

## THESES

### COMPRESSION OF GASSERIAN GANGLION AND TRIGEMINAL ROOT WITH BALLOON IN THE TREATMENT OF TRIGEMINAL NEURALGIA: PROSPECTIVE STUDY OF 40 PATIENTS (ABSTRACT)\*. THESIS. SÃO PAULO, 2000.

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Forty patients presenting trigeminal neuralgia underwent Gasserian ganglion and trigeminal roots compression with Fogarty's balloon are presented. The natural history, the clinical presentation and the demographic aspects of the patients were similar to that described in the literature. Fifty procedures were performed; 30 patients underwent one compression and nine, two. In one patient the procedure was bilateral.

The follow-up ranged from six to 48 months. One compression was effective in 37 (90.26%) hemifaces and the second procedure alleviated pain in nine (100%) patients. There were only minor immediate and late complication rates. Recurrence of pain occurred in six (15%) patients during the 48 months follow-up period; four, during the first 24 months; one, at the 36<sup>th</sup> month, and the remainder at the 42<sup>nd</sup> month.

Two (5%) patients did not present relief of pain and underwent a second procedure during the first 24 hours after the first one and had total pain relief. Two (5%) other patients presented partial pain relief; one did not agree with the second procedure and the other was operated six months after the first surgery.

Compression time, along with balloon shape and volume were analyzed. The first compression lasted 60 seconds and the second, 120 seconds. During the procedure, pear or hourglass shape of the balloon were induced. The hemifacial numbness was mild in most patients; it was moderate but not disagreeable when the compression time was longer or when the balloon had an hourglass shape. After the second compression all patients presented intensification of the hemifacial numbness.

It was concluded, then, that the Gasserian ganglion compression with balloon is efficient, the complication rate is low and the procedure can be performed under light general anesthesia, as the cooperation of the patient is not needed. There was a tendency to get better results in patients with an hourglass shape balloon achievement. When a pear shape balloon was achieved a motor masticatory deficit and facial numbness were observed. The maximum follow-up period was 48 months and the recurrence rate was 15%.

**KEY WORDS:** pain, trigeminal neuralgia, surgery, balloon compression.

\*Compressão do gânglio de Gasser e da raiz trigeminal com balão no tratamento da neuralgia do nervo trigêmeo: estudo prospectivo de 40 doentes (Resumo). Tese de Doutorado, Universidade Federal de São Paulo (Área de concentração: Neurocirurgia). Orientador: Manoel Jacobsen Teixeira. Co-orientador: Oswaldo Inácio de Tella Júnior.

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### MAGNETIC RESONANCE IMAGING OF MASTICATORY MUSCLES AND TEMPOROMANDIBULAR JOINT IN MYOTONIC DYSTROPHY PATIENTS (STEINERT'S DISEASE) (ABSTRACT)\*. THESIS. SÃO PAULO, 2000.

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Myotonic dystrophy (MD), or Steinert's disease, is a multisystemic disease with the gene localized on chromosome 19. The muscular involvement is characterized by myotonia, progressive muscular weakness and atrophy, mainly in the neck, facial and distal muscles of the limbs. These manifestations start at second or third decades of life. The masseter and temporalis muscles have already been assessed in these patients by electromyographic and ultrasound imaging studies that confirmed their involvement. This finding has been associated to the malocclu-

sions and craniofacial abnormalities frequently observed in these patients.

The objective of this study was to evaluate the masticatory muscles by MRI in patients with MD, and the effect of this involvement on temporomandibular joint (TMJ). TMJ images (1.5 T Signa) were done in 15 MD patients, 11 males and 4 females, aged 16 to 53 years (medium = 31 years). Many dental malocclusions were observed in these patients, especially Class III and anterior open bite. Three of them referred recurrent TMJ dislocation. TMJ and

masticatory muscles pain was not observed, and joint sounds were noted in only one patient.

The analysis of MR images showed masticatory muscles involvement in 13 patients. In eleven, the involvement was moderate to intense. The temporalis was the most affected of the masticatory muscles. The main abnormalities observed were increase of muscular tissue signal on T1 and volumetric reduction of muscles. A unilateral anterior disc displacement with reduction was seen in one patient, but abnormalities of disk shape were common. Mild osseous abnormalities were frequently observed, including irregularities of shape and contours of bone cortical and sclero-

sis of bone marrow. In four cases, the condyle moved anterior to the eminence with the mouth opened fully; and, in two cases, posterior to the eminence.

