8° Congreso Argentino de Infectologia Pediátrica

24, 25 y 26 de abril de 2017- Ciudad de Buenos Aires

Neurocisticercosis:

Cuando debemos pensar en ella ?

Dr Alejandro Santillan Iturres

Neurocisticercosis (NCC)

Epidemiologia:

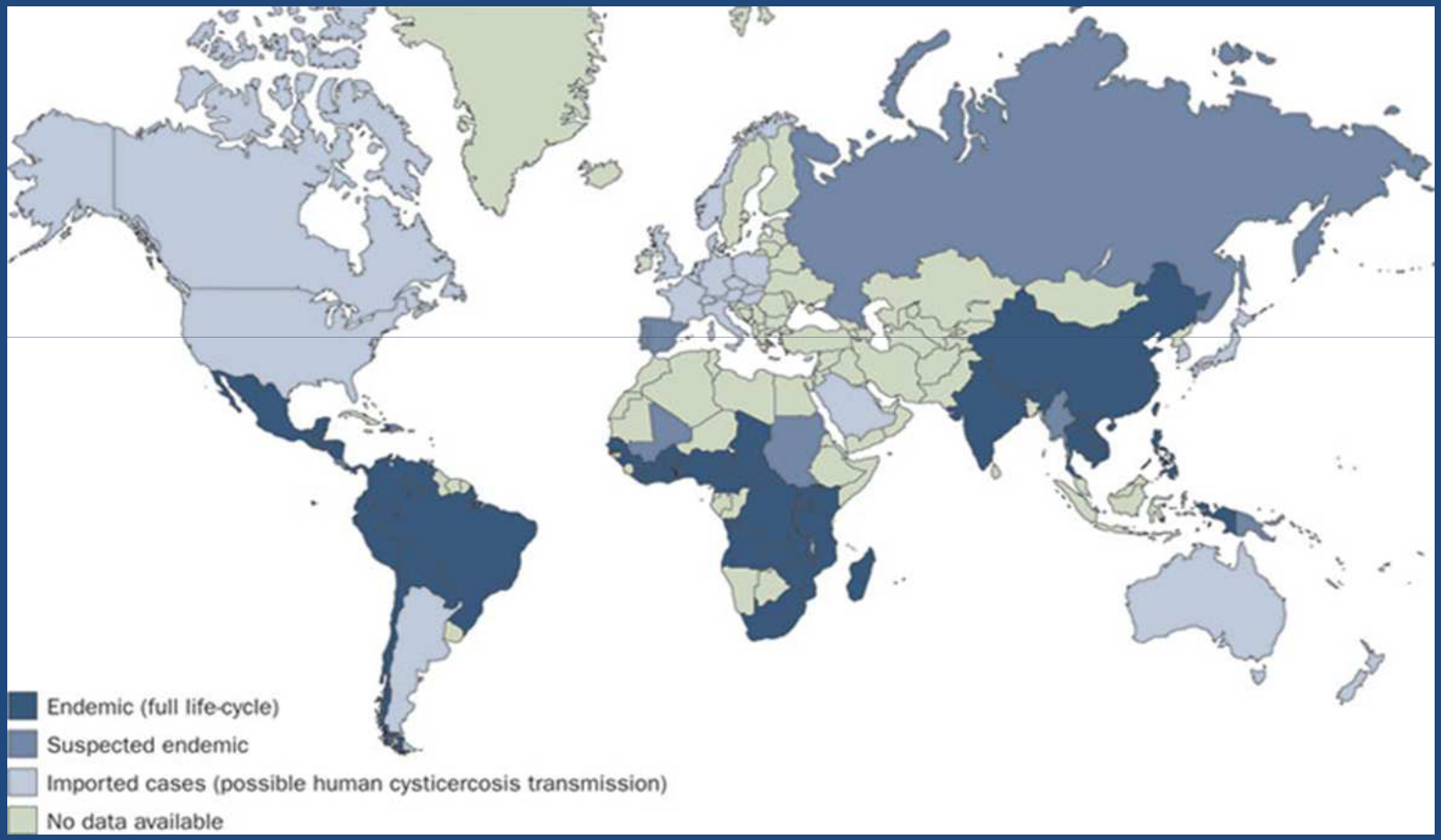
- Es la causa mas importante de epilepsia adquirida en el mundo. (países endémicos)
- Causa elevados costos en salud y en economía regional.
- Enfermedad re-emergente en el mundo desarrollado.
- En USA en el periodo 2003/12 : 18.584 casos.
- OMS estima 50.000 muertes anuales.

O'neal Emerg Infect Dis. 2015;21:969-76

Mapa de zonas endémicas 1990

Fig. 1. **Map showing areas where cysticercosis is endemic.** Countries in black represent countries where cysticercocis is endemic; countries in grey represent those where cases have been reported

Mapa de zonas endémicas 2013

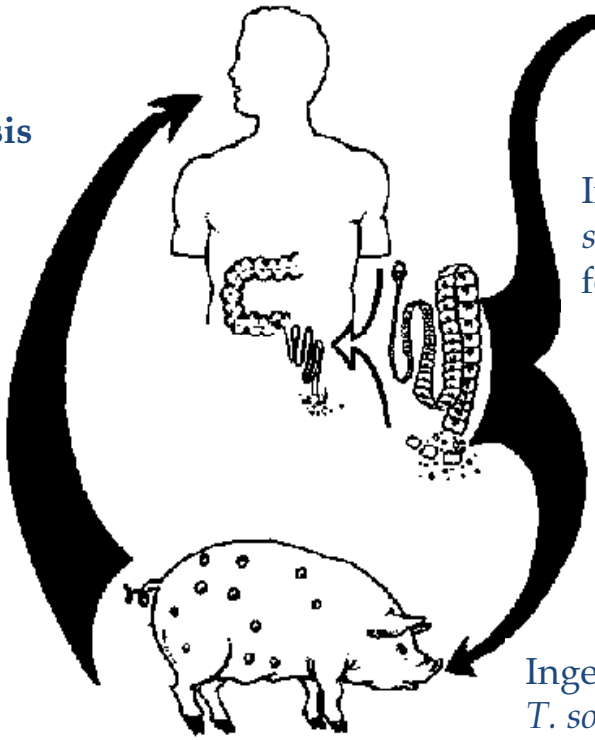


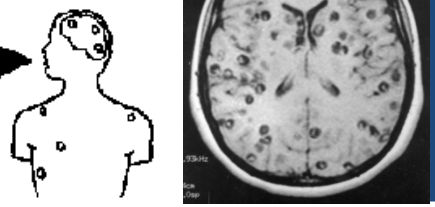
Fuente: OPS/OMS Enfermedades Tropicales Desatendidas, Ginebra, 2013

Repasando el ciclo

Humano
(huesped definitivo)

Ingestion de carne mal cocida de cerdo: **Teniasis**





Ingestion de huevos de*T. solium* por contamination fecal : **cisticercosisHumana**

Ingestion de huevos de *T. solium* o proglotides: **Porcine cysticercosis**

cerd
(huesped intermedio)

CERDO INFECTADO

Gentileza: Dr Hector Hugo Garcia

EL QUISTE

Gentileza: Dr Hector Hugo Garcia

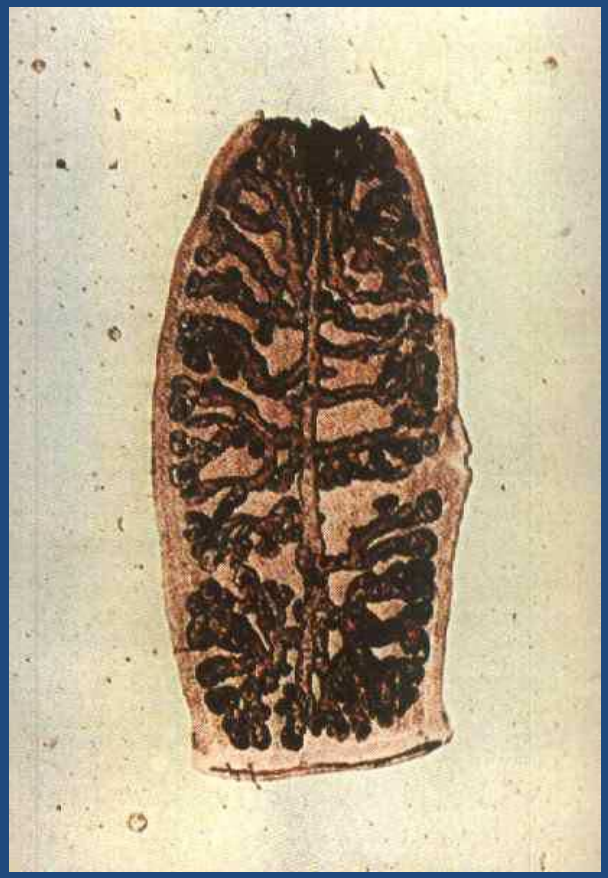
EL ESCOLEX

Gentileza: Dr Hector Hugo Garcia

El cestode

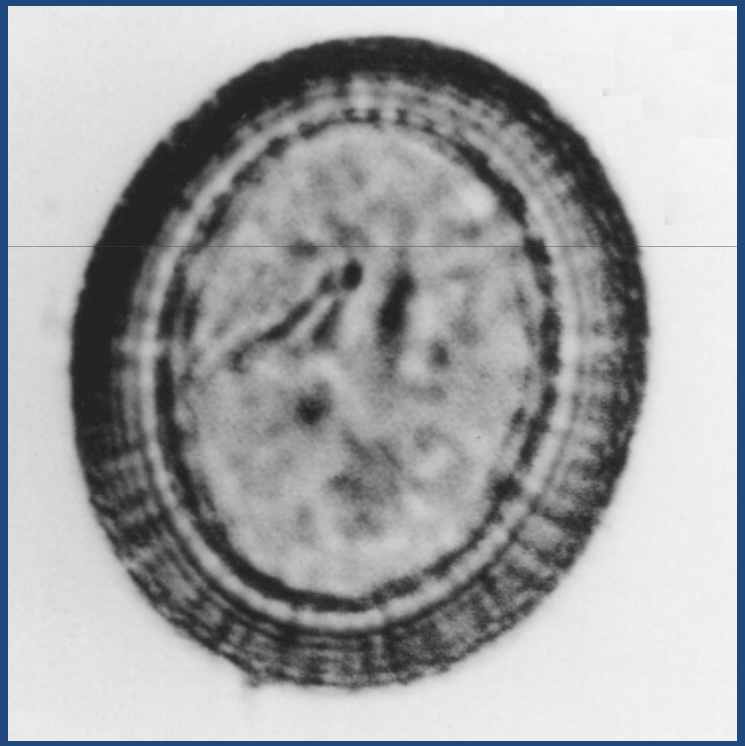
Gentileza: Dr Hector Hugo Garcia

Proglotide gravida



Gentileza: Dr Hector Hugo Garcia

Huevo Infectante



Gentileza: Dr Hector Hugo Garcia

Síntomas de la Enfermedad

- Cualquier síntoma neurológico, principalmente epilepsia de inicio tardío.
- En niños crisis parciales focales.
- Cisticercosis ocular

