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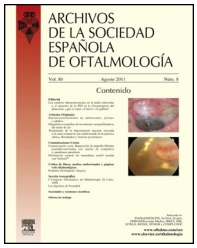

Short communication

# Neurocysticercosis with hydrocephalus and secondary bilateral hemianopia☆

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ABSTRACT

*Case presentation:* A 45-year-old woman with a history of seizures, headaches, nausea, vomiting, and decreased visual acuity of 5 years. Visual field detected a bitemporal heteronymous hemianopia. Magnetic resonance imaging revealed basal cistern arachnoiditis and supratentorial hydrocephalus. Cranial computed tomography revealed supratentorial calcifications, scolex in the left occipital region, and hydrocephalus secondary to entrapment of the fourth ventricle.

*Discussion:* Neurocysticercosis can cause bitemporal hemianopsia due to chiasmatic compression secondary to obstructive hydrocephalus. The positivity of anti-cysticercus antibodies determined by ELISA evidence active disease. However patients with hydrocephalus and negative antigen may have sequelae of infection with non-living parasites.



## Hemianopsia bitemporal secundaria a hidrocefalia por neurocisticercosis

*Palabras clave:*
Crisis convulsivas
Neurocisticercosis
Hemianopsia bitemporal
Hidrocefalia
Quiasma óptico

RESUMEN

*Caso clínico:* Paciente femenina de 45 años con antecedente de crisis convulsivas, presenta cefalea, náusea, vómito y disminución de la agudeza. Campos visuales 24-2 con hemianopsia heterónima bitemporal. La resonancia magnética revela una aracnoiditis de cisternas basales e hidrocefalia supratentorial. La tomografía computarizada de cráneo demostró calcificaciones supratentoriales, escólex en región occipital izquierda e hidrocefalia a expensas de atrapamiento de cuarto ventrículo, integrando el diagnóstico de neurocisticercosis.

*Discusión:* La neurocisticercosis puede producir hemianopsia bitemporal por compresión quiasmática secundaria a hidrocefalia. Pacientes con hidrocefalia y antígenos negativos pueden presentar secuelas de infección sin parásitos vivos.



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## Introduction

Cysticercosis is an infection by *Cysticercus cellulosae*, a larvae of *Taenia solium*. It is considered to be the most frequent parasitosis of the central nervous system and is endemic in Mexico, Central and South America, Asia and Africa. It is difficult to assess its prevalence even though there are 50,000,000 people infected because 49% are asymptomatic.[1,2]

Brain parenchyma is involved in 60–92% of patients with cysticercosis. However, intraventricular neurocysticercosis occurs in only 7–20% of cases. Most intraventricular injuries are found at the level of the fourth ventricle and produce symptoms related to the obstruction of the cerebrospinal fluid (CSF).[1]

The first neuro-ophthalmological sign is frequently papilla edema, occasionally associated to secondary external motor nerve palsy, optical atrophy, pupil alterations or nystagmus.[3]

CSF alterations such as lymphocytic pleocytosis, increased level of proteins and hypoglycorrhachia are not sensitive or specific. Eosinophilia occurs only in 20% of peripheral blood smears. For diagnosing neurocysticercosis, anti-cysticerco antibodies in CSF by means of enzyme-linked immunoabsorption assay (ELISA) exhibit low sensitivity.[4]

The evidence of scolex in computerized tomography (CT) or in magnetic resonance (MR) has been considered pathognomic.[1,4,5]

## Clinical case

Female, 45, with a history of convulsion episodes for 17 years, presenting a condition starting 5 years back characterized by intermittent headaches together with nauseaand vomiting as well as paresthesia in hands, weakness in lower limbs, fatigue, sleepiness and progressive visual acuity reduction, predominantly in the right eye (RE).