In conclusion, in MD patients, masticatory muscles were frequently affected. Osseous changes were the most important abnormalities observed on TMJ. A possible explanation to this finding is the process of bone remodeling caused by changing of biomechanic in the jaw due to masticatory muscles involvement.

**KEY WORDS:** myotonic dystrophy, temporomandibular joint, masticatory muscles, magnetic resonance imaging.

\* Ressonância magnética dos músculos da mastigação e da articulação temporomandibular na distrofia miotônica de Steinert (Resumo). Tese de Doutorado, Universidade Federal de São Paulo (Área: Neurologia). Orientador: Acary Souza Bulle Oliveira.

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#### CONTRIBUTION TO THE STUDY OF CYSTICERCOSIS: IMMUNOLOGIC TESTS FOR THE DETECTION OF SERUM ANTIBODIES (ABSTRACT)\*. THESIS. SÃO PAULO, 2001.

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Human cysticercosis caused by parasitism with the larval phase of *Taenia solium* is frequent in developing countries. Considering the impact of cysticercosis on public health, especially the neurological form, neurocysticercosis (NC), the frequency of anti-cysticercus antibody positivity was studied in blood samples of subjects from different geographic areas distributed as follows: Group from Cássia dos Coqueiros, SP (1,863 samples from individuals aged 2 to 88 years), Group from Vitória, ES (311 samples from patients aged 0 to 17 years), Group from Campinas, SP (15 samples from outpatients aged 21 to 69 years). ELISA and immunoblot (WB) with *Taenia crassiceps* vesicular fluid antigens (ELISA-Tcra and WB-Tcra) were used for antibody detection.

A total of 459 (24.6%) sera reactive to ELISA-Tcra were detected in the Cássia group, with a greater predominance in the adult age range ( $p < 0.05$ ) and with no significant sex differences ( $p > 0.05$ ). Of these sera, 8.7% ( $n = 40$ ) were intensely reactive to WB-Tcra. Considering the use of the WB-Tcra test as confirmatory in view of its high specificity, the frequency of anti-cysticercus antibodies in this group was 2.1%. When the possible relations between serum reactivity for anti-cysticercus antibodies and the variables concerning the sanitary conditions of the population were analyzed, the only relevant association was observed for

the variable water source for human consumption, which demonstrated a higher frequency of positivity for anti-cysticercus antibodies when the water consumed originated from collective sources ( $p < 0.05$ ), a finding compatible with the high degree of contamination with fecal coliforms of these sources ( $p < 0.05$ ).

In the Vitória group, 51 (16.4%) sera were reactive to ELISA-Tcra, with the 10 to 14 year age range being most often involved ( $p < 0.05$ ), and with no sex differences. Of these 51 samples, only two (3.9%) were intensely reactive to WB-Tcra. Considering immunoblot to be specific, we may conclude that the frequency of antibodies in this group was 0.64%.

In the Campinas group, 7 (46.7%) sera were reactive to ELISA-Tcra and 42.8% of these ( $n = 3$ ) were strongly reactive to WB-Tcra. The three patients reactive to ELISA and WB presented a clinical-laboratory confirmation of neurocysticercosis.

Although ELISA does not present high specificity when serum samples are assayed, its use with heterologous antigen for serologic screening with later confirmation by immunoblot appears to be a good marker for later epidemiological studies.

**KEY WORDS:** cysticercosis, immunologic tests, diagnosis, blood serum, cerebrospinal fluid, neurocysticercosis.

\*Contribuição ao estudo da cisticercose: testes imunológicos para a detecção de anticorpos séricos (Resumo). Tese de Doutorado, Faculdade de Ciências Farmacêuticas de Universidade de São Paulo (Área: Análises Clínicas). Orientadora: Adelaide José Vaz.

