BAND ATROPHY OF THE OPTIC DISC SECONDARY TO VENTRICULAR SUBEPENDYMOMA COMPRESSION

ATROFIA DE DISCO ÓPTICO EN BANDA SECUNDARIA A COMPRESIÓN POR SUBEPENDIMOMA VENTRICULAR


ABSTRACT

Case report: A 42-year-old man was diagnosed with band or «bow tie» optic atrophy with a right homonymous hemianopia. Computerized tomography (CT) revealed a calcified lesion in the left hippocampus. Craniotomy and tumor resection were performed. The biopsy revealed a subependymoma of the temporal horn of the left ventricular system.

Discussion: Optic tract lesions are uncommon clinical entities, in which homonymous hemianopia and contralateral band optic atrophy are characteristic. Subependymomas are infrequent and benign tumors that are typically associated with the ventricular system (Arch Soc Esp Oftalmol 2007; 82: 567-570).

Key words: Optic atrophy, band atrophy, optic tract, visual pathway, subependymoma.

INTRODUCTION

Band or «bow tie» optic atrophy is a pale, horizontal, central strip along the superior and inferior poles of the optic disk, and is the type of retrograde atrophy caused by bilateral chiasmatic disorders and injuries to the optic tract in the contralateral optic nerve (1).
CASE REPORT

An asymptomatic 42-year-old male was subjected to ophthalmologic examination to check on his 3-year-long type II diabetes. Physical exploration revealed a 1.0 corrected visual acuity in both eyes. The anterior pole was normal and intraocular pressure was 16 mmHg in both eyes. Intrinsic and extrinsic motility were normal. Indirect ophthalmoscopy revealed a band or «bow tie» atrophy on the right optic nerve (fig. 1) and left papilla (fig. 2), described as pale; there were no signs of diabetic retinopathy.

A visual field test was performed (Humphrey 30-2 test Allergan Humphrey, San Leandro, California, USA), revealing a right homonymous hemianopsia (fig. 3). Since an injury invading the intracranial space was suspected, a brain computed tomography (CT) was subsequently performed, showing a calcification 2 cm in diameter with respect to the amygdala and left hippocampus head (fig. 4). The brain magnetic resonance revealed a heterogeneous injury to the left hippocampus head, with calcification and adjacent hemorrhagic area.

The colors test was normal. The brain arteriography and presurgical vascular mapping induced an allergic reaction to contrast in the patient, resulting in cutaneous manifestations that remitted after treatment with antihistamines.

A craniotomy was subsequently performed, together with a full resection of the injury. The anatomopathologic study of the injury revealed a subependymoma. Final diagnosis was subependymoma of the temporal horn of the left ventricular system involving the retrochismatic area and left band optic atrophy.

No changes were appreciated during the last ophthalmologic exploration performed: the right homonymous hemianopsia persisted in the visual field.
field test, along with the same degree of atrophy involving the optic nerves, while the remaining exploration was normal.

DISCUSSION

Disorders in the optic tract or the lateral geniculate body cause atrophy in the contralateral optic disk band and temporary paleness of the ipsilateral disk. This may be explained by the fact that axons found in the nasal and temporal hemiretinas are distributed in a different pattern in the optic nerve (1). It may be associated with a comprehensive, contralateral, traumatic, demyelinating pathology and contralateral vascular lesions or malformations to the optic tract (2). It has been described as a component of the homonymous hemiopic hypoplasia syndrome associated with a focal cortical heterotopia (3).

Several causal agents have been described for the compression of the optic nerve: hypophysis adenomas, meningiomas of the sellar tubercle, lesser wing of the sphenoid and intracanicular plugs, cranioharyngiomas, ependyomomas, nasopharynx carcinomas, aneurisms, inflammatory processes (mucocele, pachimeningitis), bone disorders (osteopetrosis, craniostosis), hydrocephalia, encephalo-trigeminal angiomatosis or Sturge-Weber’s syndrome and arterial dolicoectasia, among others.

Lesions to the optic tract are rare clinical entities, typically characterized by the presence of a visual field with homonymous hemianopsic defect that may be complete or not. When incomplete, it shows relative incongruence, and when complete it is associated with relative contralateral pupillary defects. The congruence or symmetry between both eyes is smaller when located in the anterior region and larger when found in the posterior region. In time, the contralateral fundus affected by the lesion develops a band or «bow tie» atrophy along the nerve and layer of nerve fibers, as well as temporary paleness of the ipsilateral optic nerve (4).

In the present case, the patient suffered from an optic tract lesion secondary to a comprehensive tumoral pathology that resulted in a symmetrical right homonymous hemianopsia, with no location value since it was complete. In addition, the patient presented an optic atrophy in the right band and paleness of the left optic nerve. All this led us to diagnose involvement of the retrochiasmatic path.

Involvement of the optic tract does not imply a reduction in visual acuity, except in those cases when it is bilateral, and chromatic perception is normal in most cases (4), as in our patient. Lesion of the optic tract or the lateral geniculate body is the only homonymous hemianopsia associated with an optic atrophy.

Subependymomas are rare tumors (0.51 percent of all tumors involving the central nervous system), benign and grow at a slow pace. As in the present case, they are typically associated with the ventricular system and tend to be diagnosed in view of intracranial expansion. They are more frequent among adult males (5).

The role of radiotherapy is not well defined, and has been used in some instances as complementary treatment of lesions with subtotal resection or recurrent lesions, although no consensus has been reached so far (5).

Intracranial expansive comprehensive lesions tend to threat the life of patients and are susceptible of undergoing neurosurgical treatment. Early detection of the symptoms and signs are thus extremely relevant.

REFERENCES