Bilateral Orbital Infarction Syndrome After Bifrontal Craniotomy

Orbital infarction syndrome is a rare disorder resulting from occlusion of the ophthalmic artery and its branches. We report a case of bilateral orbital infarction syndrome after frontobasal skull repair.

Report of a Case. A 24-year-old man experienced multiple cranial fractures leading to brain contusion and free intracranial air after a motor vehicle crash. Because of persisting rhinoliquorrhea 3 months later, the endocranium was sealed. Preoperative visual acuity was 20/20 OU. After bicoronal skin incisions, a dermal and a galea-periostal flap were dissected to the supraorbital rim without wrapping them in gauze. Both flaps were retracted inferiorly while resting on the patient’s eyes. During the procedure, the patient’s heartbeat stopped for a few seconds; it was corrected with 0.5 mg of atropine. One hour after extubation, the patient complained about reduced vision. Immediate ophthalmologic examination revealed recognition of hand movements, normal intraocular pressures, conjunctival chemosis, and complete bilateral ophthalmoplegia (Figure 1). Pupils were insensitive to light. Ophthalmoscopy showed occlusion of both central retinal arteries, causing retinal edema and a cherry red spot (Figure 2A). An intravenous application of acetazolamide and heparin sodium was started immediately, followed by isovolemic hemodilution. Magnetic resonance imaging and magnetic resonance angiography showed normal intracranial arteries and edematous ocular muscles. Two days later, fluorescein angiography revealed normal retinal and choroidal perfusion (Figure 2B and C). After 4 months, eye movements had normalized and both eyes showed optic atrophy and pigmentary retinopathy (Figure 2D). Visual acuity remained unchanged.

Comment. Orbital infarction syndrome is characterized by ischemia of the whole orbit due to occlusion of the ophthalmic artery and its branches. It is very rare because of the anastomosis between the ophthalmic and the external carotid arteries, and does not result from occlusion of the ophthalmic artery alone. Since the central retinal artery and the short posterior ciliary arteries are the only terminal branches of the ophthalmic artery, only direct hypoperfusion of all branches leads to orbital ischemia. Orbital infarction may result from dissection or occlusion of the common or internal carotid artery, giant-cell arteritis, mucormycosis, and cocaine use. It may also result from a surgical complication after spinal surgery or clipping of cerebral aneurysms. Until now, to our knowledge, only unilateral orbital infarctions have been described. In all reported cases, orbital ischemia was induced by extensive pressure onto orbital tissue, either resulting from improper positioning of the patient or direct orbital compression.

In our patient, a myocutaneous flap was retracted onto the orbit,
thereby increasing intraorbital pressure, which would also explain intraoperative asystole induced by the oculocardiac reflex. An operation lasting 5 hours was too long for recovering ischemic retinal tissue. Ophthalmoplegia may have been caused by intramuscular edema and hemorrhage and could, therefore, resolve completely. Besides high intraorbital pressure, low arterial blood pressure and shallow orbits may be additional risk factors. To prevent this disastrous complication, increased intraorbital pressure should be avoided by careful positioning of the patient and precautionary preparation of the myocutaneous flap with respect to the patient’s physiognomy. In cases with increased risk, special eye shields may be used to avoid orbital infarction.

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Solitary Fibrous Tumor of the Conjunctiva

Solitary fibrous tumor (SFT) is a relatively rare tumor that was originally described in the pleura. In recent years, SFTs have been described in many extrapleural sites such as the lung, mediastinum, pericardium, peritoneum, upper respiratory tract, liver, thyroid, nasal and paranasal sinuses, parotid and salivary glands, and spine and other soft tissue. Since then, more than 50 orbital SFTs have been described in the medical literature. This includes SFTs of the lacrimal gland and the lacrimal sac. Our case is the first reported case, to our knowledge, of SFT of the conjunctiva.

Report of a Case. A 29-year-old woman, a nurse by profession, complained of a lesion in the lower fornix of the right eye that existed for at least a year and that occasionally disturbed her. On examination, her