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PROGRESSIVE PULMONARY PARACOCCIDIOIDOMYCOSIS A STUDY OF 34 CASES OBSERVED IN RIO GRANDE DO SUL (BRAZIL)

A. T. LONDERO*, Cecy D. RAMOS & J. O. S. LOPES

Department of Pathology (Section Mycology) of the University of Santa Maria, 97100 Santa Maria, RS, Brazil.

Abstract

Data on 34 patients with progressive pulmonary paracoccidioi domycosis seen in the State of Rio Grande do Sul (Brazil) are reviewed. Clinical manifestations were similar to those of a prolonged or a recurrent undifferentiated respiratory infection. Roentgenographic findings were also non-characteristic. A mycologic diagnosis was readily made when sputum was available.

Introduction

The pulmonary lesions of paracoccidioidomycosis or South American Blastomycosis (SAB) occur in three clinical forms. They are: 1) primary benign; 2) progressive; and 3) disseminated (6, 11, 13). Notwithstanding this, according to a classification in wide use, all cases presenting a parcoccidioidal pulmonary lesion are classified as 'visceral' or 'mixed' clinical forms (4). Those cases of the 'visceral' form, which exclusively presented lung lesions, were reported as 'pure', 'primitive' or 'exclusive' pulmonary forms. They will be discussed herein under the designation of progressive pulmonary SAB.

There have been few reports on the progressive pulmonary form (1, 2, 3, 5, 7, 10, 17, 18, 20, 25). This has lead to the belief that it is a rare manifestation of the mycosis. However, some investigations have shown that 29 to 49 % of the patients referred from general practice (12, 22, 23) or from chest disease hospitals (19), presented this form of the disease. With one exception (12) studies of several series of patients with SAB discuss or deal with the clinical and radiological findings of the progressive pulmonary and the disseminated forms as a whole (9, 15, 19, 22, 23) without any distinction made between them.

* Pesquisador IB, Conselhor Nacional de Desenvolvimento Científico e Tecnológico (CNPq).

These facts explain the reason for the present report on 34 patients with the progressive pulmonary form of SAB. They were part of a series of 121 patients with the mycosis who had been referred to the Mycology Section during the period 1960 to 1975.

Material and methods

Clinical records of the 34 patients, including a chest roentgenogram obtained at the time of admission, were reviewed. Diagnosis was based on microscopic finding of the characteristic multiple budding, double walled, large yeast-like elements of *Paracoccidioides brasiliensis* in sputum.

Properly collected sputum was subjected to microscopic examination 1) directly, in a drop of 10 % potassium hydroxide, and 2) in sputum sediment, after treatment with 4 % sodium hydroxide and concentration by centrifugation (14). When negative results were obtained, microscopic examination was repeated with sputum specimens taken daily for six days. Positive sputum was also treated with antibiotics and inoculated intratesticularly into guinea pigs. Pus aspirated from testicular lesions was cultivated on Sabouraud glucose agar and SABHI. Conversion from the mycelial to yeast form was carried out (12). Sera were obtained from the last 15 patients and tested with an immunodiffusion test (8) using Restrepo's antigen (21).

Results

Thirty-two of the patients were male laborers of the soil, aged 34 to 74 years, with a peak prevalence of 50–60 years. All but one were white. The two remaining patients were 35 and 73-year-old white female housewives.

An associated tuberculosis was verified in the 35-year-

old female patient. For that reason only the clinical and mycologic findings of the 33 remaining patients, whose pulmonary lesions were ascribed to *P. brasiliensis*, will be discussed in detail.

Clinical findings

On the basis of their clinical histories the 33 patients were classified in three groups: 1) those with a history of recurrent respiratory infection (20 patients); 2) those with a history of prolonged respiratory infection (12 patients); and 3) those with very mild symptoms related to a lung disease (1 patient).