NCC

Localización :

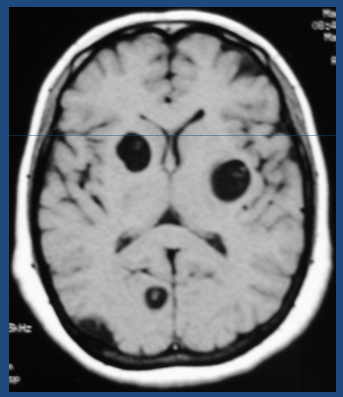
Intraparenquimatosa

Extraparenquimatosa

Medular

Intraparenquimatoso NCC

quiste →

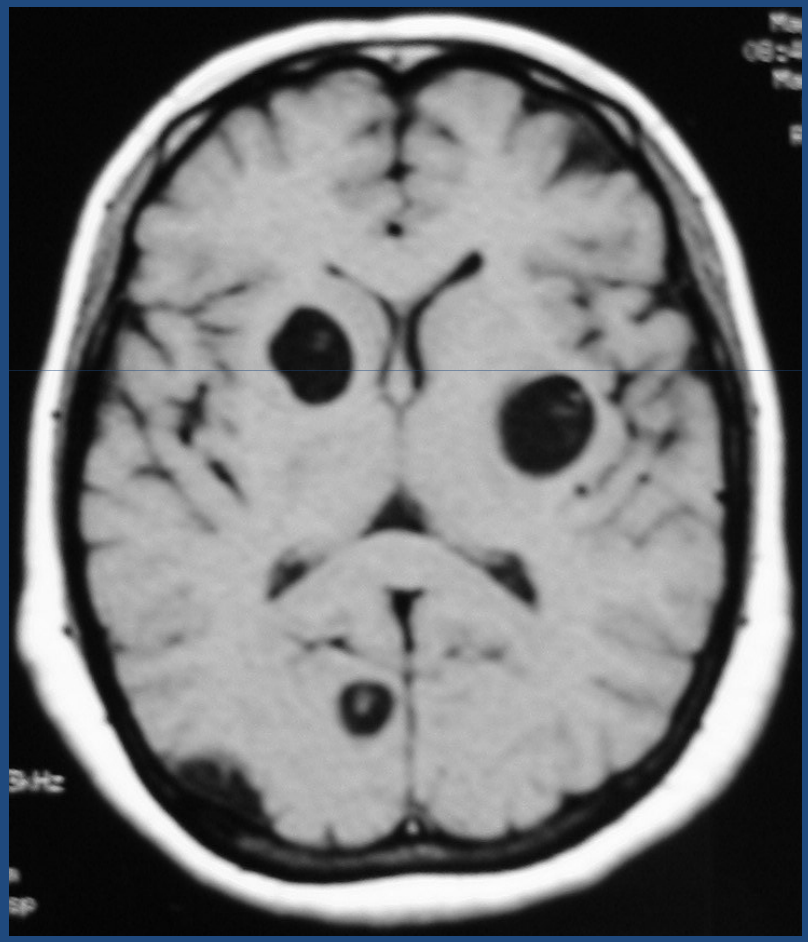


Granuloma →

Calcificación
(o resolución)

NCC
quiste intraparenquimatoso

SILENTE

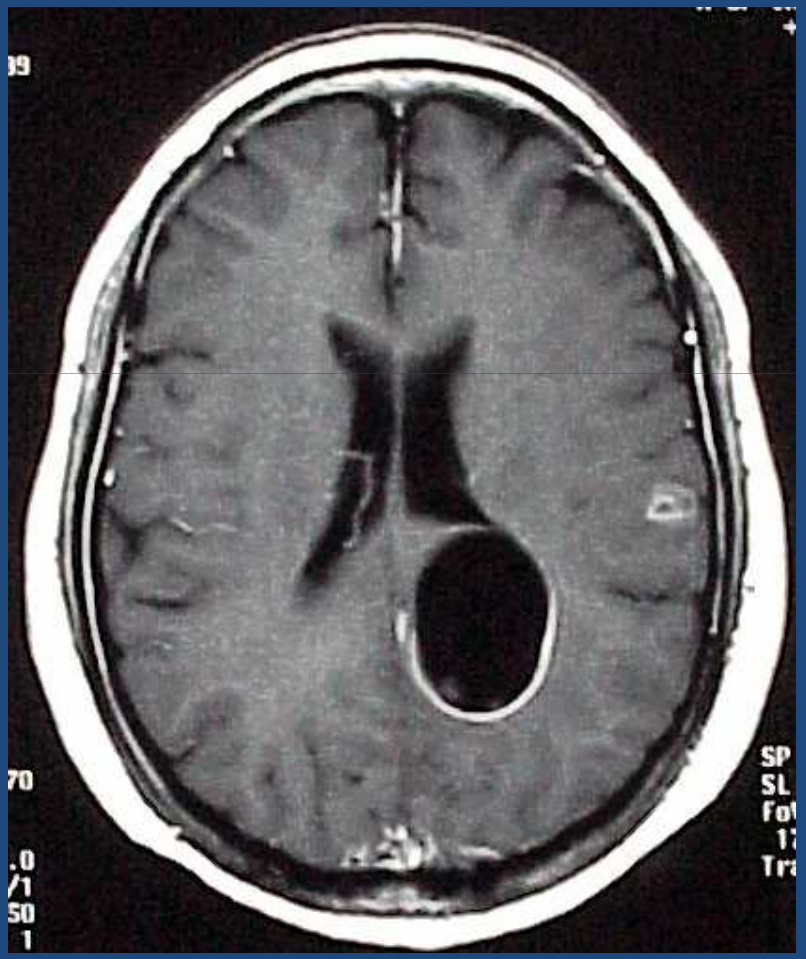


Garcia H H Lancet Neurol 2014; 13: 1202–15

Quiste en TAC

Quiste coloidal

CONVULSIONES
CEFALEA
HTE



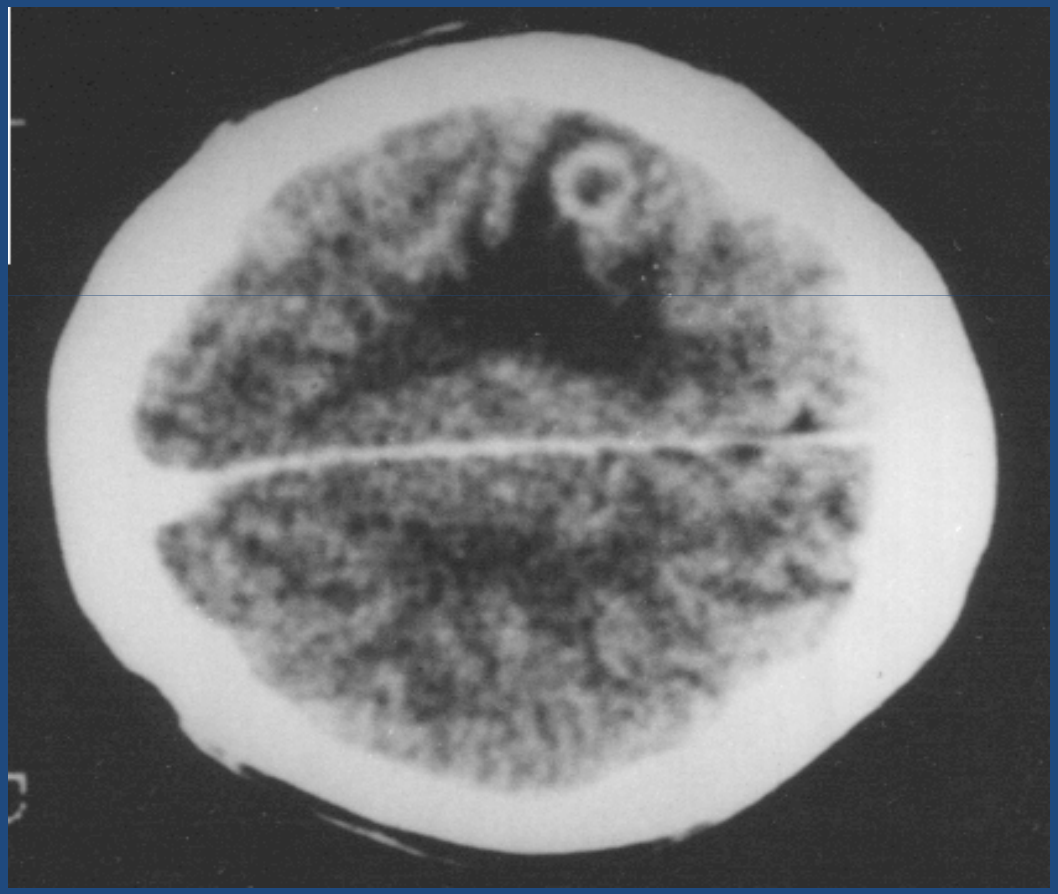
Garcia H H Lancet Neurol 2014; 13: 1202–15

Nodulo o granuloma

CONVULSIONES
CEFALEA
HTE

Garcia H H Lancet Neurol 2014; 13: 1202–15

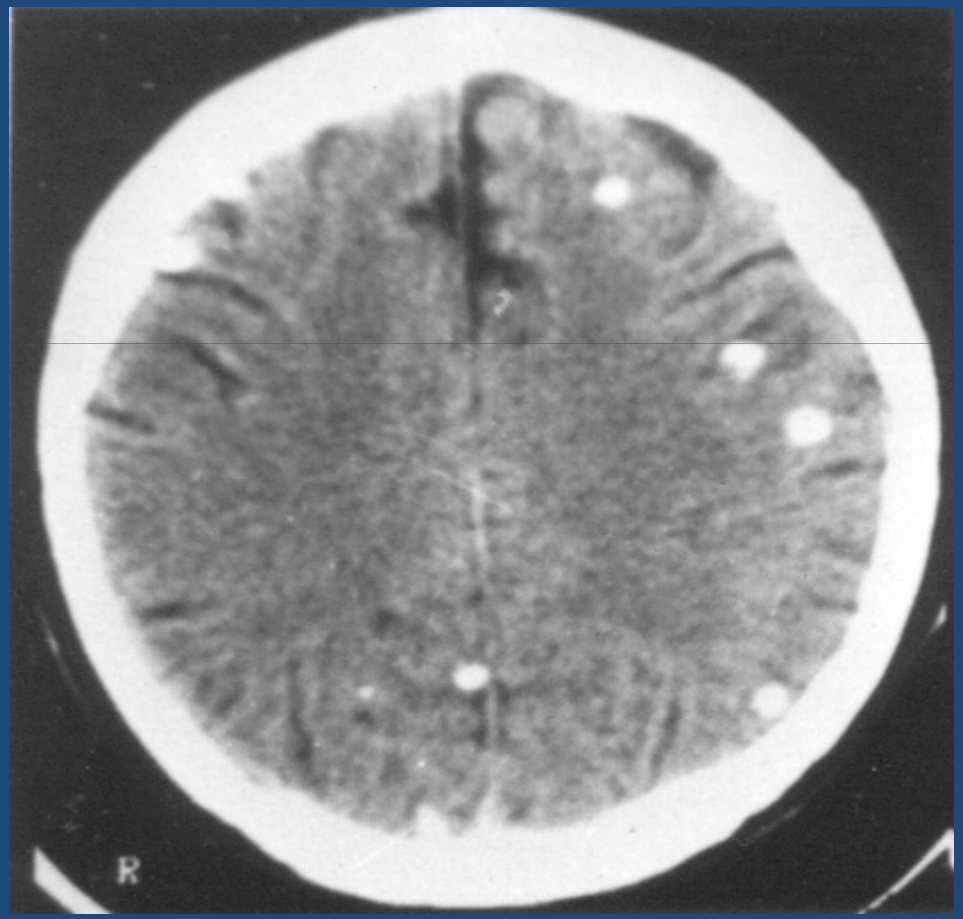
NCC



Garcia HH, Acta Trop. 2003;87:71-78.)

