White Piedra. Experience with 12 cases

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Introduction.-

- White piedra (WP) is a superficial mycosis caused by yeast fungi of the genera *Trichosporon*, is a rare infection and asymptomatic, affects the hair at the level of the stem in the form of concretions or adherent nodules. The main etiological agents are: *Trichosporon inkin*, *Trichosporon ovoides*, *Trichosporon cutaneum*

Objective.-

- Is to present our clinical-mycological and therapeutic experience of twelve cases

Material & Methods.-

- A retrospective study of WP, seen in the Dermatology Service from 2005 to 2017 (twelve years), was carried out. All cases underwent a clinical history and the diagnosis was checked by the following tests: with Wood's light. Hair was taken for direct tests with KOH (10%); KOH + cotton blue and some parasitized hairs were performed scanning electron microscopy (Jeol® microscope, model JSM-5300); cultures in Sabouraud dextrose agar media with and without antibiotics. The cultures were confirmed by micromorphology and confirmed by two methods: assimilation of carbohydrates by commercial system VITEK® 2YST ID-card and by protein identification with MALDI-TOF MS system (Vitek-MS®). The treatment was based on ketoconazole (2%) in shampoo for 1-2 months and the cases of failure were used Hoffman's liquor (alcohol / ether) + 1% salicylic acid, or one of them plus oral itraconazole.

- Treatment response: Ketoconazole shampoo (2%): 09/12 cases (75.0%); Itraconazole (200 mg/day) + ketoconazole shampoo (2%) 1/12 (8.4%) and Hoffman liqueur plus salicylic acid 2/12 (16.6%).

Conclusion.-

- The WP, is a rare fungal infection, which affects more the head hairs, our main etiological agent was *Trichosporon inkin* (83%). The majority of cases were in school-age girls. All the cases presented hairs concretions with conidia. In 75% of cases clinical and mycological cure was achieved with ketoconazole shampoo.

Table 1. Demographic, clinical, mycological and therapeutic data.

Parameters	Results Cases (%)
Age	Youngest: 8 year-old; oldest: 31 years-old. Average: 17.25. Children (<15 years old): 7 (58.3%). Adults: 36 (49.31%)
Gender	Female: 11 (91.6%). Male: 1 (8.4%).
Occupation	Scholars & students: 8 (66.6%); Housewives 3 (25.0%); Employed 1 (8.4%)
Clinical topography	Head hairs: 11 (91.6%). Scrotal hairs 1 (8.4%)
Symptoms	Asymptomatic 10/12 (83.4%) Pruritus 2/12 (16.6%)* *Cases with hyperkeratosis and intertrigo.
Predisposing factors	Long hair: 11 cases. Curly hair: 7 cases. Excess of humidity: 9 cases. Diabetes mellitus type-2: 1 case
Climate/ Place of provenance	Temperate: (Mexican metropolitan area): 7 (58.4%) Tropical: (Veracruz, Guerrero and Chiapas) 5 (41.6%)
Clinical features	Multiple white nodules (concretions) 12 (100%)* *1 case associated to inguinal intertrigo *1 case associated hiperkeratosis
Mycological data	KOH: Microscopic nodules or concretions formed by multiple arthroconidia and hyphae 12 (100%). Etiological agents: <i>Trichosporon inkin</i> 10 (83.3%) <i>Trichosporon cutaneum</i> 1 (8.3%) <i>Trichosporon ovoides</i> 1 (8.3%)
Treatment	Ketoconazole shampoo (2%): 09/12 cases (75.0%) Itraconazole (200 mg/day) + ketoconazole shampoo (2%) 1/12 (8.4%) Hoffman liqueur plus salicylic acid 2/12 (16.6%)

Table 2. Identification etiologic agents of white piedra and cutaneous lesions

Etiological agent (Morphology)	System VITEK® 2YST ID-card Strains	System MALDI-TOF MS (Vitek-MS®) Strains
Strains		
<i>Trichosporon</i> sp 12 <i>T. inkin</i> : 2	<i>T. inkin</i> : 9 <i>T. cutaneum</i> : 1 <i>Trichosporon</i> sp: 2 No identified: 2	<i>T. inkin</i> : 12 <i>T. cutaneum</i> : 1 <i>T. ovoides</i> : 1
Identified:	10 (71.5%)	14 strains (100%)
Total: 14 strains		

*12 strains of white piedra and 2 of cutaneous lesions (nuchal hyperkeratosis and inguinal intertrigo)

References: Bonifaz A, Gómez-Daza F, Paredes V, Ponce RM. Tinea versicolor, tinea nigra, white piedra and black piedra. Clin Dermatol. 2010; 28:140-145.; Chagas-Neto TC, Chaves GM, Colombo AL. Update on the genus Trichosporon. Mycopathologia 2008; 166:121-132.; Colombo AL, Padovan AC, Chaves GM. Current knowledge of Trichosporon spp. and Trichosporonosis. Clin Microbiol Rev 2011; 24:682-700.; Kilen DA, Sekaran A, Antava RJ, Davis A, Imaeda S, Silverberg NB. White piedra in children. J Am Acad Dermatol 2006; 55:956-961.; Magalhães AR, Mondino SS, Silva M, Nishikawa MM. Morphological and biochemical characterization of the aetiological agents of white piedra. Mem Inst Oswaldo Cruz 2008; 103:786-790.; Pontes ZB, Ramos AL, Lima Ede O, Guerra Mde F, et al. Clinical and mycological study of scalp white piedra in the State of Paraíba, Brazil. Mem Inst Oswaldo Cruz 2002; 97:747-750.; Richini-Pereira VB, Camargo RM, Bagagli E, Marques SA. White piedra: molecular identification of Trichosporon inkin in members of the same family. Rev Soc Bras Med Trop 2012; 45:402-404.; Roselino AM, Seixas AB, Thomazini JA, Maffei CM. An outbreak of scalp white piedra in a Brazilian children day care. Rev Inst Med Trop São Paulo 2008; 50:307-309.; Roshan AS, Janaki C, Parveen B. White piedra in a mother and daughter. Int J Trichology 2009; 1:140-144.; Shivaprakash MR, Singh G, Gupta P, Dhaliwal M, Kanwar AJ, Chakrabarti A. Extensive white piedra of the scalp caused by Trichosporon inkin: A case report and review of literature. Mycopathologia 2011; 172:481-486.; Tendolkar U, Shinde A, Baveja S, Dhurat R, Pishke M. Trichosporon inkin and Trichosporon mucoides as unusual causes of white piedra of scalp hair. Indian J Dermatol Venereol Leprol 2014; 80:324-7.