

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## REFERENCES

1. Tan CS, Sabel BA, Goh KY. Visual hallucinations during visual recovery after central retinal artery occlusion. *Arch Neurol* 2006; 63: 598-600.
2. Au Eong KG, Fujii GY, Ng EW, et al. Transient formed visual hallucinations following macular translocation for subfoveal choroidal neovascularization secondary to age-related macular degeneration. *Am J Ophthalmol* 2001; 131: 664-6.
3. Teunisse RJ, Cruysberg JR, Verbeek A, Zitman FG. The Charles Bonnet syndrome: a large prospective study in The Netherlands. A study of the prevalence of the Charles Bonnet syndrome and associated factors in 500 patients attending the University Department of Ophthalmology at Nijmegen. *Br J Psychiatry* 1995; 166: 254-7.
4. Stevens WR, Glazer PA, Kelley SD, Lietman TM, Bradford DS. Ophthalmic complications after spinal surgery. *Spine* 1997; 22: 1319-24.
5. Myers MA, Hamilton SR, Bogosian AJ, Smith CH, Wagner TA. Visual loss as a complication of spine surgery. A review of 37 cases. *Spine* 1997; 22: 1325-9.
6. Kamming D, Clarke S. Postoperative visual loss following prone spinal surgery. *Br J Anaesth* 2005; 95: 257-60.
7. American Society of Anesthesiologists Task Force on Perioperative Blindness. Practice Advisory for Perioperative Visual Loss Associated with Spine Surgery: a report by the American Society of Anesthesiologists Task Force on Perioperative Blindness. *Anesthesiology* 2006; 104: 1319-28.
8. Augsburger JJ, Magargal LE. Visual prognosis following treatment of acute central retinal artery obstruction. *Br J Ophthalmol* 1980; 64: 913-7.