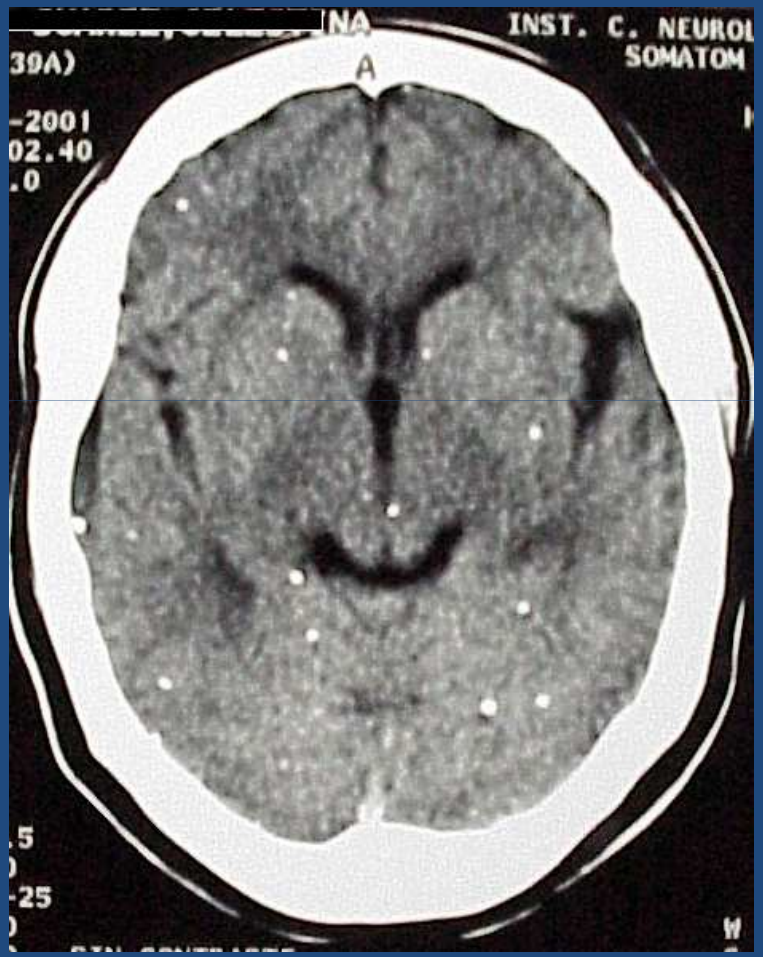
NCC Calcificada

convulsiones



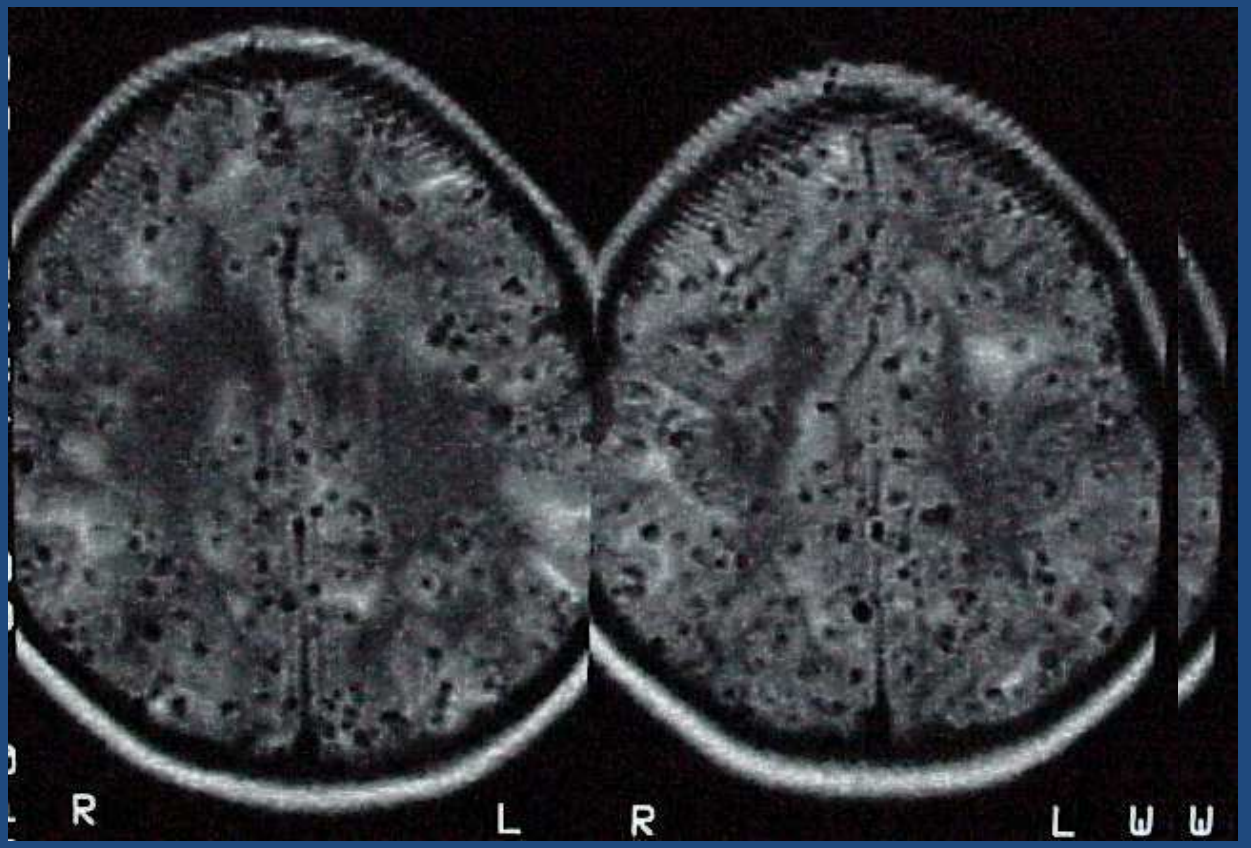
Garcia HH, Acta Trop. 2003;87:71-78.)

NCC



Garcia HH, Acta Trop. 2003;87:71-78.)

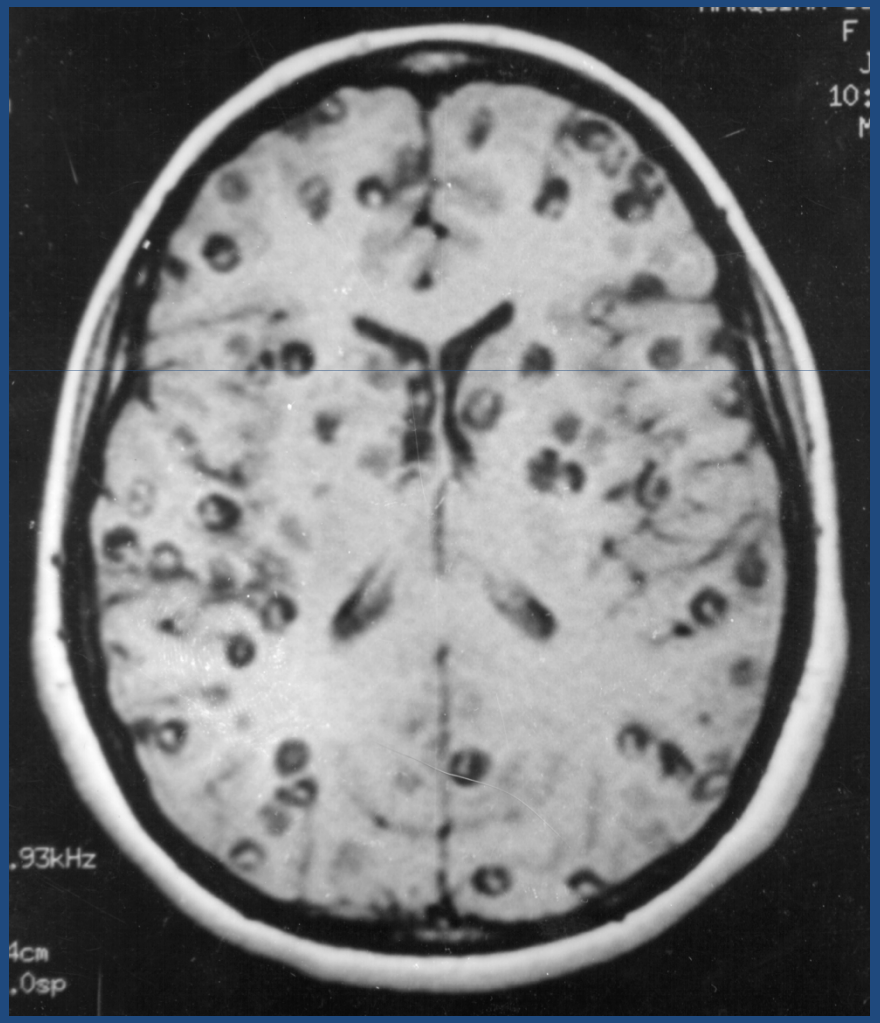
Encefalitis Cisticercosica



Garcia HH, Acta Trop. 2003;87:71-78.)

