Ischemic Orbital Compartment Syndrome following Spinal Surgery

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A 40 Year old man, non-diabetic, non-obese, underwent lumbar disc surgery under general anaesthesia in the prone position. In the recovery room, he noticed painless loss of vision in the left eye. 24-hours later examination of the left eye revealed, no light perception with relative afferent pupillary defect and restriction of extraocular eye movements. Fundus examination showed normal disc and vessels right side. On affected side, the disc was pale and there was no central retinal vein or artery occlusion. Ocular tonometry showed intraocular pressure of 18 mm Hg. Magnetic resonance imaging (MRI) showed enlarged hyperintense extraocular muscles (left superior rectus, inferior rectus and medial rectus) (Figure 1). MRI of brain did not show any abnormalities in optic nerves, occipital lobes and rest of the visual pathways and cavernous sinus. Blood investigations including blood biochemistry were normal. Diagnosis of ischemic orbital compartment syndrome was made. High dose IV methylprednisolone (1 gm) was started. Canthotomy and cantholysis was performed but there was no improvement in visual acuity or ocular movements.

Perioperative ischemic optic neuropathy (ION) is a rare, unexpected and devastating complication occurring overall 1 in 60,000 to 1 in 125,000 anaesthetics. ION following spinal surgery forms the highest frequency (0.03 percent).1,2 Ischemic ocular compartment syndrome is an acute ophthalmological emergency requiring prompt decompression to relieve the increased intraocular pressure. The possible mechanism is the progressive orbital edema secondary to prone position and possible unilateral direct pressure from the headrest device on periorbital structures, resulting in congestion at the orbital apex, with a subsequent compartment syndrome and ischemic orbit.3 The prolonged operation was also a significant factor in the irreversible ischemia and poor overall visual and functional prognosis.

High risk patients are defined as those who undergo spine procedures while positioned prone and who have prolonged procedures, experience substantial blood loss, or both.4

References


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Received: 25.12.2013; Revised: 25.03.2014; Accepted: 14.05.2014