

BRIEF COMMUNICATION

FREQUENCY OF SUSPECTED CASES OF NEUROCYSTICERCOSIS DETECTED BY COMPUTED SKULL TOMOGRAPHY IN SANTA MARIA, RS, BRAZIL

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SUMMARY

Due to the lack of studies about neurocysticercosis in the South of Brazil, an investigation was conducted to determine the percentage of suspected cases of neurocysticercosis in computed tomography diagnoses in Santa Maria, RS, from January 1997 to December 1998. Of 6300 computed tomographies (CT) of the skull performed at the private Hospital de Caridade Astrogildo de Azevedo, 80, i.e., 1.27% were suspected of neurocysticercosis. Fifty were women (62.5%) and 30 were men (37.5%). The most frequent radiological manifestation indicating neurocysticercosis was the presence of calcifications (isolated or associated), with a 95% rate (76 cases), while the presence of hypodense lesions reached a 5% rate (4 cases). After routine analysis, each CT was evaluated again and the suspected cases were confirmed. The percentage of suspected cases of neurocysticercosis detected by CT in the present study carried out in Santa Maria was considered low (1.27%). This can be explained by the fact that tomography is not accessible to the economically underprivileged population of Santa Maria. We hope that the present study can alert the population and the professionals to the fact that neurocysticercosis is a more frequent disease than indicated by the few diagnoses made.

KEYWORDS: Tomography; Neurocysticercosis.

INTRODUCTION

Taeniasis complex - cysticercosis - is a serious public health problem in several regions of Asia, Africa and Latin America, specifically in underdeveloped countries, where, the lack of hygiene and of socioeconomic and cultural resources contributes to the dissemination of this problem¹³. According to the World Health Organization, 50,000,000 individuals are affected by the Taeniasis complex and 50,000 die per year⁴.

Human cysticercosis is caused by the presence of the larval form of *Taenia solium*, *Cysticercus cellulosae*, and by the parasite-host biological interaction. Due to the severity of its symptoms and to its high level of lethality and morbidity with consequent socioeconomic repercussions, the form of the disease most intensively studied is neurocysticercosis, i.e., the localization of the parasite in the central nervous system (CNS)⁷.

Man is the single host of the adult worm. The mature proglottis full of eggs or free eggs are eliminated into the environment with human feces, being responsible for the contamination of soil, water and vegetables leading to the possibility of more infections⁵. Humans can acquire cysticercosis in different ways, the most frequent being heteroinfection, which occurs by the ingestion of the larval form of *Taenia solium*^{2,9}.

The most frequent manifestations of neurocysticercosis are epilepsy, intracranial hypertension syndrome, cysticercal meningitis, psychic disorders and epileptic or endarteritic forms of disease¹².

In Brazil, research on human cysticercosis research is limited to Specialized Neurology Centers. These studies mainly indicate that a) the frequency of neurocysticercosis ranges from 0.2% to 7.5%, b) examinations and follow-up are costly, and c) lethality and morbidity rates are high^{6,10}.

According to TAKAYANAGUI (1990), cysticercosis was responsible for 7.3% of the hospitalizations and for 2.7% of the outpatient visits at the Neurology clinic of the Faculty of Medicine of Ribeirão Preto (SP) between 1979 and 1986¹¹. Among 50 patients with epilepsy seen at three Services of Neurology in Londrina (PR), the prevalence of immunoenzymatic positivity (ELISA) to cysticercosis was 34.0% in cerebrospinal fluid (CSF) and 20.0% in serum³.

The purpose of a diagnosis of neurocysticercosis by neuroimaging methods is to determine the viability and the localization of the cysts for a uniform classification and orientation of the therapeutic program. Magnetic resonance is the method of choice for the diagnosis of intraventricular and subarachnoid forms, whereas computed tomography is a better method for the identification of calcifications⁸.

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Comparative studies were conducted in Curitiba (PR) on patients with several diseases. In 1978, 5.3% of 3400 patients submitted to CT at Nossa Senhora das Graças Hospital were found to have neurocysticercosis. In 1980, 9000 examinations were performed and a 5.3% rate of neurocysticercosis was obtained once more. In 1992, the incidence was 9.1% among 85000 examinations, and in 1993 the incidence was 9.2% among 92000 examinations¹.

Today, there is concern about the diagnosis of neurocysticercosis at health services in Santa Maria (RS, Brazil) and surrounding regions. However, the number of cases diagnosed is small and probably does not correspond to reality, a problem to which physicians seem to be indifferent. In view of the lack of studies about neurocysticercosis in the South of Brazil, the present investigation was conducted to determine the percentage of patients suspected to have neurocysticercosis among computed tomography diagnoses made in Santa Maria, with the purpose of alerting physicians to the existence of this problem in our environment.

MATERIAL AND METHODS

From January 1997 to December 1998, 6300 CT of the skull were analyzed at the private Hospital de Caridade Astrogildo de Azevedo, Santa Maria, RS, Brasil. After routine analysis, each case of suspected neurocysticercosis was evaluated again and the suspicion was confirmed.

RESULTS

Among 6300 CT scans of the skull carried out at the private Hospital de Caridade Astrogildo de Azevedo, 80, i.e., 1.27% were suspected cases of neurocysticercosis. Of these, 50 were women (62.5%) and 30 men (37.5%). The most frequent radiological manifestation indicating neurocysticercosis was the presence of calcifications (isolated or associated), which reached a 95% rate (76 cases), while the presence of hypodense lesions reached a 5% rate (4 cases). It is known that calcifications in tomography could be due to other causes than cysticercosis.

DISCUSSION

The percentage of suspected cases of neurocysticercosis detected by CT of the skull in our study in the town of Santa Maria was considered low (1.27%) when compared with percentages found in another state of the south region (Paraná), which range from 5.3% to 9.2%¹. This is probably due to the fact that the single tomograph existing in Santa Maria is not accessible to the population of underprivileged socioeconomic status. This percentage will definitely increase in a future study after the University Hospital of Santa Maria, which is public and free of charge, sets up a computed tomograph.

We believe that this is the first study in Rio Grande do Sul about the matter and hope that it can alert the population and the professionals to the fact that neurocysticercosis is a more frequent disease than shown by the few cases diagnosed.

RESUMO

Frequência de casos suspeitos de neurocisticercose em tomografias computadorizadas de crânio em Santa Maria, RS, Brasil

Com o objetivo de iniciar um estudo sobre a neurocisticercose no Sul do Brasil, foi verificada a porcentagem de casos suspeitos de neurocisticercose em tomografia computadorizada de crânio (TCC) em

Santa Maria, entre janeiro de 1997 e dezembro de 1998. Os resultados mostraram que entre 6300 TCC realizadas no Hospital de Caridade Astrogildo de Azevedo, 80, isto é, 1,27% eram suspeitas de neurocisticercose. Constatamos que 50 eram mulheres (62,5%) e 30 homens (37,5%). A manifestação radiológica mais freqüente para indicar neurocisticercose foi a calcificação (isolada ou associada) com 95% (76 casos), enquanto a presença de lesões hipodensas foi de 5% (4 casos). Após a análise de rotina cada TCC foi avaliada novamente e a suspeita confirmada. A porcentagem de casos suspeitos de neurocisticercose em TCC em Santa Maria foi considerada baixa (1,27%). Este fato pode ser explicado porque o Tomógrafo não é acessível a uma grande parte da população, pois o serviço é privado. Nós acreditamos que este estudo pode alertar a população e os médicos, mostrando que a neurocisticercose é uma doença mais freqüente que os poucos diagnósticos realizados no nosso meio.

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