NCC masiva

Convulsiones
Cefalea
HTE



Garcia H H Lancet Neurol 2014; 13: 1202–15

NCC Extraparenquimatosa

- Quiste Intraventricular
- Quiste Subaracnoideo (“racimosa”)
- No muy asociado a epilepsia y convulsiones

Garcia H H Lancet Neurol 2014; 13: 1202–15

Intraventricular NCC

Cefalea
HTE
Hidrocefalia

Garcia H H Lancet Neurol 2014; 13: 1202–15

Quiste gigante (subaracnoideo)

Cefalea
HTE

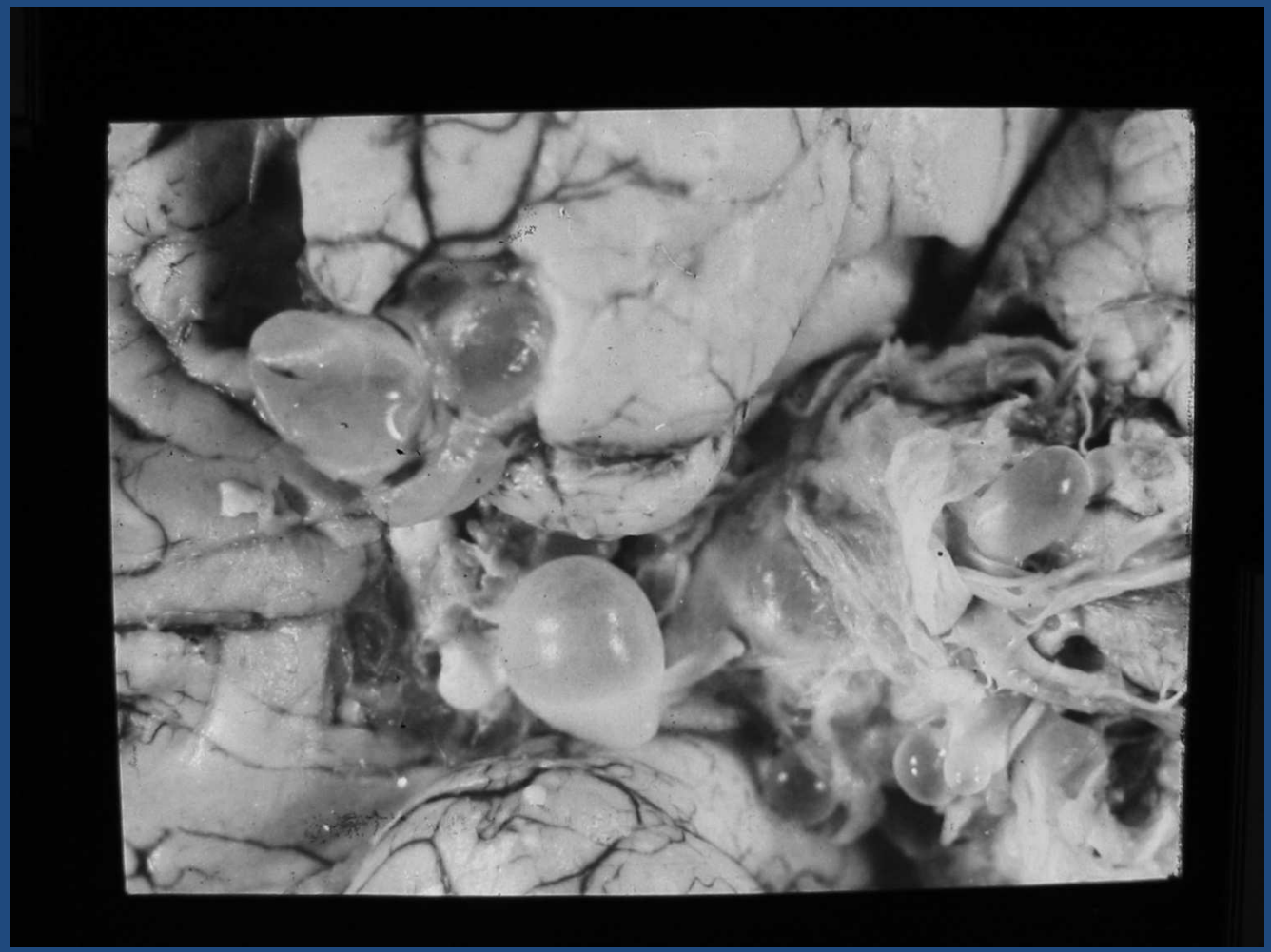
Garcia H H Lancet Neurol 2014; 13: 1202–15

Subaracnoideo Basal ("*racimoso*")

Cefalea
HTE
Sindrome Psiquico
Deficit de Neurológico
Paralisis de Pares C.
Sindrome Meningeo
Sindrome Optoquisamatico

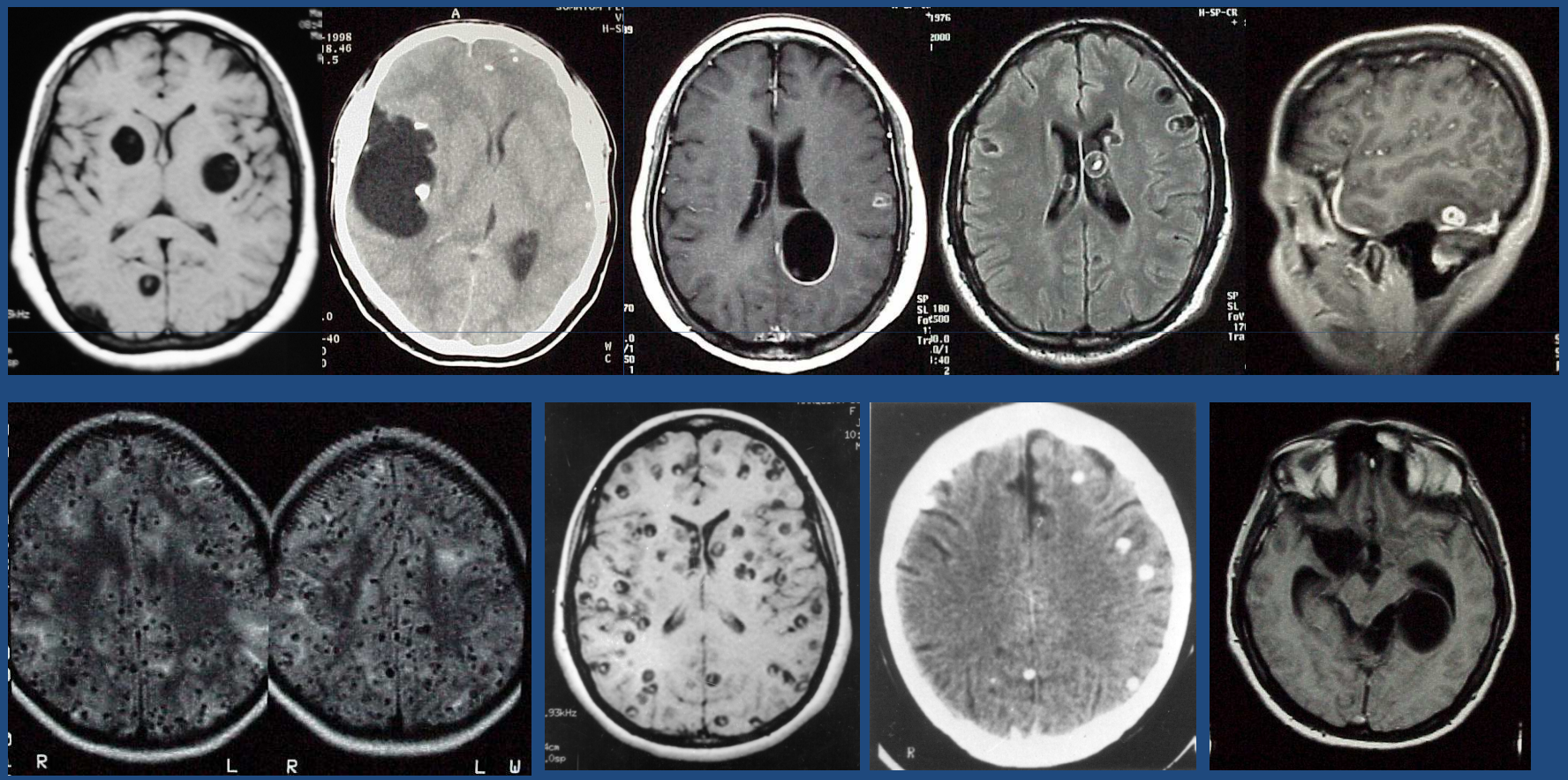
Garcia H H Lancet Neurol 2014; 13: 1202–15

Subaracnoideo Basal ("*racimoso*")



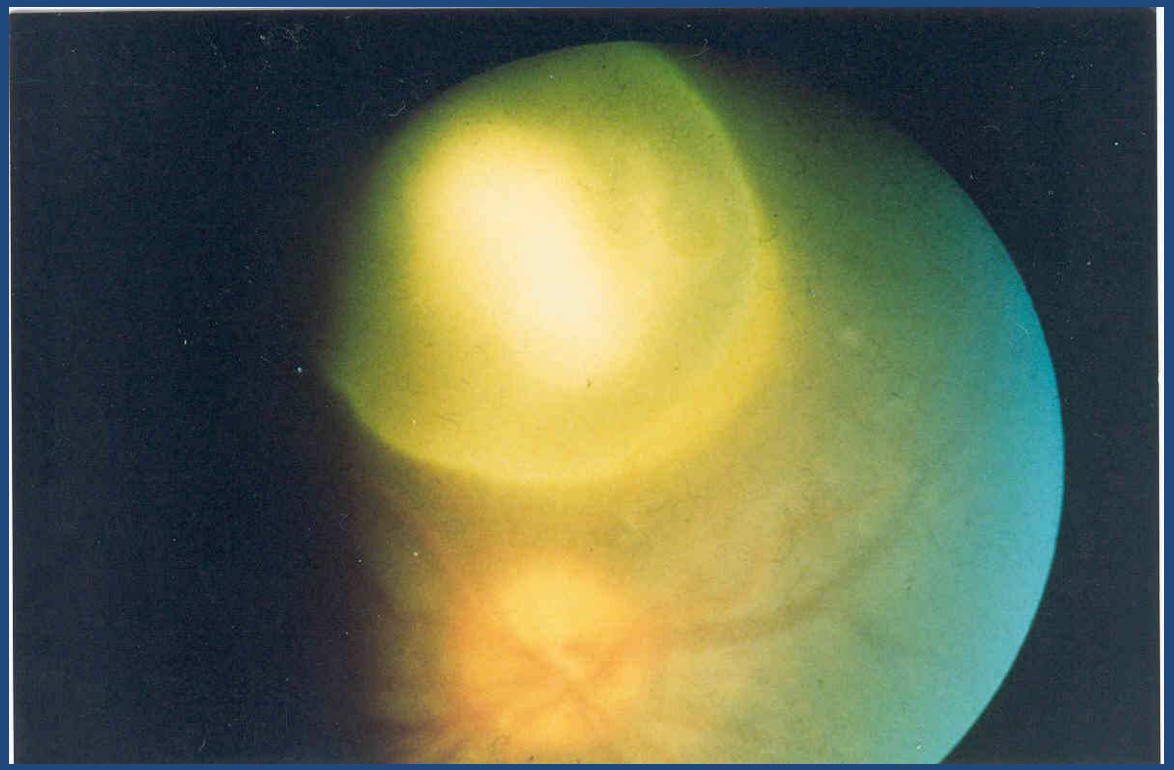
Garcia HH, Acta Trop. 2003;87:71-78.)