Group 1)

The symptomatology was similar to that of recurrent bronchitis or flu-like infection. The most common symptoms are listed in Table 1. In the majority of the patients scant and nonspecific physical signs were noted. The patients' illness had a duration of one to seven years. During that time, medical attention was sought once by two patients, twice by 9, three times by 7 and more than three times by 2. Chest roentgenograms were taken once in 14 patients, twice in 5 and three times in one. At the time of admission generalized X-ray lesions were verified in 19 patients and a circumscribed tumoral lesion was seen in one. The various combinations of nodular, infiltrative and striated lesions presented by the patients are listed in Table 2. Pleural complications were seen in 3 patients: effusion, thickness and adherence, respectively. Emphysema was verified in 3 patients.

Table 1. Comparative frequency of SAB symptoms manifested by patients of Groups 1 and 2

Symptoms	Group 1		Group 2	
	No.	%	No.	%
Cough	20	100	12	100
Expectoration	20	100	12	100
Dyspnea	14	70	9	75
Hemoptysis	5	25	6	50
Thoracic pain	4	20	1	8
Weight loss	13	65	2	17
Fever	4	20	1	8
Night sweats	1	5	–	–
Adynamia	5	25	3	25

Table 2. Comparative roentgenographic findings observed in patients of Groups 1 and 2 with SAB

X-ray lesions	Group 1		Group 2	
	No.	%	No.	%
Fibrosis + infiltration	9	45	5*	42
Fibrosis + cavitation	2	10	1	8
Fibrosis + infiltration + cavitation	2**	10	1	8
Infiltration + cavitation	2	10	1	8
Nodules	4	20	4	42
Tumoral	1	5	–	–

*see Fig. 1, **see Fig. 2

Group 2

Symptomatology similar to that of a prolonged subacute respiratory infection was presented by these patients. Their common symptoms are listed in Table 1. Nonspecific rales were noted in all of these patients. The duration of the disease varied from one to eight months following the inception of their symptoms. During that time only two patients sought medical attention (chest roentgenograms were taken on both). At the time of admission 11 patients presented generalized X-ray lesions in the lung. The twelfth patient's lesions were circumscribed. The types of radiological lesions are listed in Table 2. Pleural thickness and emphysema were seen once each.

Group 3

The only patient in this group had very mild symptoms. He complained of laryngeal discomfort, cought and occasional expectoration. No physical signs of disease could be verified. Lesions were not seen by laryngoscopy. When he was given a chest roentgenogram, it revealed multiple nodular lesions on the upper fields of both lungs and 'probably hilar adenopathy'.

Diagnosis

SAB was not suspected clinically in any of the patients. Their disease was diagnosed as tuberculosis in 30 of the patients; a carcinomatous mass, tracheobronchitis and bronchopneumonia respectively in the remaining three patients. They were ultimately referrred for mycologic diagnosis after a prolonged and unsuccessfully period of antibiotic therapy. A diagnosis of SAB was readily accomplished by microscopic examination of the first sputum sample in 30 of the patients. In the remaining patients two (3 patients) and three (1 patient) samples were examined before disclosure of the fungus by a concentration tech-

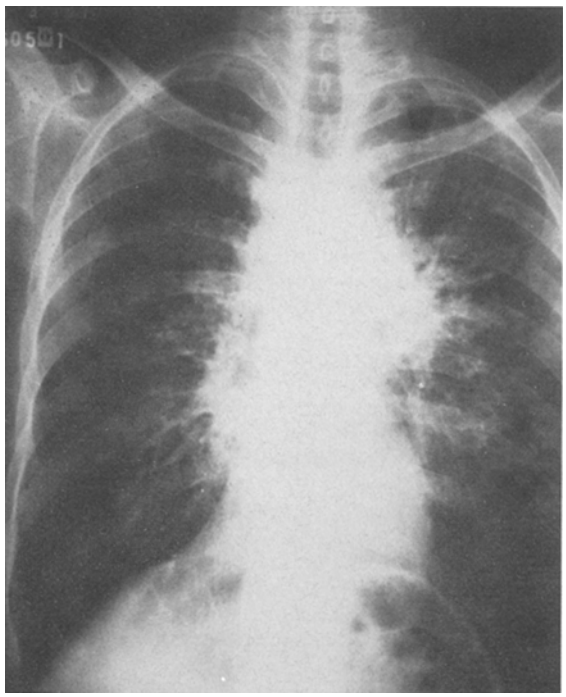

Fig. 1. X-ray showing infiltrative and striated lesions radiating from the hilum. Patient's illness of 6 month duration.

nique. Cultures were not obtained from eight patients' specimen. Immunodiffusion tests for SAB gave positive results in 13 of the 15 sera (86.6 %) tested. Negative results were obtained in the patient with an associated tuberculosis and in the one in Group 3.

