ACUTE PULMONARY HISTOPLASMOSIS AND FIRST ISOLATION OF
HISTOPLASMA CAPSULATUM FROM SOIL OF RIO GRANDE DO SUL, BRAZIL

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SUMMARY

A case of acute pulmonary histoplasmosis, where the clinical history and epidemiological data led to the identification of *H. capsulatum* natural source, is described. Specimens of spleen and liver, obtained after intraperitoneal inoculation in mice, grew *H. capsulatum* in culture from the soil of rural area of General Câmara, by the first time in Rio Grande do Sul.

KEY WORDS: Human Histoplasmosis — LUNG — Isolation of Histoplasma capsulatum from soil.

INTRODUCTION

*Histoplasma capsulatum* distribution in nature has received little attention in Brazil. The fungus had been recovered from soil associated with chicken and bat feces, in rural areas near rivers, in regions with high positivity of the skin test to histoplasmin and epidemics of the fungal infection (Table I).

A case of acute pulmonary histoplasmosis will be described where clinical history led to the identification of *Histoplasma capsulatum* natural source.

CASE REPORT

A 23 year-old white man in a good health until March 22, was admitted in our service with thoracic pain, fever, cough with scant expectoration, headache, anorexia, weight loss, prostration and malaise.

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<tr>
<th>Year</th>
<th>Association</th>
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<tr>
<td>1955</td>
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<td>Jacobina, BA</td>
<td>Near Ouro's</td>
<td>Kala-azar endemic zone</td>
<td>SILVA (15)</td>
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<td>1956</td>
<td>Bats</td>
<td>Caraguatuba and Ubatauba, SP</td>
<td>Beach house</td>
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<tr>
<td>1957</td>
<td>Bats</td>
<td>Brasilia, DF</td>
<td>Rural cave</td>
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<td>1967</td>
<td>Chickens</td>
<td>Lagoa Santa, MG</td>
<td>Rural area</td>
<td>Histoplasmosis skin test of 40%</td>
<td>ARAUJO (1)</td>
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<td>1975</td>
<td>Chickens</td>
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<td>Near Aripuanã river</td>
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<td>1984</td>
<td>Chickens</td>
<td>General Câmara, RS</td>
<td>Near Jacuí river</td>
<td>Acute pulmonary histoplasmosis</td>
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(1) Pesquisador 3A do CNPq

On physical examination he seemed acutely ill, with an axilar temperature 38.5°C, pulse 82, respiration 22, blood pressure of 100/60 mmHg. Without adenomegaly neither hepatosplenomegaly. Chest X-rays showed nodules and micronodules disseminated in both lungs, mainly in the lower 2/3 fields, and probable interlobular and paratracheal adenomegaly (Fig. 1). Sputum examination was negative to acid-fast bacilli, fungus, and malignant cells. Hematocrit 33 ml/dl, hemoglobin 11 g/dl, WBC 8,000 (eos 2, ban 4, seg 53, lymph 36, mon 5).

Fig. 1 — Radiologic aspects of multiple miliary nodules in both lungs with hilar adenopathy.

Fig. 2 — Pulmonary lesions from biopsy after formalin fixation; sections demonstrate dense white nodules.
With presumptive diagnosis of granulomatous pulmonary infection (specially tuberculosis and histoplasmosis) the patient was submitted to an open lung biopsy. A cuneiform fragment of lingua, measuring 2.5 x 2.2 x 1.0 cm, was fixed in formalin and sent to the pathologist (Fig. 2). Another fragment of tissue specimen was recovered in a sterile tube containing 2.0 ml of sterile water and transported to the laboratory.

Pathology — The lung tissue was grey, with white and hard nodules, measuring 0.5 cm (Fig. 2). The haematoxylin and eosin-stained tissue section showed a tuberculoid granuloma with central caseous zone. The Gomori methenamine silver (GROCOTT) well demonstrated the one budding yeast cells of Histoplasma capsulatum. Acid-fast bacilli were not found.

Mycology — Under sterile conditions, with forcep and scalpel in a Petri dish a nodule was removed from the lung specimen. It was cut into small fragments with scissor and forcep. Some of these were inoculated in Sabouraud and brain heart infusion agar and submitted to 25°C and 37°C, respectively. A direct smear of a small fragment of nodule in 10% KOH, observed by bright-field microscopy was without evidence of microorganisms, as well as the Ziehl-Neelsen and Gram-stained smears. One week after colony development was observed. Portion of both cultures (Fig. 3) was submitted to microscopic examination and revealed the H. capsulatum in its dimorphism.

Mycoscopy — Serum obtained after mycological diagnosis, was sent to Dr. Leo Kaufman (CDC, Atlanta, GA) who tested it for H. capsulatum antibodies by the immunodiffusion and complement fixation tests. Both were positive, with M band and at 1:64, respectively.

Epidemiology — The oriented clinical history revealed that the patient in March 9, fourteen days before becoming ill, cleaned a chicken house (Fig. 4) by five hours in the rural area of General Câmara, Rio Grande do Sul.
near the Jacui river. We recovered soil samples from three parts of this place and by intraperitoneal inoculation in mice and posterior cultivation of spleen and liver fragments isolated *H. capsulatum*. The mould-form-to-yeast-form conversion in brain heart infusion at 37°C was done.

**Evolution** — The patient returned one and six months later. He seemed to be improving symptomatically without treatment and the chest X-rays revealed marked improvement in both opportunity. Mycoserology showed no changes in six months control.

**COMMENTS**

Histoplasmosis must be an important public health problem in Brazil. In Rio Grande do Sul, because of greater awareness, there is an increase in the report of clinical cases and most of these cases come from the Jacui’s river valley, where the *H. capsulatum* was isolated from soil and sensitization to histoplasmin is the highest, 39.1%. This rate of skin test positivity needs further confirmation, but is similar to Argentina’s and Uruguay’s valley of rivers.

It is interesting to note that in spite of Rio Grande do Sul having similar climatic conditions as does Uruguay, acute pulmonary histoplasmosis has never been reported in our neighboring country.

**RESUMO**

Histoplasmose pulmonar aguda e primeiro isolamento do *Histoplasma capsulatum* do solo do Rio Grande do Sul, Brasil

Apresenta-se um caso de histoplasmose pulmonar aguda, onde a história clínica orientada levou à identificação da fonte natural do *Histoplasma capsulatum*. O fungo foi obtido em cultivo a partir de fragmentos de baço e fígado de ratos inoculados intraperitonealmente com solo da zona rural de General Câmara, pela primeira vez no Rio Grande do Sul.

**ACKNOWLEDGEMENT**

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**REFERENCES**


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