NCC



Garcia HH, Acta Trop. 2003;87:71-78.)

Cisticercosis Ocular



Garcia HH, Acta Trop. 2003;87:71-78.)

Calcificaciones musculares

Calcificaciones Musculares

Garcia HH, Acta Trop. 2003;87:71-78.)

Diagnóstico

Views & Reviews

CME

Proposed diagnostic criteria for neurocysticercosis

O.H. Del Brutto, MD; V. Rajshekhar, MCh; A.C. White Jr., MD; V.C.W. Tsang, PhD; T.E. Nash, MD; O.M. Takayanagui, MD; P.M. Schantz, DVM, PhD; C.A.W. Evans, MD; A. Flisser, DSc; D. Correa, DSc; D. Botero, MD; J.C. Allan, PhD; E. Sarti, MD, DSc; A.E. Gonzalez, DVM, PhD; R.H. Gilman, MD; and H.H. García, MD

Article abstract—Neurocysticercosis is the most common helminthic infection of the CNS but its diagnosis remains difficult. Clinical manifestations are nonspecific, most neuroimaging findings are not pathognomonic, and some serologic tests have low sensitivity and specificity. The authors provide diagnostic criteria for neurocysticercosis based on objective clinical, imaging, immunologic, and epidemiologic data. These include four categories of criteria stratified on the basis of their diagnostic strength, including the following: 1) absolute—histologic demonstration of the parasite from biopsy of a brain or spinal cord lesion, cystic lesions showing the scolex on CT or MRI, and direct visualization of subretinal parasites by funduscopic examination; 2) major—lesions highly suggestive of neurocysticercosis on neuroimaging studies, positive serum enzyme-linked immunoelectrotransfer blot for the detection of anticysticercal antibodies, resolution of intracranial cystic lesions after therapy with albendazole or praziquantel, and spontaneous resolution of small single enhancing lesions; 3) minor—lesions compatible with neurocysticercosis on neuroimaging studies, clinical manifestations suggestive of neurocysticercosis, positive CSF enzyme-linked immunosorbent assay for detection of anticysticercal antibodies or cysticercal antigens, and cysticercosis outside the CNS; and 4) epidemiologic—evidence of a household contact with *Taenia solium* infection, individuals coming from or living in an area where cysticercosis is endemic, and history of frequent travel to disease-endemic areas. Interpretation of these criteria permits two degrees of diagnostic certainty: 1) definitive diagnosis, in patients who have one absolute criterion or in those who have two major plus one minor and one epidemiologic criterion; and 2) probable diagnosis, in patients who have one major plus two minor criteria, in those who have one major plus one minor and one epidemiologic criterion, and in those who have three minor plus one epidemiologic criterion.

NEUROLOGY 2001;57:177–183

Validación

New Diagnostic Criteria for Neurocysticercosis: Reliability and Validity

Arturo Carpio, MD,[1,2] Agnès Fleury, MD, PhD,[3,4]
Matthew L. Romo, PharmD, MPH,[1,5] Ronaldo Abraham, MD,[6]
Jaime Fandiño, MD,[7] Juan C. Durán, MD,[8] Graciela Cárdenas, MD,[3]
Jorge Moncayo, MD,[9] Cleonísio Leite Rodrigues, MD,[10] Daniel San-Juan, MD,[3]
Marcos Serrano-Dueñas, MD,[11] Oswaldo Takayanagui, MD,[12] and
Josemir W. Sander, MD, PhD, FRCP[13,14]

Objective: The diagnosis of neurocysticercosis (NCC) remains problematic because of the heterogeneity of its clinical, immunological, and imaging characteristics. Our aim was to develop and assess a new set of diagnostic criteria for NCC, which might allow for the accurate detection of, and differentiation between, parenchymal and extraparenchymal disease.

Methods: A group of Latin American NCC experts developed by consensus a new set of diagnostic criteria for NCC. A multicenter, retrospective study was then conducted to validate it. The reference standard for diagnosis of active NCC was the disappearance or reduction of cysts after anthelmintic treatment. In total, three pairs of independent neurologists blinded to the diagnosis evaluated 93 cases (with NCC) and 93 controls (without NCC) using the new diagnostic criteria. Mixed-effects logistic regression models were used to estimate sensitivity and specificity.

Results: Inter-rater reliability (kappa) of diagnosis among evaluators was 0.69. For diagnosis of NCC versus no NCC, the new criteria had a sensitivity of 93.2% and specificity of 81.4%. For diagnosis of active NCC versus no active NCC, the new criteria had a sensitivity of 89.8% and specificity of 88.7%; and for extraparenchymal NCC, the new criteria had a sensitivity of 65.9% and specificity of 94.9%.

Interpretation: These criteria have acceptable reliability and validity and could be a new tool for clinicians and researchers. An advantage of the new criteria is that they consider parasite location (ie, parenchymal or extraparenchymal), which is an important factor determining the clinical, immunological, and radiological presentation of the disease, and importantly, its treatment and prognosis.

ANN NEUROL 2016;80:434–442

Diagnóstico

Journal of the Neurological Sciences 372 (2017) 202–210

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journal homepage: www.elsevier.com/locate/jns

Review Article

Revised diagnostic criteria for neurocysticercosis

O.H. Del Brutto [a], T.E. Nash [b], A.C. White Jr. [c], V. Rajshekhar [d], P.P. Wilkins [e], G. Singh [f], C.M. Vasquez [g], P. Salgado [h], R.H. Gilman [i], H.H. Garcia [j,k,l,*]

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Taenia solium
Diagnostic criteria, epilepsy, intracranial hypertension

ABSTRACT

Background: A unified set of criteria for neurocysticercosis (NCC) has helped to standardize its diagnosis in different settings.

Methods: Cysticercosis experts were convened to update current diagnostic criteria for NCC according to two principles: neuroimaging studies are essential for diagnosis, and all other information provides indirect evidence include: histological confirmation of parasites, evidence of subretinal cysts, and demonstration of the scolex within a cyst. Neuroimaging criteria are categorized as major (cystic lesions without scolex, enhancing lesions, multilobulated cysts, and calcifications), confirmative (resolution of cysts after cysticidal drug therapy, spontaneous resolution of single enhancing lesions, and migrating ventricular cysts on sequential neuroimaging studies) and minor (hydrocephalus and leptomeningeal enhancement). Clinical/exposure criteria include: detection of anticysticercal antibodies or cysticercal antigens by well-standardized tests, systemic cysticercosis, evidence of a household *Taenia* carrier, suggestive clinical manifestations, and residency in endemic areas. Besides patients having absolute criteria, definitive diagnosis can be made in those having two major neuroimaging criteria (or one major plus one confirmative criteria) plus exposure. For patients presenting with one major and one minor neuroimaging criteria plus exposure, definitive diagnosis of NCC requires the exclusion of confounding pathologies. Probable diagnosis is reserved for individuals presenting with one neuroimaging criteria plus strong evidence of exposure.

Conclusions: This revised set of diagnostic criteria provides simpler definitions and may facilitate its more uniform and widespread applicability in different scenarios.