Discussion

A high percentage (28 %) of progressive pulmonary SAB was diagnosed in patients coming from general practice services. A similar or higher prevalence was also verified in a previous study (12), in Venezuela (23) and Colombia (22). These findings are directly due to a deliberate search for such cases and the availability of mycologic facilities.

The clinical and roentgenographic signs of SAB presented by our patients were not pathognomonic as has usually been reported (2, 5, 7, 10, 17, 18, 20, 25). This fact explains in part why patients were only referred to the mycology laboratory after a long period of illness. Paracoccidioidal pulmonary lesions continue to be overlooked in patients who do not present oral or cutaneous lesions since these extra pulmonary lesions are still believed by some to be the primary one.

The progressive pulmonary form of SAB is usually confused with tuberculosis (1, 2, 15, 19, 24). This is what occured with our patients. This situation is due to to the clinical and roentgenographic similarities presented by both these diseases. Usually the diagnosis of respiratory mycoses, if made, is the last one to be thought of in the differential diagnosis of undifferentiated respiratory infections.

In patients presenting active lung's lesions such as ours, mycologic diagnosis by sputum examination is an easy task. Such patients have a productive cough and their expectorations are very rich in the multiple buddings elements of *P. brasiliensis* | 2, 16, 20 | . Simple and inexpensive concentration technique may be used as a routine in the examination of sputum from patients living in SAB endemic areas.

Due to the high prevalence of the progressive pulmonary form of SAB, physicians should be suspicious of all pulmonary lesions presented by patients living or coming from the endemic areas of this mycosis. Special attention must be taken with the early ('initial') lesions (15, 20, 23), or of the unusual manifestestations | 3, 10, 15, 18, 23, 24, 25 | of the

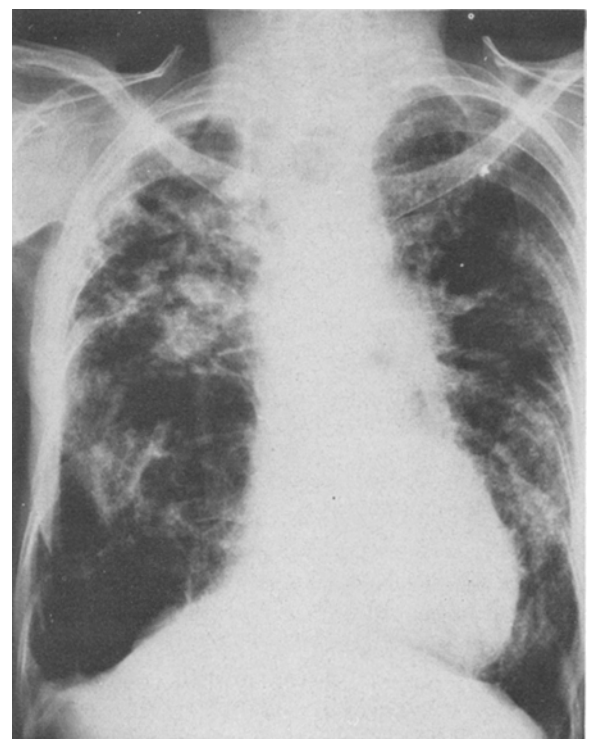

Fig. 2. X-ray revealing fibro-cavitary plus infiltrative lesions. Patient's illness of 2 years duration.

pulmonary form in which there is no productive sputum. In such cases immunodiffusion tests may be very helpful in case finding | 21 | . Subsequently diagnosis should be confirmed by microscopic examination of lung biopsed tissue (1, 2, 15, 16) or surgical specimen (18, 24).

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