Ophthalmological examination found best corrected visual acuity (BCVA) in the right eye of finger counting at 4 m and of 20/40 in the left eye. Both eyes exhibited hyporeactive, symmetrical and isochoric pupils. The posterior segment exhibited slightly hyperemic papillae with discreetly blurred nasal edge and engorgement of veins (Figs. 1 and 2).

The visual fields (VF) confirmed the incongruent bitemporal heteronomic hemianopsia (Figs. 3 and 4), giving a probable diagnosis of optic chasm central compression. MR image suggested intraventricular vessel lesion in the third ventricle with arachnoiditis of basal cisterns, ependymitis and supratentorial hydrocephalia in relation to possible neurocysticercosis (Figs. 5–7). CSF revealed hypoglycorrachia (2 mg/dL), high proteins level (121 mg/dL), LDH 149 mg/dL, leukocytes 67% and eosinophiles 15%; culture without development of microorganisms, BAAR negative and negative determination of ELISA anticysticercosis antibodies. It was decided to initiate management empirically with prednisone, acetazolamide, albendazole and phenytoin.

CT demonstrated multiple calcifications in the supratentorial region, scolex in the left occipital region and hydrocephalia at the expense of 4th ventricle and left lateral ventricle entrapment. Accordingly, a diagnosis of neurocysticercosis was established and treated by means of peritoneal ventricle derivation.

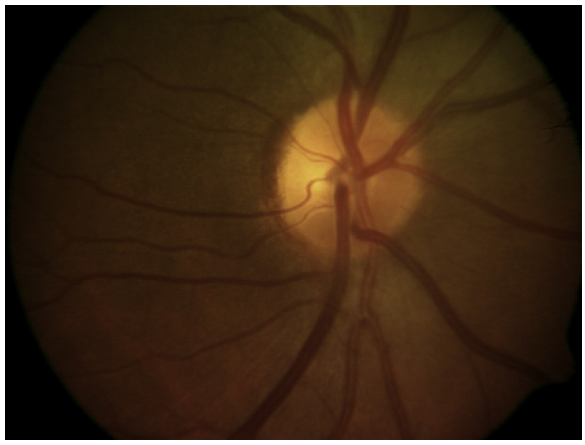

**Figure 1 – Right eye papilla, with slight hyperemia predominating in superior, nasal and inferior regions while the temporal region exhibits slight paleness.**

## Discussion

Intraventricular neurocysticercosis is uncommon as it has been observed in 7–20% of cases. When parasites lodge in the subarachnoid basal cisterns the prognosis becomes uncertain due to the high frequency of relapses.[1,4]

Diagnosis is based on clinic, images (MR and CT) and lab tests on serum and CSF. Clinical signs secondary to obstructive hydrocephalia include headaches, nausea, vomiting, listlessness, deterioration of awareness and amaurosis due to papiledema. The diagnostic criteria proposed by del Brutto et al.[2] include injuries suggesting neurocysticercosis in image studies, presence of neurocysticerco antibodies in CSF, exhibiting compatible symptoms and living in endemic areas.

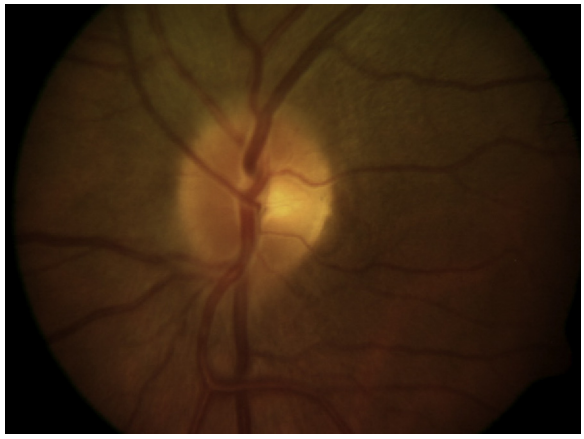

**Figure 2 – Left eye papilla, with practically generalized hyperemia and blurring of edges.**