CRITERIOS DIAGNÓSTICOS

CRITERIOS ABSOLUTOS

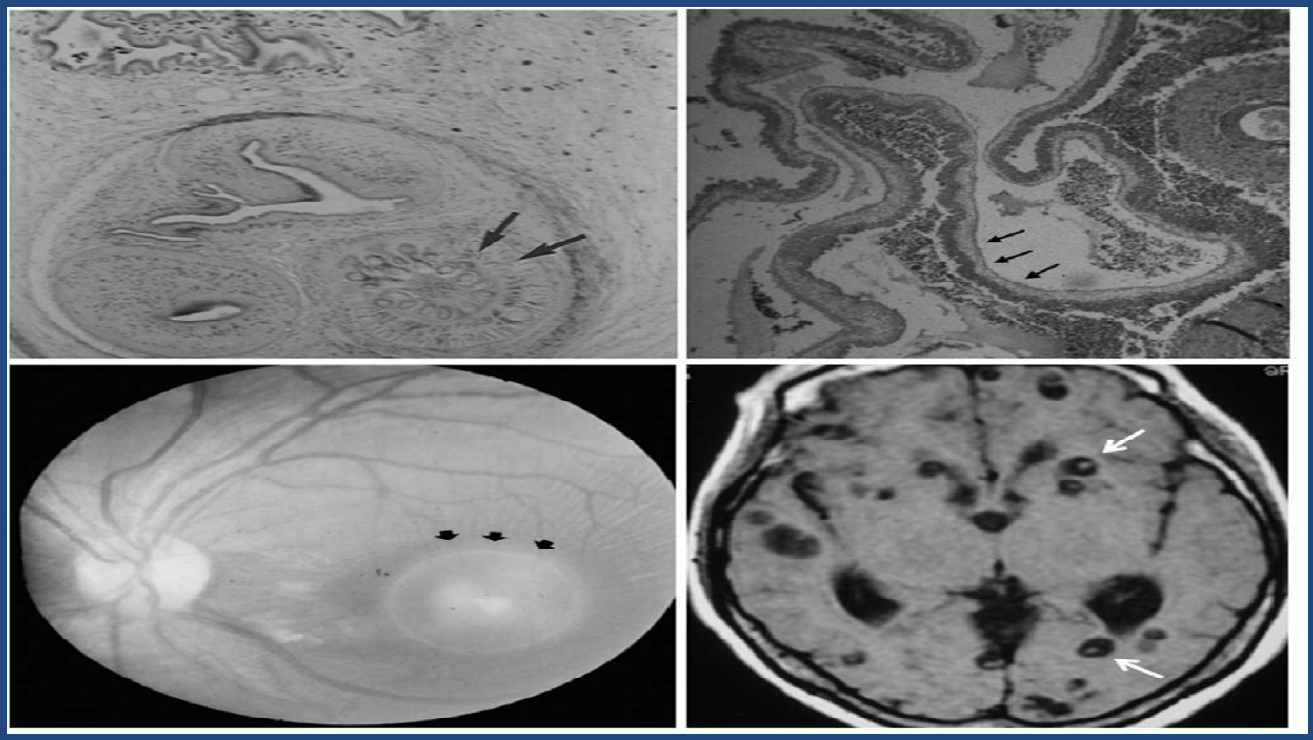
CRITERIOS DE NEUROIMAGENES

CRITERIOS CLÍNICOS/ EXPOSICIÓN

Del Brutto O. J.of the Neurol. Sciences 372 (2017) 202–210

CRITERIOS DIAGNÓSTICOS

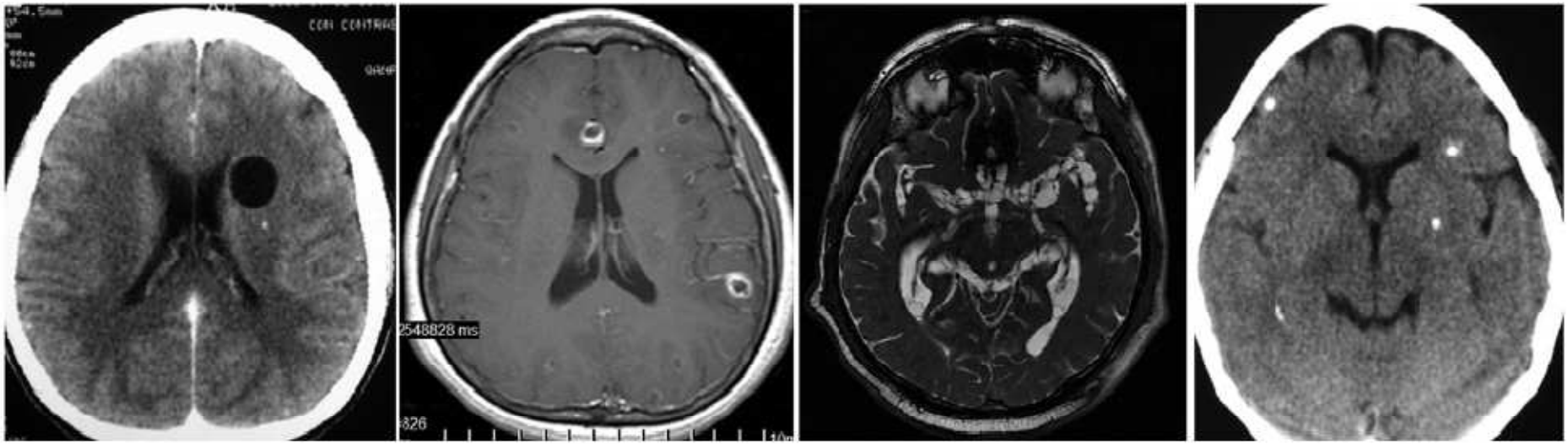
criterio absoluto



Del Brutto O. J.of the Neurol. Sciences 372 (2017) 202–210

CRITERIOS DIAGNÓSTICOS

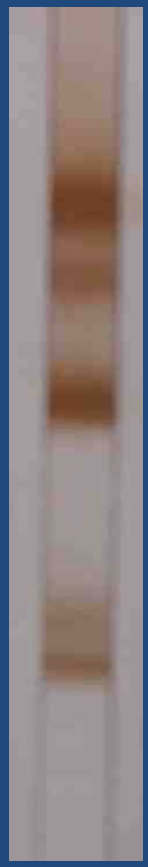
Criterios mayores de neuroimagenes



Del Brutto O. J.of the Neurol. Sciences 372 (2017) 202–210

Serologia – Western Blot

- Introducido in 1989
- Alta sensibiidad (98%) y especificidad (100%)



Tsang VCW, J Infect Dis 1989; 159 : 50-9.

Serologia- ELISA

- Sensibilidad ~85%
- Util para el seguimiento

Alexander AM, Trans R Soc Trop Med Hyg 2010; 104 : 809-10.

Diagnóstico

Buscar la tenia en los convivientes:

- Examen directo de materia fecal
- Antigenos por Elisa en materia fecal

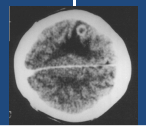
Evolución de la infección y enfermedad

Ingestion of Infective Eggs

Immature Cyst

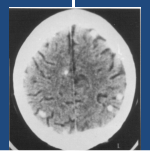
Fully Mature Cyst

Inflamed Cyst



Granuloma

Disappearance of lesion



Calcification

3 Months

Silent Period

3 – 5 Years

1 Month

2 Months

1 Year or more

Tratamiento

- Albendazol 15 mg/k/dia cada 12 horas
- Praziquantel 50 mg/k/día cada 8 horas

Singhi P, Pediatric Infect Dis J 2003;22(3):268-72.

Treatment

CLINICAL MICROBIOLOGY REVIEWS, Oct. 2002, p. 747–756 Vol. 15, No. 4
0893-8512/02/$04.00+0 DOI: 10.1128/CMR.15.4.747–756.2002

Current Consensus Guidelines for Treatment of Neurocysticercosis

Hector H. García,[1,2]* Carlton A. W. Evans,[3,4] Theodore E. Nash,[5] Osvaldo M. Takayanagui,[6] A. Clinton White, Jr.,[7] David Botero,[8] Vedantam Rajshekhar,[9] Victor C. W. Tsang,[10] Peter M. Schantz,[10] James C. Allan,[11] Ana Flisser,[12] Dolores Correa,[13] Elsa Sarti,[14] Jon S. Friedland,[4] S. Manuel Martinez,[1] Armando E. Gonzalez,[15] Robert H. Gilman,[1,2,16] and Oscar H. Del Brutto[17]

Cysticercosis Unit, Instituto Nacional de Ciencias Neurológicas[1]; Departments of Microbiology and Pathology, Universidad Peruana Cayetano Heredia[2]; and School of Veterinary Medicine, Universidad Nacional Mayor de San Marcos,[15] Lima, Peru; University of Cambridge Clinical School, Cambridge[3]; Imperial College of Science, Technology and Medicine[4]; and Department of Biological Sciences, University of Salford, and Pfizer Inc., Sandwich,[11] United Kingdom; Laboratory of Parasitic Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda[5], and Department of International Health, The Johns Hopkins University School of Hygiene and Public Health, Baltimore,[16] Maryland; Department of Neurology, School of Medicine of Ribeirao Preto, Universidade de Sao Paulo, Ribeirão Preto, Brazil[6]; Infectious Disease Section, Department of Medicine, Baylor College of Medicine, Houston, Texas[7]; Instituto Colombiano de Medicina Tropical, Medellín, Colombia[8]; Department of Neurological Sciences, Christian Medical College and Hospital, Vellore, India[9]; Division of Parasitic Diseases, National Center for Infectious Diseases, Centers for Disease Control, Atlanta, Georgia[10]; School of Medicine, Universidad Nacional Autonoma de Mexico[12]; Instituto Nacional de Pediatria, Secretaría de Salud[13]; and Instituto Nacional de Diagnóstico y Referencia Epidemiológicos, Secretaría de Salud,[14] Mexico D.F., Mexico; and Department of Neurological Sciences, Hospital-Clínica Kennedy, Guayaquil, Ecuador[17]

INTRODUCTION 747

Bases del tratamiento

- Comprender la variabilidad de presentaciones clínicas
- Distinguir entre terapia sintomatica y antiparasitaria. probablemente deberan usarse ambos
- Asumir que matar al parasito no esta libre de riesgo
- Asumir que dejar vivo al parasito tampoco esta libre de riesgo.

Que esta mas o menos claro ?

- La terapia sintomática (drogas anti-epilepticas) es extremadamente importante.
- Un quiste que produce efecto de masa por su localización o tamaño, debe ser tratado con antiparasitarios o cirugia.
- EI uso o no de antiparasitarios debe ser individualizado en base a las características de la infección y evolución clínica.
- No existe razon para no dar terapia esteroidea junto a los antiparasitarios.

Entonces se usa ABZ?

Tratamiento Antiparasitario

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Trial of Antiparasitic Treatment to Reduce the Rate of Seizures Due to Cerebral Cysticercosis

Héctor H. Garcia, M.D., Ph.D., E. Javier Pretell, M.D., Robert H. Gilman, M.D., S. Manuel Martinez, M.D., Lawrence H. Moulton, Ph.D., Oscar H. Del Brutto, M.D., Genaro Herrera, M.D., Carlton A.W. Evans, M.D., Ph.D., and Armando E. Gonzalez, D.V.M., Ph.D., for the Cysticercosis Working Group in Peru*

ABSTRACT

BACKGROUND

Neurocysticercosis is the main cause of adult-onset seizures in the developing world. Whether therapy with antiparasitic agents results in improved seizure control has been questioned because of the lack of adequate, controlled studies.

METHODS

We conducted a double-blind, placebo-controlled trial in which 120 patients who had living cysticerci in the brain and seizures treated with antiepileptic drugs were randomly assigned to receive either 800 mg of albendazole per day and 6 mg of dexamethasone per day for 10 days (60 patients) or two placebos (60 patients). The patients were followed for 30 months or until they had been seizure-free for 6 months after the doses of the antiepileptic drugs had been tapered. The efficacy of treatment was measured as the decrease in the number of seizures after treatment.

RESULTS

In the albendazole group, there was a 46 percent reduction in the number of seizures (95 percent confidence interval, −74 to 83 percent) during months 2 to 30 after treatment. This reduction, which was not statistically significant, was composed of a nonsignificant reduction of 41 percent in the number of partial seizures (95 percent confidence interval, −124 to 84 percent) and a significant 67 percent reduction in the number of seizures with generalization (95 percent confidence interval, 20 to 86 percent). Most of the difference in the number of partial seizures was attributable to a few patients who had many seizures during follow-up. The proportions of patients who had partial seizures during follow-up were similar in the two groups (19 of 57 in the albendazole group and 16 of 59 in the placebo group), but the patients in the placebo group had a greater tendency to have seizures with generalization (22 of 59, vs. 13 of 57 in the albendazole group; risk ratio, 1.63; 95 percent confidence interval, 0.91 to 2.92). More of the intracranial cystic lesions resolved in the albendazole group than in the placebo group. With the sole exception of abdominal pain, side effects did not differ significantly between the two groups.

