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Publicação Oficial da Sociedade Brasileira de Anestesiologia  
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## CLINICAL INFORMATION

# Post operative visual loss after cervical laminectomy in prone position

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Received 16 August 2016; accepted 25 November 2016

### KEYWORDS

Spine surgery;  
Postoperative visual loss;  
Prone position;  
Central retinal artery occlusion

### PALAVRAS-CHAVE

Cirurgia da coluna;  
Perda visual pós-operatória;  
Posição prona;  
Oclusão da artéria central da retina

**Abstract** Postoperative visual loss is a rare and devastating complication. The estimated incidence is 0.01–1% after non ocular surgery. It has been reported after spine, cardiac and head-neck surgeries. We report a patient who was operated for cervical laminectomy in prone position and complained of loss of vision in one eye postoperatively. He was thoroughly investigated after visual loss. The case was diagnosed as central retinal artery occlusion (CRAO) of the left eye. Here we consider the potential etiological factors causing this unilateral loss of vision and try to suggest strategies to reduce the incidence of the complication in spinal surgery.

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### Perda visual no pós-operatório de laminectomia cervical em pronação

**Resumo** A perda visual pós-operatória é uma complicação rara e devastadora. A incidência estimada é de 0,01–1% após cirurgia não oftálmica. Há relatos de sua ocorrência após cirurgias da coluna, cardíacas e de cabeça e pescoço. Relatamos o caso de um paciente submetido à laminectomia cervical em pronação que se queixou de perda de visão em um dos olhos no pós-operatório. O paciente foi profundamente investigado após a perda visual. O caso foi diagnosticado como oclusão da artéria central da retina (CRAO) do olho esquerdo. Aqui consideramos os potenciais fatores etiológicos que causam essa perda unilateral da visão e tentamos sugerir estratégias para reduzir a incidência dessa complicação em cirurgia de coluna vertebral.

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<http://dx.doi.org/10.1016/j.bjane.2016.11.003>

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Please cite this article in press as: Chandra KN, Kundan M. Post operative visual loss after cervical laminectomy in prone position. Rev Bras Anesthesiol. 2016. <http://dx.doi.org/10.1016/j.bjane.2016.11.003>

## Introduction

Postoperative visual loss is an unexpected and rare complication and estimated incidence is 0.01–1% after non ocular surgery.<sup>1–4</sup> Review of literature reveals such cases as isolated case reports. Patil et al.<sup>5</sup> found an overall rate of 0.094% in spine surgery discharges in US Nationwide Inpatient Samples (NIS). Most common causes of postoperative vision loss are ischaemic optic neuropathy, central retinal artery thrombosis and cortical blindness. Among these ischaemic optic neuropathy is frequently observed cause of postoperative visual loss following general anaesthesia.<sup>1</sup> The second most prevalent cause of postoperative visual loss in patients operated in the prone position for spinal surgery is central retinal artery occlusion (CRAO). There are some recognized preoperative risk factors which include diabetes mellitus, hypertension, smoking, renal failure, narrow angle glaucoma, polycythemia, atherosclerotic vascular disease and collagen vascular disorders.<sup>6</sup>

## Case report

A 56 year old man (170 cm, 88 kg, BMI 30.45 kg/m<sup>2</sup>) came to our hospital in the Neurosurgery department with the presenting complain of pain in left shoulder radiating to left arm for 2 years. He had tingling sensation in left arm and pain in the right arm for last 2 years. Patient had history of diabetes mellitus since 4 years. His blood sugar was deranged because he had not taken oral hypoglycemic agent for last fifteen days. He was put on a diabetic diet and antidiabetic drug was started. There was history of smoking since ten years. The patient had no other significant disease.

On examination there was mild upper limb weakness more on left than right. Sensory component was intact. There was no restriction of movement in upper limb. A Magnetic Resonance Imaging (MRI) scan of cervical spine was performed which revealed advanced cervical spondylosis with disco-degenerative nerve root compression at C3–4 to C6–7 level with secondary central canal stenosis. His all preoperative routine investigations were within normal limit except blood sugar which was 216 mg/dL. His blood pressure was 126/78 mm Hg and his heart rate was 82 beats/min.

Considering the neurological involvement the surgeon decided to perform Endoscopic laminectomy at C5–6 and C6–7 level. General anaesthesia was planned for the patient. Two 16 gauge peripheral intravenous cannulae was put in both the hands. Anaesthesia was induced with midazolam 1 mg, propofol 150 mg and a bolus of fentanyl 150 mcg. Tracheal intubation with a size of 8.5 mm reinforced oral endotracheal tube was facilitated with vecuronium 6 mg. Urinary catheter was inserted and patient was positioned prone. The eyes were protected with chloramphenicol ointment before being taped and padded. Patient was subsequently put on the operating table in the prone position. His neck was maintained in the midline position using a horse-shoe head holder with slight flexion, so that his back would remain in neutral position with the head remaining slightly dependent. Anaesthesia was maintained with isoflurane 0.8–1.4%. Total duration of surgery was around 170 min and additional 70 min were required for the induction and cessation of anaesthesia. Systolic blood pressure



**Figure 1** Fundus picture of left eye showing pallor. Retinal pallor with attenuated arteries.

of the patient was maintained between 90 and 120 mm Hg throughout the procedure. There was 400 mL of blood loss during the surgery which was replaced with 1500 of normal saline and maintain the blood pressure on acceptable level.

At the end of operation, the patient was turned into supine position and transported to the critical care unit with endotracheal tube in place for elective ventilation. There was mild facial swelling and bilateral conjunctival congestion. During overnight elective ventilation patient maintained his vital parameters. After reevaluation he was extubated in the morning. On the first postoperative day following extubation, he complained of reduced vision in the left eye. Immediate ophthalmological examination was conducted by an ophthalmologist.

On examination visual acuity was found to be reduced to perception of light in the left eye while in the right eye it was normal (6/6). Left eye had puffiness of lids, mild proptosis and conjunctival congestion. Extraocular movement showed restricted adduction and also in elevation and depression in left lateral gaze. Intraocular pressure of both eyes were normal. Left pupil was moderately dilated with Relative Afferent Pupillary Defect (RAPD). Fundus examination revealed pallor with oedema of central retina and a dull foveal reflex (Fig. 1). Retinal arteries were thin with altered AV ratio. Fundus examination of right eye was normal (Fig. 2). Patient was given a course of methylprednisolone IV 1 g daily for 3 days. Despite this, the vision deteriorated to no perception of light. On fifth day MRI of right eye was normal but left orbit showed diffuse swelling of belly of medial rectus muscle. Case was diagnosed a central retinal artery occlusion (CRAO) of left eye.

## Discussion

Postoperative loss of vision after spine surgery is a rare but disastrous complication. Most probable intraoperative causes of visual loss include patient positioning, blood loss, intraoperative hypotension, long duration of surgery and excessive hydration or combination of these factors. The

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