CONTRALATERAL AMAUROSIS AND EXTRAOCULAR MUSCLE PALSIES AFTER RETROBULBAR INJECTION

CEGUERA Y PARÁLISIS DE LA MUSCULATURA EXTRAOCULAR CONTRALATERAL TRAS INYECCIÓN RETROBULBAR

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ABSTRACT

Case report: We report a rare complication of retrobulbar anesthesia in ophthalmic surgery- amaurosis and extraocular muscle palsies in the contralateral eye. Our patient did not suffer permanent sequelae from the injection.
Discussion: Numerous complications resulting from retrobulbar injections in the eye and orbit have been reported. One possible explanation of this case is the inadvertent penetration of the subdural or subarachnoid space surrounding the optic nerve and the injection of anesthetic into that space. The drug then tracks along the ipsilateral optic nerve to the chiasm and then to the contralateral optic nerve. Several methods of decreasing the probability of such a complication are discussed *(Arch Soc Esp Oftalmol 2006; 81: 45-48).*

Key words: Retrobulbar block, contralateral II and III nerve palsies, subarachnoid injection.

RESUMEN

Caso Clínico: Presentamos una rara complicación de la inyección retrobulbar en la cirugía oftalmológica, como es la ceguera y la parálisis de los músculos extraoculares en el ojo contralateral.
Nuestro paciente no sufrió secuelas permanentes.
Discusión: Se han descrito numerosas complicaciones de la anestesia retrobulbar en el ojo y la órbita. La inyección del agente anestésico en el espacio subdural o subaracnoideo a través de la vaina del nervio óptico (NO) se postula como posible explicación del cuadro. La droga puede alcanzar el quiasma óptico y desde ahí acceder al NO contralateral. Se discuten varios métodos para disminuir la probabilidad de tal afección.

Palabras clave: Anestesia retrobulbar, parálisis contralateral del II y III par craneal, inyección subaracnoidea.

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INTRODUCTION

At present, retrobulbar anesthesia is not the most frequently used procedure for cataract ophthalmic surgery, because it has been replaced in most cases with topical and intra-chamber anesthesia.

Numerous complications have been described after the retrobulbar injection in the eye and the orbit. A rare complication of retrobulbar anesthesia is the appearance of blindness and paralysis of the contra lateral extra ocular muscles.

An interesting case of dysfunction of cranial nerves 2 and 3 in the contra lateral eye is presented, after retrobulbar anesthesia for cataract surgery.

CASE REPORT

A 75 year old man without personal history, who undergoes cataract surgery in his right eye (RE) in our Service. Before the surgery, his corrected visual acuity (VA) was of 0.3 in both eyes. The rest of the ophthalmologic exploration did not reveal other pathological findings.

Prior to the surgery the patient received in his RE a 4 cc retrobulbar injection, made up by 2 cc of lidocaine (Lidocaína, inj. 2% 10 ml, Braun) and 2 cc of bupivacaine (Svedocain, 0.75% without vasoconstrictor, Nibsa). Phacoemulsification of the right lens was carried out, placing an acrylic lens (Alcon, Acrysoft, single block) of 23 dioptries over the posterior capsule, without complications. In the immediate postop, the patient said he did not see light through his left eye (LE). The pupil of that eye was in medium dilatation and did not react to light. In addition, he presented palpebral phthosis, with adduction, depression and elevation thereof abolished, together with ocular anesthesia (fig. 1).

Therefore, this was a dysfunction of cranial pairs One and Two.

Funduscopy of said eye gave normal results. Cranial nerves Four and Six were intact.

After the surgery, the RE was also akinetic and anesthetized.

The patient's vision gradually improved. Four hours after surgery, the VI of the LE was similar to preop values, and ocular motility had regained normal values (fig. 2).

About three weeks after surgery, the VA of the RE (with cylinder -1,5 to 80º) was of 0.8 and 0.3 for the LE.

Fig. 1: Patient in immediate postop of RE cataract surgery, presenting palpebral phthosis and inability for adduction, supra- and infra-adduction of the LE. Abduction is preserved.

Motility was normal in both eyes and pupils were isochoric and normally reactive.

DISCUSSION

Fortunately, complications in retrobulbar surgery are unusual. Literature describes sequelae such as occlusion of the central retina artery with or without associated retrobulbar hemorrhage, optical atrophy, perforation of the eye globe, grand mal seizures, respiratory distress, bradichardia, nausea, low blood pressure, loss of consciousness and intra-arterial corticoid injection (1).

A review of literature yielded very few articles describing blindness and paralysis of contralateral pairs Two and Three after retrobulbar anesthesia as in this case (2,3).

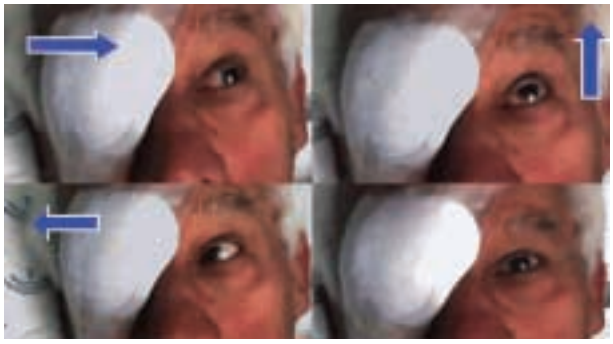

Fig. 2: Four hours postop, complete recovery of Fig. 1 patient LE motility. He is able to supra- infra and adduct.

A possible explanation for this event is the involuntary penetration of anesthesia in the subdural or subarachnoid space around the optic nerve (ON). Wang (4) published a case of contralateral amaurosis and agitation due to the entry of anesthesia in the subarachnoid space. After the anesthetic was injected, in theory it goes from the ipsilateral ON to the subdural or subarachnoid space surrounding the central nervous system (CNS). Here, the anesthetic could affect the contralateral ON and motor nerves of the eye passing through said space.

The injection in the subdural space has been demonstrated during orbitographies and experimentally in cadavers. The contrast flows from the subdural space of the ON to the chiasm, and in addition it could go to the middle brain and encephalic bridge.

Other theories which endeavor to explain the entry of anesthetic to the CNS is the access through the ophthalmic artery and from there to the internal carotid artery.

The traditional retrobulbar injection method has been studied under computerized tomography, locating the point of passage of the needle and its closeness to the ON and the package of vessels. A possible option to this method involves the eye looking downward and outward (4).

Procedures for reducing complications after retrobulbar anesthesia are: utilizing small volumes (2-3 cc) and slow injection, aspiration prior to injecting, using short and unsharpened needles (1), recognize the anatomic signals which resist the passage of the needle and observe the rotational movement of the eye when reaching the orbitary septum.

This infrequent complication does not require other treatment than a careful observation and ocular occlusion.

As regards possible sequelae of this event, degenerative histological changes in the ON are noteworthy, due to its compression against the bone (3).

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