CONCLUSIONS

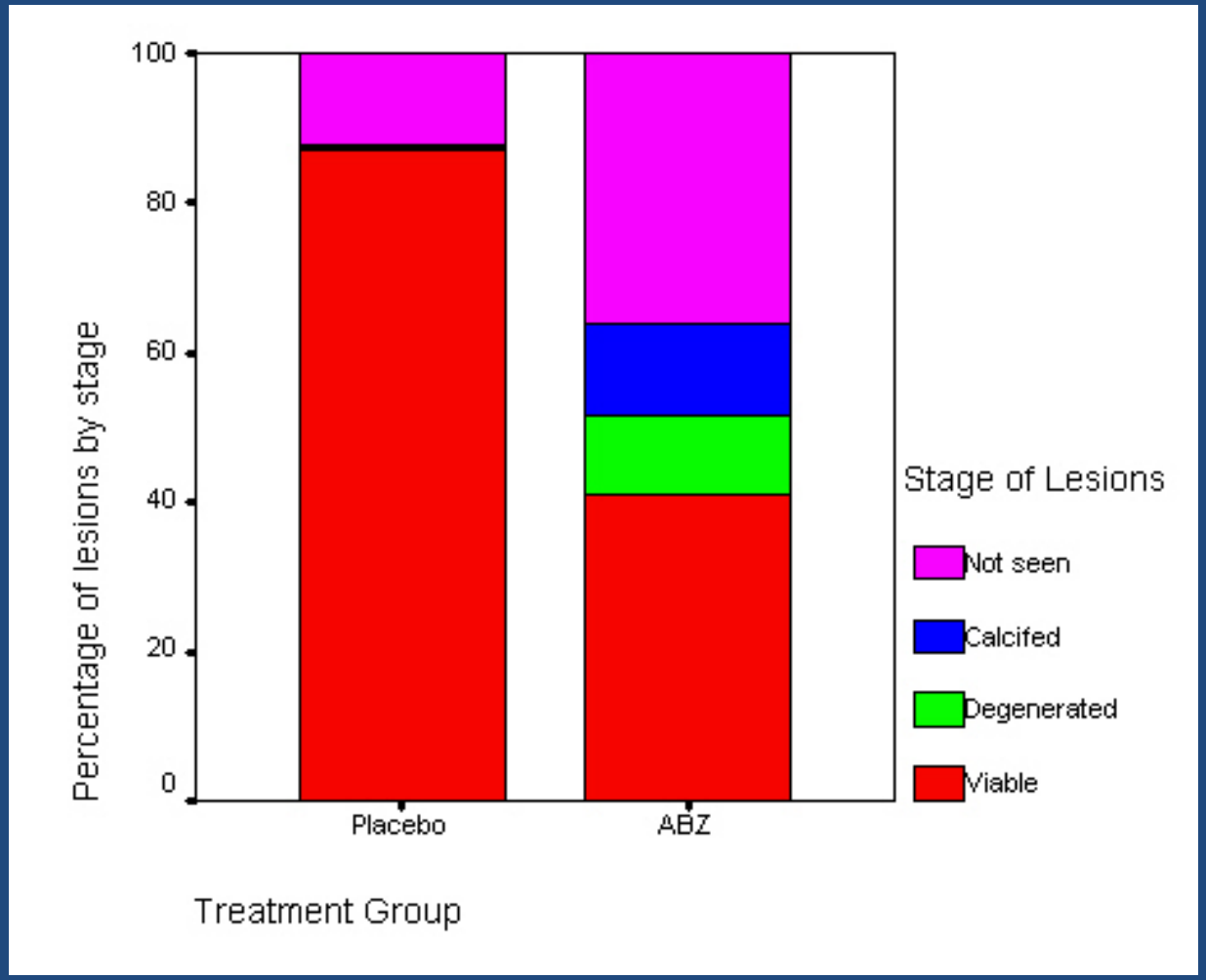
In patients with seizures due to viable parenchymal cysts, antiparasitic therapy decreases the burden of parasites and is safe and effective, at least in reducing the number of seizures with generalization.

From the Department of Transmissible Diseases, Instituto Nacional de Ciencias Neurologicas (H.H.G., E.J.P., S.M.M.); the Departments of Microbiology (H.H.G., R.H.G., C.A.W.E.) and Radiology (G.H.), Universidad Peruana Cayetano Heredia; and the Department of Public Health, School of Veterinary Medicine, Universidad Nacional Mayor de San Marcos (A.E.G.) — all in Lima, Peru; the Department of International Health, Johns Hopkins University Bloomberg School of Public Health, Baltimore (H.H.G., R.H.G., L.H.M., C.A.W.E., A.E.G.); the Department of Neurologic Sciences, Hospital–Clinica Kennedy, Guayaquil, Ecuador (O.H.D.); and the Department of Infectious Diseases and Microbiology, Imperial College London, London (C.A.W.E.). Address reprint requests to Dr. Garcia at the Cysticercosis Unit, Instituto de Ciencias Neurologicas, Jiron Ancash 1271, Barrios Altos, Lima 1, Peru, or at hgarcia@jhsph.edu.

*Other members of the Cysticercosis Working Group in Peru are listed in the Appendix.

N Engl J Med 2004;350:249-58.

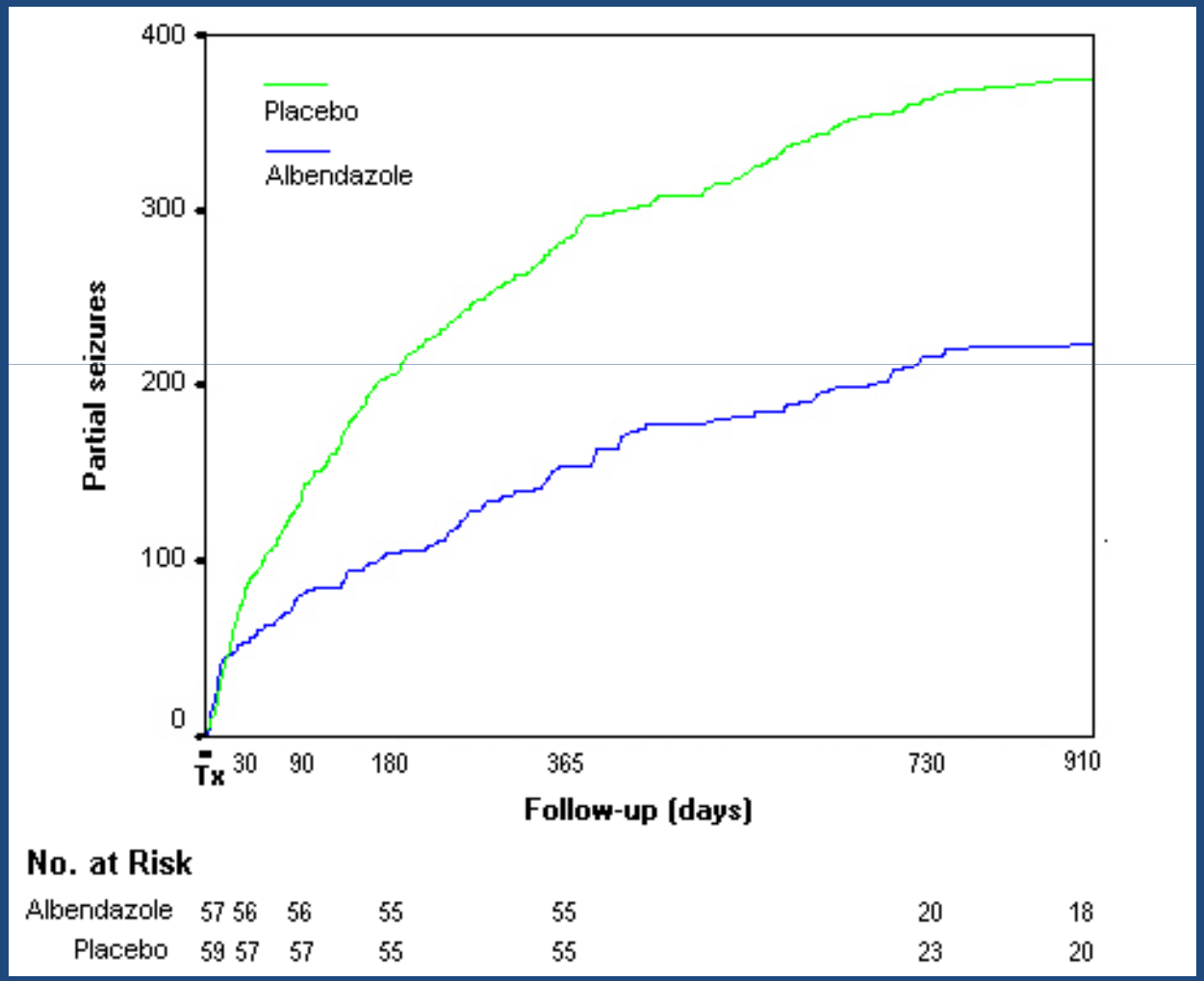
Evolucion de los quistes luego de 6 meses



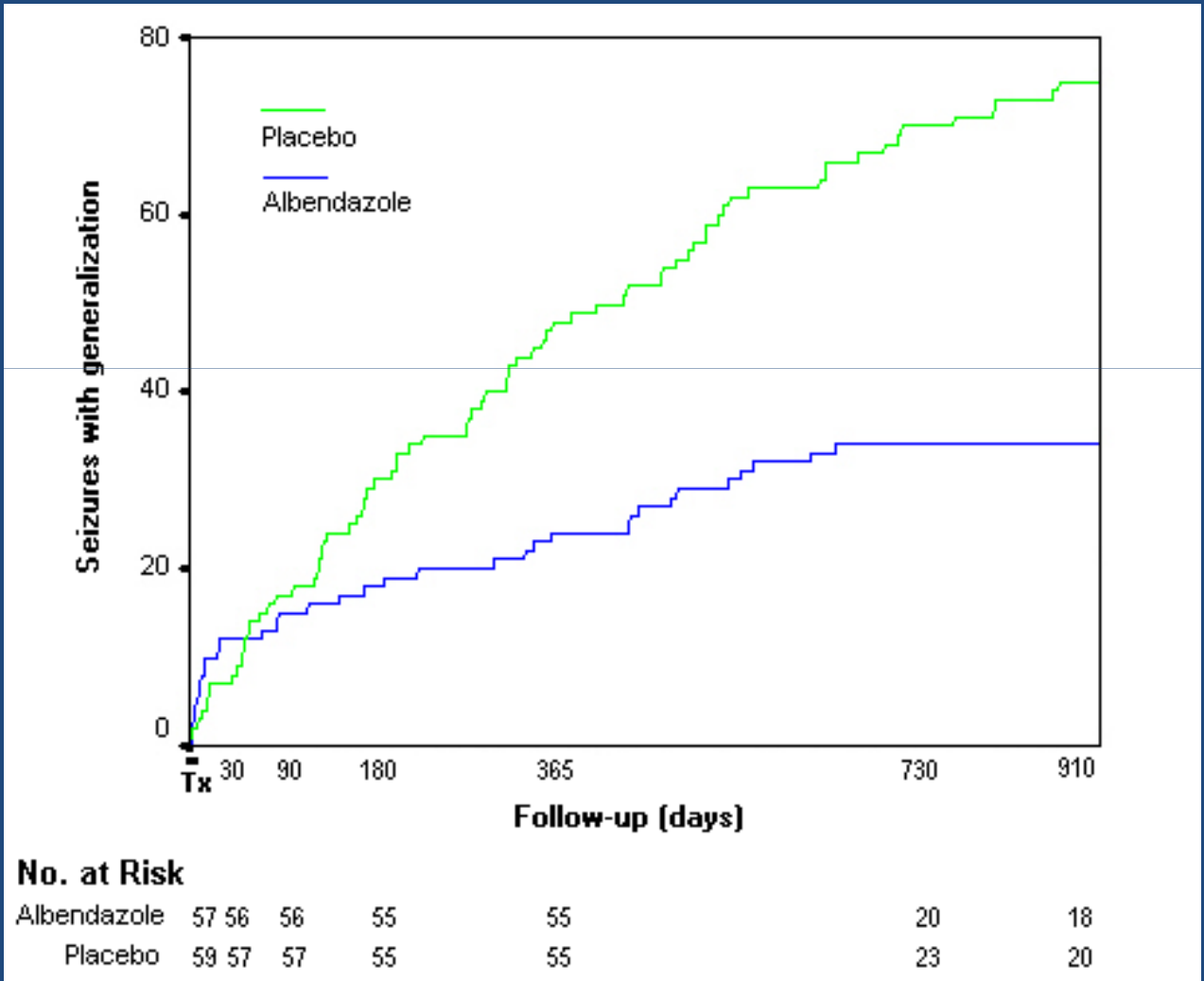
65 % poder cisticida

40 % resolución De quistes

Numero acumulado de convulciones parciales



Numero acumulado de convulsiones generalizadas



Eficacia

Type of seizures	Patients ABZ (57)	Patients PCB (59)	Seizures ABZ	Seizures PCB	Efficacy	p
Partial	19	16	171	296	41%	0.44
With Generalization	13	22	22	68	67%	0.01

Granuloma solitario

PLOS | NEGLECTED TROPICAL DISEASES

RESEARCH ARTICLE

Albendazole and Corticosteroids for the Treatment of Solitary Cysticercus Granuloma: A Network Meta-analysis

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Conclusions

Dual therapy of albendazole and corticosteroids was the most efficacious regimen that could prevent seizure recurrence and promote lesion resolution in a follow-up period of around one year. It should be recommended for the management of SCG until more high-quality evidence is available.

