



Case report

Paracoccidioidomycosis with sarcoid-like cutaneous lesion: A clinicopathological challenge

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ARTICLE INFO

Keywords:

Paracoccidioidomycosis
Mycoses
Histology
Dermatology
Diagnosis
Sarcoidosis

ABSTRACT

We describe a case of sarcoid-like cutaneous paracoccidioidomycosis in a 26-year-old male, with a 10-year evolution, wrongly diagnosed as granulomatous rosacea. The correct diagnosis was only possible after the appearance of a new skin lesion with a more typical characteristic of the dermatosis, correlated with anatomopathological, laboratory and imaging exams. The clinical presentation of paracoccidioidomycosis is diverse, and the sarcoid-like form can mimic several chronic granulomatous diseases, such as sarcoidosis, tuberculoid leprosy, leishmaniasis, or tuberculosis. This presentation of cutaneous paracoccidioidomycosis is rare, and its diagnosis depends on the clinicopathological correlation, which can be a challenge for the dermatologist.

Introduction

Paracoccidioidomycosis (PCM) is a systemic mycosis caused by the thermally dimorphic fungus, *Paracoccidioides brasiliensis* (*P. brasiliensis*) [1,2]. This condition is endemic in Brazil, diagnosed more frequently in São Paulo State [7]. Nevertheless, the incidence and prevalence are underestimated because it is not a notifiable disease. Transmission occurs through the inhalation route, which in turn, can result in lymphohematogenous dissemination with distant metastatic foci. The main organs affected are the lungs, skin, mucosa, lymph nodes, adrenals, and the nervous system [1,2].

According to Franco et al., PCM was classified into PCM-infection and PCM-disease, based on the assessment of organ and system involvement, severity, clinical course and immune response. PCM-disease is divided in acute-subacute form, which usually affects young patients of both sexes, and chronic form, which is more prevalent in middle-aged men [1].

Regarding the cutaneous-mucous manifestations, the morphology of the lesion is variable and may range from erythematous papules and nodules to vegetating ulcers [1]. There is also a rarer form that is infiltrated or has a lichenoid appearance, with almost exclusively cutaneous involvement, called sarcoid or sarcoidosis-like [2,3].

This report describes a case of PCM with sarcoid skin lesion, with a

prolonged course, initially diagnosed as granulomatous rosacea, with the aim of raising dermatologists' awareness to the difficulty in diagnosing granulomatous dermatoses.

Case report

A 26-year-old male patient, from Barretos (São Paulo State, Brazil), residing in an urban area, complained of a nodular skin lesion that developed into an ulcer located in the left infra-axillary region, that had started 2 months before. He denied pain, bleeding, or associated systemic symptoms. He reported the use of topical antibiotics, with no improvement. The patient had also had an infiltrated plaque skin lesion in the right malar region, asymptomatic, for 10 years with a previously performed biopsy, which showed histological granulomatous pattern. The patient referred previous treatments for granulomatous rosacea, with no success. The last treatment performed for rosacea was with doxycycline, however due to gastric intolerance the patient discontinued it. The patient denied previous comorbidities, or use of continuous medication. He also denied having contact with insects, bathing in rivers, lakes, or waterfalls, or walking in rural areas recently. Dermatological examination showed a 2.5-cm ulcerated lesion with an erythematous background, well-defined infiltrated and elevated border, and the presence of satellite micropapules, located in the left infra-

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Fig. 1. Ulcerated lesion located in the left infra-axillary region. Detail of the lesion can be seen in the image on the right.



Fig. 2. Infiltrated, sarcoid-like cutaneous lesion in the right malar region.

axillary region (Fig. 1). In the right malar region of the face, an infiltrated and erythematous plaque was observed, measuring approximately 3 cm (Fig. 2). Skin biopsies of the 2 lesions were performed. The anatomopathological examination of the ulcerated lesion showed granulomatous and suppurative dermatitis with the presence of birefringent corpuscles fungal structures, stained black with Grocott-Gomori (methenamine-silver), exhibiting exosporulation, identified as *P. brasiliensis* (Fig. 3). The facial lesion showed a similar picture with few degenerated fungal structures (Fig. 4). The investigation of acid-fast bacilli using the special staining (Ziehl-Neelsen technique) was negative. Serum counterimmunoelectrophoresis was reactive for PCM at titer

1:512. Computed tomography of the chest showed calcified pulmonary micronodules, calcified lymph nodes in the mediastinum and right hilum with a residual aspect and axillary lymph nodes increased in number and bilateral. The clinical correlation with histological, laboratory and imaging exams contributed to the diagnosis of PCM, and treatment with itraconazole 200 mg/day was proposed.