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**REFRACTORY EPILEPSY ASSOCIATED WITH CEREBRAL TUMOR OF SLOW GROWTH (ABSTRACT)\*. DISSERTATION. RECIFE, 1999.**

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Refractory epilepsy is a problem of serious consequences for the patient, his family and the community. The technological progress provided the diagnosis of a group of tumors of the brain that are mainly responsible for epileptic crises without control, characteristically in children and young adults, the cerebral tumor of slow growth.

Thirty four patients with refractory epilepsy associated with cerebral tumor of slow growth were operated between June of 1992 and September of 1997 in the services of Hospital das Clinicas da Universidade de São Paulo, in the Neurology Institute of São Paulo, and at Hospital da Restauração of Recife.

The patients were divided according pathologic results in two groups: Group A - gangliogliomas, with 15 patients (44.1%) and Group B -other tumors, i.e., astrocytomas (12), oligodendrogliomas (5), pleomorphic xantastrocytoma (1) and desembryoblastic neuroepithelial tumor (1).

Patients of group A showed different clinical behavior, with beginning of the epileptic crises before age of 8 years ( $p < 0.005$ ) and seizures frequency lower than 16 monthly ( $p < 0.002$ ), differentiating with ganglioglioma. The epilep-

tic crises of the complex partial type prevailed (88.2%) and the neurological exam was normal in 67.7% of all patients.

Magnetic resonance image showed the tumors in all cases, while the computerized tomography was considered normal in 5 patients. The use of contrast did not increase the sensibility of the computerized tomography in relation to magnetic resonance. Group A did not show edema or calcifications in the images, with a smaller captation of contrast in the magnetic resonance when compared with group B (20% and 42%). Mass effect was observed in 20% of the exams in group A against 52% in group B. The electroencephalogram was inexact in just 17.6% of the patients, without any repercussion on the final result.

Electrocorticography, cortical stimulation and stereotaxy were necessary in the patients' surgery, increasing the safety of the resection of the tumor and of the cerebral cortex generator of epileptic crises. The surgical removal of the tumors was total in 85.3% of the patients. Most of them (91.2%) remained without epileptic crises in the follow up minimum of 24 months (average of 34.2 months).

**KEY WORDS:** refractory epilepsy, glioma, electrocorticography, cortical stimulation.

\*Epilepsia refratária associada a tumor cerebral primário de crescimento lento (Resumo). Dissertação de Mestrado, Universidade Federal de Pernambuco (Área: Neuropsiquiatria). Orientador: Luiz Ataíde Júnior.

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**PRECIPITATING FACTORS OF MIGRAINE ATTACKS IN PATIENTS WITH MIGRAINE WITHOUT AURA (ABSTRACT)\*. DISSERTATION. NITERÓI, 2000.**

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Migraine attacks can be initiated, in some patients, under the influence of certain factors (like hormonal, alimentary, emotional, sensory) that act upon a reduced pain threshold to precipitate these attacks. Studying the incidence of these factors is of importance if we consider that they participate in a significant number of migraine episodes. Thus, an approach that takes into account the influence of certain factors in the triggering of migraine should be included in any therapeutic trial, as an auxiliary measure to pharmacologic therapy.

To study the distribution of triggers of migraine in a selected population, 100 patients (84 females and 16 males, with ages ranging from 10 to 64 years, averaging 33.6 years) who fulfilled the diagnostic criteria for migraine without aura proposed by the International Headache Society (IHS -1988) were evaluated by means of personal

interview. Stress was the most cited trigger, triggering migraine in 76%. Afterwards, in descending order of importance, sensorial stimuli (75%), sleep deprivation (49%), hunger (48%), environmental factors (47%), food (46%), menses (39%), fatigue (35%), alcohol (28%), sleep excess (27%), caffeine (22%), physical exertion (20%), head trauma (20%), trips (4%), sexual activity (3%), medications (2%), neck movements (2%), smoking (1%) and the use of a low pillow (1%) were cited. In a comparison made between two groups of patients, there was no evidence of the action of alcohol as a potentiator for alimentary triggers.

We conclude that certain factors seem to play an important role in the triggering of migraine, with stress standing out as the most important one.

**KEY WORDS:** migraine, precipitating factors, migraine triggers.

\*Fatores desencadeantes de crises de migrânea em pacientes com migrânea sem aura (Resumo). Dissertação de Mestrado, Universidade Federal Fluminense (Área: Neurologia). Orientador: Pedro Ferreira Moreira Filho.