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patients with SCG.

Granuloma Solitario

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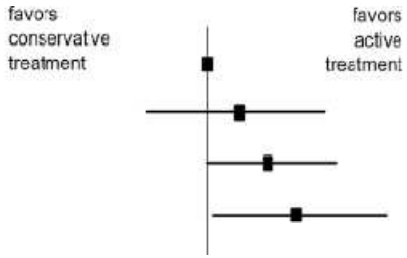
Comparator Treatment	Odds Ratio (95% Credible Interval)	Odds Ratio (95% Credible Interval)	Probability of Being Best (%)	Surface Under the Cumulative Ranking Curve
Seizure recurrence				
conservative treatment	1 (NA)		0.3	0.090
albendazole	0.66 (0.22, 2.17)		9.8	0.388
corticosteroid	0.46 (0.19, 1.01)		16.6	0.637
albendazole+corticosteroid	0.32 (0.10, 0.93)		73.3	0.884



Conclusions

Dual therapy of albendazole and corticosteroids was the most efficacious regimen that could prevent seizure recurrence and promote lesion resolution in a follow-up period of around one year. It should be recommended for the management of SCG until more high-quality evidence is available.

PZQ + ABZ es seguro y efectivo

Efficacy of combined antiparasitic therapy with praziquantel and albendazole for neurocysticercosis: a double-blind, randomised controlled trial

Hector H Garcia, Isidro Gonzales, Andres G Lescano, Javier A Bustos, Mirko Zimic, Diego Escalante, Herbert Saavedra, Martin Gavidia, Lourdes Rodriguez, Enrique Najar, Hugo Umeres, E Javier Pretell, for The Cysticercosis Working Group in Peru

Summary

Background Neurocysticercosis causes a substantial burden of seizure disorders worldwide. Treatment with either praziquantel or albendazole has suboptimum efficacy. We aimed to establish whether combination of these drugs would increase cysticidal efficacy and whether complete cyst resolution results in fewer seizures. We added an increased dose albendazole group to establish a potential effect of increased albendazole concentrations.

Methods In this double-blind, placebo-controlled, phase 3 trial, patients with viable intraparenchymal neurocysticercosis were randomly assigned to receive 10 days of combined albendazole (15 mg/kg per day) plus praziquantel (50 mg/kg per day), standard albendazole (15 mg/kg per day), or increased dose albendazole (22·5 mg/kg per day). Randomisation was done with a computer generated schedule balanced within four strata based on number of cysts and concomitant antiepileptic drug. Patients and investigators were masked to group assignment. The primary outcome was complete cyst resolution on 6-month MRI. Enrolment was stopped after interim analysis because of parasiticidal superiority of one treatment group. Analysis excluded patients lost to follow-up before the 6-month MRI. This trial is registered with ClinicalTrials.gov, number NCT00441285.

Findings Between March 3, 2010 and Nov 14, 2011, 124 patients were randomly assigned to study groups (41 to receive combined albendazole plus praziquantel [39 analysed], 43 standard albendazole [41 analysed], and 40 increased albendazole [38 analysed]). 25 (64%) of 39 patients in the combined treatment group had complete resolution of brain cysts compared with 15 (37%) of 41 patients in the standard albendazole group (rate ratio [RR] 1·75, 95% CI 1·10–2·79, p=0·014). 20 (53%) of 38 patients in the increased albendazole group had complete cyst resolution at 6-month MRI compared with 15 (37%) of 41 patients in the standard albendazole group (RR 1·44, 95% CI 0·87–2·38, p=0·151). No significant differences in adverse events were reported between treatment groups (18 in combined treatment group, 11 in standard albendazole group, and 19 in increased albendazole group).

Interpretation Combination of albendazole plus praziquantel increases the parasiticidal effect in patients with multiple brain cysticercosis cysts without increased side-effects. A more efficacious parasiticidal regime without increased treatment-associated side-effects should improve the treatment and long term prognosis of patients with neurocysticercosis.

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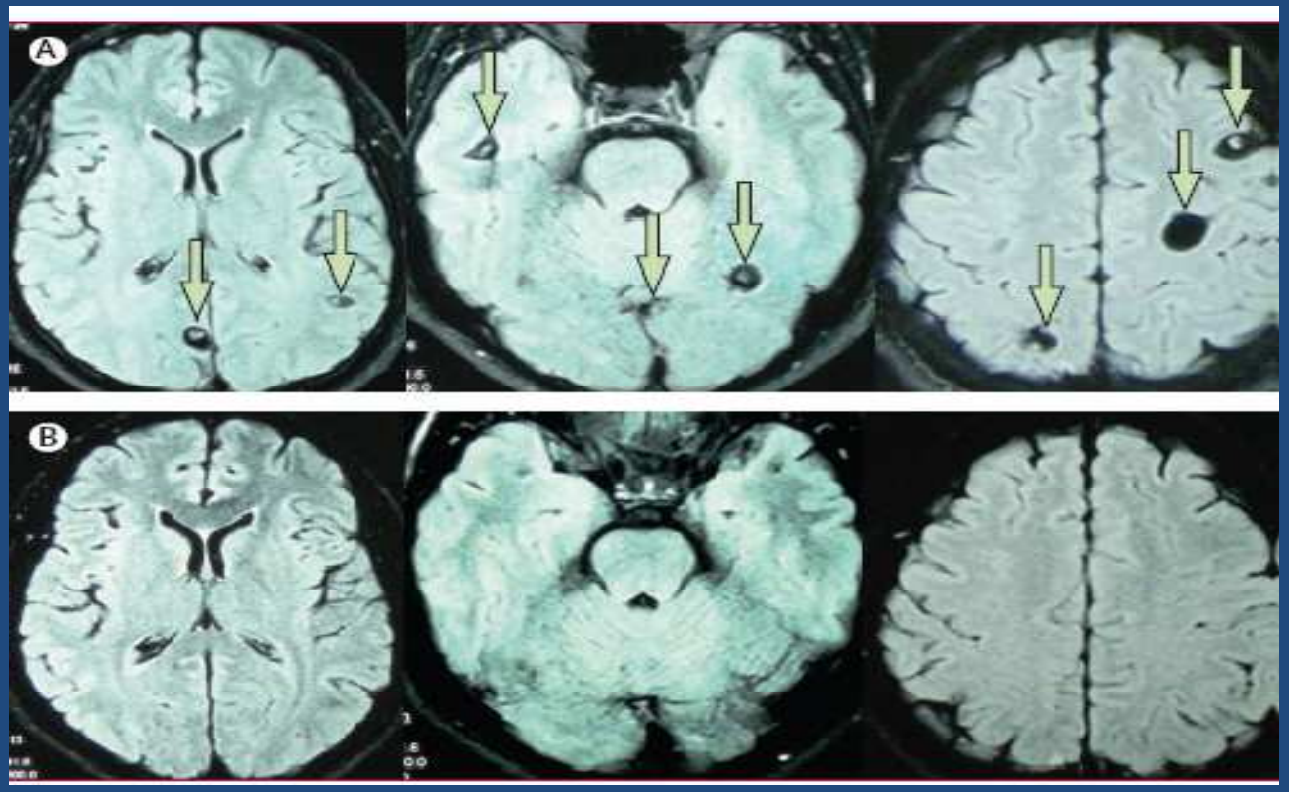
PZQ + ABZ es seguro y efectivo

	Albendazole plus praziquantel (n=39)	Standard albendazole (n=41)	Increased albendazole (n=38)	Overall p value
One to two cysts				
Viable cysts at baseline	27	22	23	0·284
Mean per patient (SD)	1·4 (0·6)	1·1 (0·3)	1·3 (0·6)	0·281
Cyst range	1–3*	1–2	1–3*	..
Number of patients	20	20	18	..
Viable cysts at day 180	10	6	3	0·237
Mean per patient (SD)	0·5 (0·7)	0·3 (0·5)	0·2 (0·4)	0·162
Cysts resolved	17/27 (63%)	16/22 (73%)	20/23 (87%)	0·141
Patients cured	12/20 (60%)	14/20 (70%)	15/18 (83%)	0·287
Three or more cysts				
Viable cysts at baseline	171	142	142	0·179
Mean per patient (SD)	9·0 (4·8)	6·8 (4·2)	7·1 (4·4)	0·245
Cyst range	3–19	3–18	3–18	..
Number of patients	19	21	20	..
Viable cysts at day 180	11	112	74	<0·0001
Mean per patient (SD)	0·6 (1·0)	5·3 (4·2)	3·7 (3·1)	0·0001
Cysts resolved	160/171 (94%)	30/142 (21%)	68/142 (48%)	<0·0001
Patients cured	13/19 (68%)	1/21 (5%)	5/20 (25%)	<0·0001

Data are n/N (%), unless otherwise indicated. *In each of these groups, an additional cyst was identified in the MRI of one patient after they had been randomised in the one to two cysts stratum.

Table 2: Cysticidal efficacy by treatment group and number of cysts

PZQ + ABZ es seguro y efectivo



Cuestiones no resueltas

- Tiempo de tratamiento
- Otros Farmacos – Combinaciones
- Uso de Corticoides – Indicaciones, Dosis, tiempo
- Rol de la execeresis quirurgica (Grandes lesiones ?)

Prevencion

- Cortar el complejo Cisticerco/tenia
- Antigenos en materia fecal

- Tratamiento antiparasiteria para tenia en el humano y para cisticerco en el cerdo.

- Vacunas en el cerdo

Prevencion

A

B

C

Prevencion

Agua potable

Baños

Cloacas

MUCHAS GRACIAS

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