Discussion

The clinical manifestation of cutaneous PCM can have a very wide morphological spectrum. There is a variant of cutaneous PCM that manifests itself in the skin with infiltration, similar to sarcoidosis, called sarcoid or sarcoidosis-like form, being considered a subtype of PCM-disease [1,3]. This form is rare and histologically characterized by the presence of tuberculoid granulomas and scarcity of fungal structures [1–5,8]. This is due to the host's immune response, because when the individual presents a competent immune response to *P. brasiliensis*, a stimulus is given to generate the T helper 1 (Th1) lymphocytes response. This event promotes the formation of tuberculoid granuloma, with scarce or undetectable fungi, and it clinically results in localized or limited skin lesions [3,7]. In addition, negative serology or low titers are often associated with this cutaneous feature [3,6].

On the other hand, when there is an imbalance in the individual's immune response, skin lesions are usually more typical due to a change in the pattern for T helper 2 (Th2) lymphocytes response, which allows fungal proliferation, granuloma dissolution, and dissemination of the disease. Furthermore, with the predominance of Th 2 profile lymphocytes, there is a greater expression of humoral immunity and consequent production of antibodies [3].

It can be observed in this report that the clinical and histological diagnoses became evident after the appearance of the new skin lesion that brought the patient to medical assistance.

To sum up, this is noticeable for being a case of sarcoid cutaneous manifestation of PCM, with long evolution, in a young adult patient, residing in an urban area, with no evident risk factors for PCM. The sarcoid form of PCM is rare and its diagnosis is challenging.

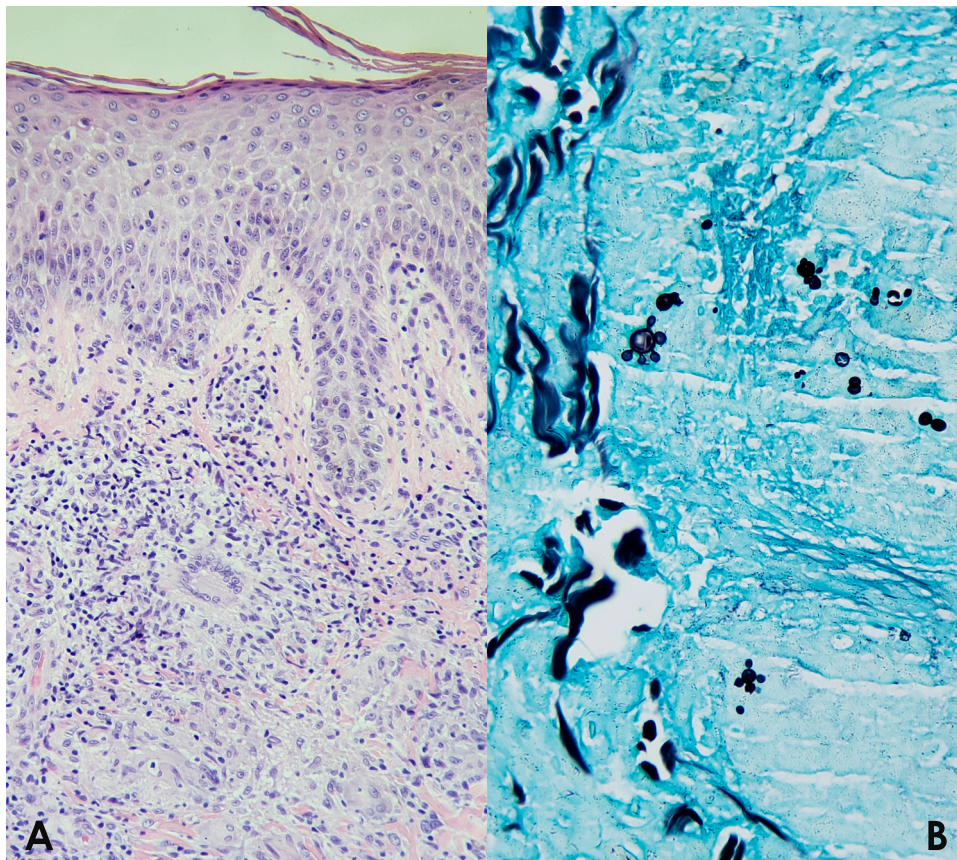


Fig. 3. A: granulomatous inflammatory infiltrate (H&E, X 100). B: fungal structures with bi-refringent corpuscles exhibiting exosporelation are showed, they are stained black.

