

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

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S U M M A R Y

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.

I N T R O D U C T I O N

Histoplasma capsulatum distribution in nature has received little attention in Brazil¹⁰. 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.

C A S E R E P O R T

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.

T A B L E I
H. capsulatum isolated from soil in Brazil

Year	Association	Location	Site	Comments	Authors
1955	Chickens	Jacobina, BA	Near Ouro's river	Kala-azar endemic zone	SILVA (15)
1966	Bats	Caraguatatuba and Ubatuba, SP	Beach house	Histoplasmosis epidemic	FAVA NETTO et al. (5)
1967	Bats	Brasília, DF	Rural cave	Histoplasmosis epidemic	SCHIMIDT et al. (14)
1967	Chickens	Lagoa Santa, MG	Rural area	Histoplasmosis skin test of 46%	ARAUJO (1)
1975	Chickens	Aripuanã, MT	Near Aripuanã river	Histoplasmosis skin test of 63%	MORAES & ALMEIDA (10)
1984	Chickens	General Câmara, RS	Near Jacui river	Acute pulmonary histoplasmosis	SEVERO et al. (present report)

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On physical examination he seemed acutely ill, with an axillary 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).

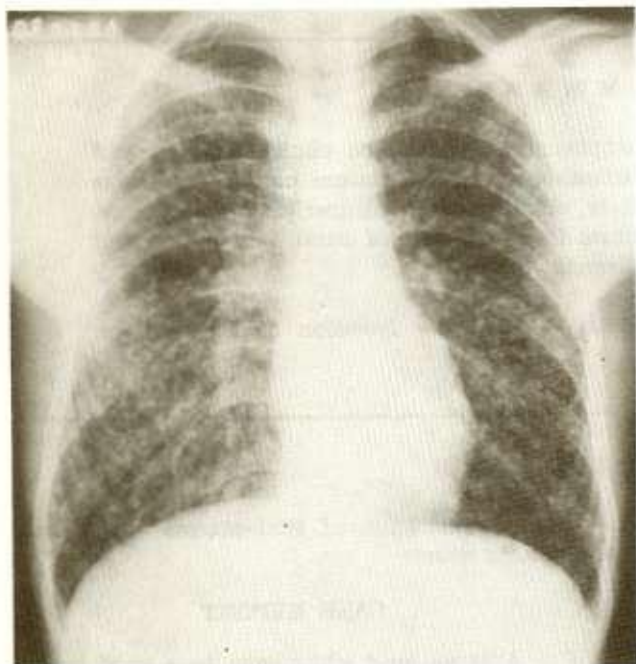


Fig. 1 — Radiologic aspects of multiple miliary nodules in both lungs with hilar adenopathy



Fig. 2 — Pulmonary lesions from biopsy after formal fixation; section demonstrate dense white nodules

With presuntive diagnosis of granulomatous pulmonary infection (specially tuberculosis and histoplasmosis) the patient was submitted to an open lung biopsy. A cuneiform fragment of lingula, 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 sterily 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 them were inoculated in Sabouraud and brain heart infusin 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 it's dimorphism.

Mycoserology — 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,

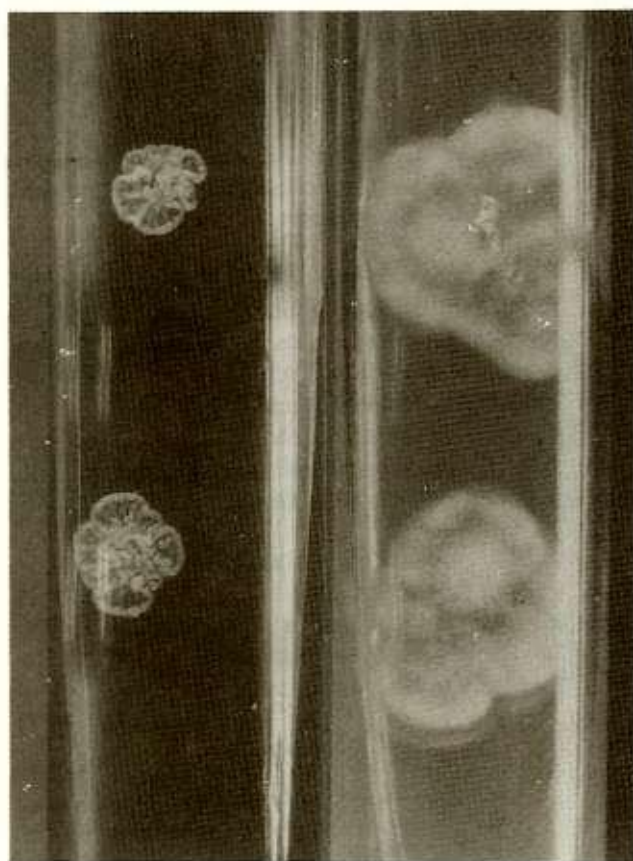


Fig. 3 — *H. capsulatum* isolated from pulmonary caseous granuloma in it's dimorphism



Fig. 4 — The patient by his chicken house where he contracted histoplasmosis

near the Jacuí river. We recovered soil samples from three parts of this place and by intraperitoneal inoculation in mice and posterior cultivation of spleen and liver fragments⁴ 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 Brazil⁷. In Rio Grande do Sul, because of greater awareness⁶, there is an increase in the report of clinical cases^{3,11,12,13}, and most of these cases come from the Jacuí's river valley^{12,13}, where the *H. capsulatum* was isolated from soil and sensitization to histoplasmin is the highest, 39.1%⁹. This rate of skin test positivity needs further confirmation⁹, but is similar to Argentina's and Uruguay's valley of rivers⁸.

It is interesting to note that in spite of Rio Grande do Sul has similar climatic condi-

tions as does Uruguay, acute pulmonary histoplasmosis has never been reported in our neighboring country⁷.

RESUMO

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

Apresenta-se um caso de histoplasmoze 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.

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