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**CENTRAL NERVOUS SYSTEM PARACOCIDIOIDOMYCOSIS: ANALYSIS OF 13 CASES WITH IMMUNOFLUORESCENCE RESEARCH OF GP43 ANTIGEN. (ABSTRACT)\*.DISSERTATION. BELO HORIZONTE, 2001.**

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Paracoccidioidomycosis (PCM) is a systemic granulomatous disease caused by *Paracoccidioides brasiliensis*, prevalent in Latin America, particularly in Brazil. Central nervous system (CNS) involvement occur in about 10% of cases, although such cases are uncommon in the literature.

Thirteen cases of neuroparacoccidioidomycosis were studied emphasizing clinical manifestations, neuroradiology and immunology. The 43,000 dalton glycoprotein (gp43) is the main exocellular antigen of *P. brasiliensis*, which is probably related with fungus virulence. The gp43 elicits an efficient antibody response which does not protect against progressive PCM; its secretion and circulation as a free antigen or as immunocomplexes may inhibit "natural killer" cells activity, induce T suppressor cells and promote binding to laminin which may have a role in fungal dissemination; may also carry aggregated molecules with proteolytic activity.

The gp43 antigen was investigated by indirect immunofluorescence in specimen of brain biopsy containing paracoccidioides granuloma. We studied in vitro the response of peripheral blood mononuclear cells from patients with PCM presenting with CNS involvement to antigenic fractions from *P. brasiliensis* yeast cell lysate (PbAg). The fraction 0 (F0) were obtained using anion-exchange chromatography on a FPLC system. IgG antibodies anti-*P. brasiliensis* (anti-PbAg and anti-F0) were evaluated in serum, plasma and cerebrospinal fluid (CSF). They were measured by ELISA and detected by Western Blot.

After literature review, 129 cases of neuroparacoccidioidomycosis were found, including our 13 patients. The most frequent symptoms were motor deficits (53.8%), cognitive disturbance (53.8%), weight loss (46.1%), headaches (46.1%) and seizures (46.1%). Computerized tomog-

raphy (CT) scans were obtained in all cases and magnetic resonance imaging (MRI) was used in one case. Serology for HIV was done in ten patients (76.9%), and all the tests were negatives. Granulomatous forms were present in all patients. Four (30.8%) of them had also meningeal involvement (mixed form). The diagnosis was confirmed by the demonstration of *P. brasiliensis* in all the cases, twelve (92.3%) by histopathological examination and one (7.7%) in the CSF.

Indirect immunofluorescence revealed the presence of gp43 antigen in all studied cases. ELISA and Western Blot disclosed IgG antibodies anti-*P. brasiliensis* (anti-PbAg and anti-F0) in sera and plasma. However, it was not observed in the CSF.

Amphotericin B was used in twelve patients (92.3%), one of them by intraventricular infusion. In eight patients (61.5%), trimethopim and sulfamethoxazole were used, and, in two (15.4%), sulfadiazine and pirimetamine. Fluconazole, ketoconazole and itraconazole were each one used in a different patient as well. Six patients died (46.1%) and seven (53.9%) had satisfactory outcome. The follow-up period ranged from 2 to 74 (M=30,9) months.

In conclusion, the CNS involvement in paracoccidioidomycosis is more frequent and more serious than thought before. The clinical manifestations, CT scans and MRI findings are not specific of paracoccidioidomycosis. Indirect immunofluorescence, ELISA and Western Blot can be used in the detection of *P. brasiliensis* antigens and antibodies with satisfactory sensibility. Further studies are still needed aiming at the increase of knowledge about this disease, which has high mortality rates.

**KEY WORDS:** paracoccidioidomycosis, central nervous system, gp43 protein.

\* Paracoccidioidomycose no sistema nervoso central – análise de 13 casos com pesquisa do antígeno gp 43 por imunofluorescência (Resumo). Dissertação de Mestrado, Santa Casa de Belo Horizonte (Área: Medicina). Orientador: Alfredo M. Góes. Co-orientadores: Atos Alves de Sousa e Francisco das Chagas Lima e Silva.

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