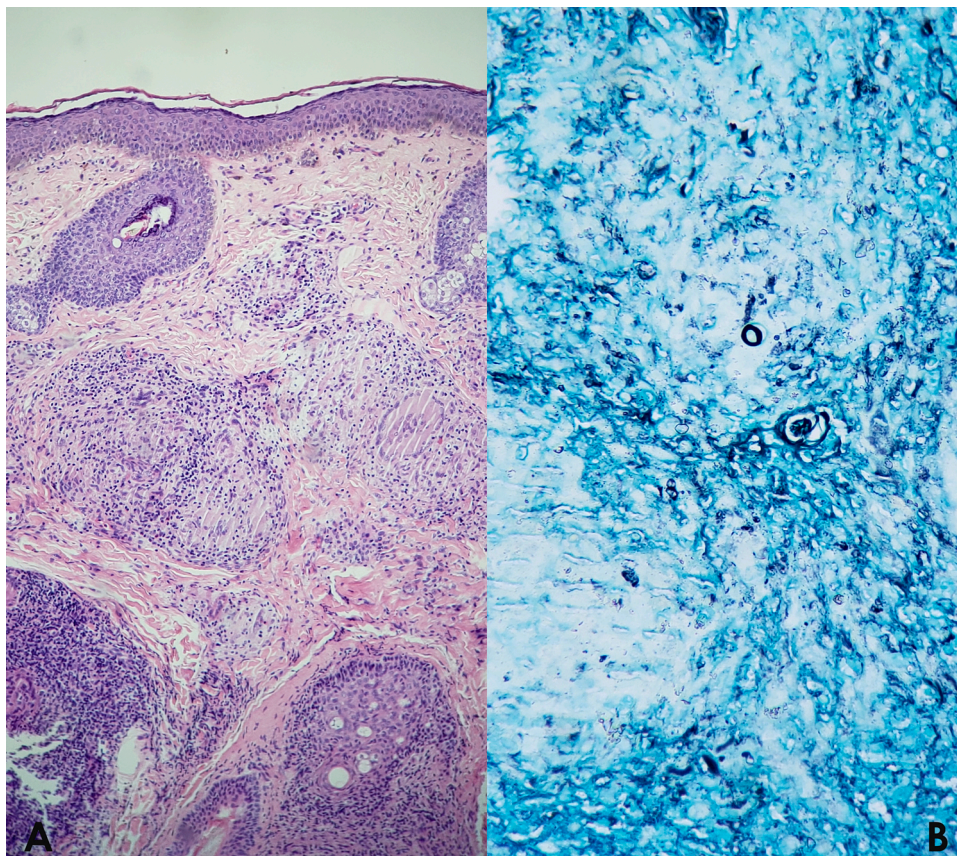


Fig. 4. Biopsy of the facial lesion. In image A granulomatous dermatitis (H&E, X 100) can be seen. In image B degenerated fungal structures (Silver Methenamine, X 400).

Conclusion

The diagnosis of the sarcoid form of the skin PCM is often challenging and requires a good clinical-histological correlation, as the clinical and histological manifestations may share similar characteristics with other chronic granulomatous dermatoses. It is essential to collect a detailed medical history, with emphasis on epidemiology, associated with a complete dermatological examination and histological evaluation. The search for the causative agent must persist and the interaction between the dermatologist and the pathologist is crucial for the diagnostic elucidation.

Ethical approval

The study was approved by the Ad Referendum Committee at the Barretos Cancer Hospital.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

CRediT authorship contribution statement

Cristiane Botelho Miranda Cárcano: Designed the study, methodology, drafting and editing of the manuscript, critical review of the literature; critical review of the manuscript, effective participation in research orientation, intellectual participation in the propaedeutic and/or therapeutic conduct of the studied case; approval of the final version of the manuscript; **Vanessa D'Andretta Tanaka:** Drafting and editing of the manuscript, critical review of the manuscript, approval of the final version of the manuscript; **Cristina Alessi:** Drafting and editing of the manuscript, critical review of the manuscript, approval of the final

version of the manuscript; **Monise Tadin Reis:** Design and planning of the study, drafting and editing of the manuscript, effective participation in research orientation, approval of the final version of the manuscript. **Mariana Soares Ferreira:** Designed the study, drafting and editing of the manuscript, collection, analysis, and interpretation of data, intellectual participation in the propaedeutic and/or therapeutic conduct of the studied case, critical review of the literature, approval of the final version of the manuscript.

Financial support

None declared.

Declaration of Competing Interest

The authors declare that they have no competing interests.

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