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AN UPDATED REVIEW ON PITYRIASIS ALBA

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ABSTRACT

Pityriasis Alba (P. Alba) is a relatively common skin disorder characterized by the presence of fine scaly hypo pigmented macules or patches. It was first described by fox in 1923. He was unable to account for its pathogenesis and kept unnamed for many years. There was no gender variability for this skin disorder and was prevalent all over the world. The exact etiology of P. Alba is not known. Lesions are usually oval or round or irregular in shape with red or pink or skin coloured and may ranges from 4-20 in number. They are often characterized by hypo pigmented patches with 0.5-6cms in diameter. Spongiosis, acanthosis, hyperkeratosis, parakeratosis are the histological findings that can be observed during diagnosis. Low potency topical steroids like Hydrocortisone (0.5%) and (1%), Desonide (0.05%), Tacrolimus (0.1%), Pimecrolimus (1%), Calcitriol (0.0003%), Sorbityl furfural palmitate cream, Elidel, Lac-Hydrin, Zetar (2%) in Cordran cream, Vioform cream (1%) were found to be effective in treating this disorder. Treatment with 308nm excimer laser twice a week for 12 weeks is also an effective treatment approach. Patients should be strictly advised not to expose to harsh sunlight. Lesions become prominent in sun exposure so in order to reduce the discrepancy, sunscreen creams or lotions are recommended. In some circumstances, P. Alba remained mysterious to understand because of no exact etiology, histological pattern and effective treatment approaches. Hence there is an urgent need for the evaluation of etiology, pathogenesis, diagnosis and effective therapeutic plans to provide better patient care for individuals with P. Alba.

Key words: Pityriasis Alba, Erythema streptogenes, Impetigo furfuracea, Pityriasis streptogenes, Pityriasis simplex, Spongiosis.

INTRODUCTION

Pityriasis Alba (P. Alba) is a relatively common skin disorder characterized by the presence of fine scaly hypo pigmented macules or patches [1]. The term P. Alba is derived from two Latin words pityriasis (scaly) and alba (white patches) [2]. These white patches are most commonly seen in the areas like face, trunk, neck [3] and around the mouth [4]. It was first described by fox in 1923. He was unable to account for its pathogenesis and kept unnamed for many years [5]. This skin disorder is also called as erythema streptogenes, pityriasis streptogenes, impetigo furfuracea and pityriasis simplex [6].

There are two types of P. Alba that includes endemic P. Alba and atopic dermatitis related P. Alba with post inflammatory hypo pigmentation. Endemic P. Alba usually occurs in infants and children of low socioeconomic condition [7]. P. Alba is best characterized as a form of dermatitis which occurs due to reduction in melanocytes and melanosomes with no defect in melanosomal transfer to keratinocytes [8]. It results primarily from inflammation involving the epidermis and superficial dermis, which interferes the normal pigmentation. Loss of pigment is not permanent in this skin disorder [9].

Epidemiology

According to some investigations, females are more prone to this skin disorder than males and in some investigations male predominance has been reported slightly [10]. Hence, we can describe that there was no gender variability for this skin disorder [11]. This disorder was prevalent all over the world and the prevalence may vary from country to country [12]. Table 1 represents the prevalence rates of P. Alba in different parts of the world.

P. Alba occurs in all age groups, and was more predominant in children between the ages of 3-16 years. This skin disorder was affecting 5% of pediatric population among the worldwide distribution [10, 13]. The prevalence of P. Alba among preadolescent children may ranges from 1.9-5.25% [14]. A retrospective analysis revealed that around 90% of patients who were diagnosed with P. Alba were between the ages of 6-12years and the remaining 10% patients were between the ages of 13-16years [15]. A ten year survey on P. Alba showed a prevalence rate of 81% and the patients were at the age of ≤ 15 [16]. A study was conducted among 9955 school going children who were between the ages of 6-16 years in topical region have reported a prevalence rate of 9.9% [17, 18]. According to a study, the higher incidence of P. Alba in school children is due to poor socioeconomic background [19]. P. Alba spots are common in all skin colours but are more often noticeable in darker skin [20]. According to the

existing literature, pigmentary changes among blacks and whites were found to be 9% and 1.7% respectively [10].

Table 1: Prevalence rates of Pityriasis Alba in different parts of the world [17, 19-24]

Name of the country	Prevalence rates
Brazil	9.9%
Egypt	13.49%
Hong Kong	1%
India	8.4-31%
Iraq	38.2%
Nepal	5.2%
Romania	5.1%
Turkey	12%
United States	5% (approximately)

Etiology

The exact etiology of P. Alba is not known. Some microorganisms such as pityrosporum, streptococcus, staphylococcus, and aspergillus are known to be the causing factors but are not yet confirmed [25]. Triggering factors that may cause P. Alba includes (i) deficiency of vitamins & calcium (ii) temperature variations, humidity and excessive sunlight exposure (iii) frequent bathing (iv) usage of various harsh detergents & soaps (v) dry and itching skin (vi) hypo pigmentation (vii) worms & parasites (viii) stress (ix) deficiency of copper and (x) atopic diseases and/or a family history of eczema [3, 10, 13, 26, 27].

Symptoms

Lesions are usually oval or round or irregular in shape with red or pink or skin coloured and may ranges from 4-20 in number [3]. They are often characterized by hypo pigmented patches with 0.5-6cms in diameter. Patch distribution is symmetrical and sometimes marginal. Sometimes it may be associated with mild itching [4]. P. Alba is not symptomatic, many patients do not mention lesions and are often found incidentally [16]. Lesions are more commonly limited to the face especially, in areas like mid forehead, malar ridges, around the eyes and mouth. The other areas that may be affected by this skin disorder are shoulders, neck, back and upper chest [10]. Mostly lesions are found on the upper extremities and occasionally on the lower extremities [14]. Mostly P. Alba may become worse during summer, because of skin tans. During winter the patients may experience dry scaly appearance [17, 18].

Figure 1: White patches of p alba on cheeks and around the mouth

Diagnosis

P. Alba can be diagnosed by using clinical findings. Spongiosis is a consistent histological finding in the diagnosis of P. Alba. Other histological findings such as acanthosis, hyperkeratosis, parakeratosis can often be seen [28]. P. Alba usually seen with 2 or 3 macules or patches at a time in several stages. According to Vargas-Ocampo et al., there are 3 stages of P. Alba. The early stage is known as papular erythematous stage, the intermediate stage is known as papular hypo chromic stage which is also called as follicular pityriasis alba and the final stage is described as smooth hypo chromic stage. The first (early) stage begins as erythematous with an elevated border that may lasts for weeks. In the second stage (intermediate), the patch may be replaced by a smooth scaly layer. These two stages are marked by the presence of pinpoint follicular papules. In third stage, these appear as a visible, round and hypo pigmented macule with well defined borders. The patient usually seeks medical treatment during this stage [29].

Differential diagnosis includes vitiligo, classic P. Alba, extensive P. Alba, progressive macular hypomelanosis, pigmenting P. Alba, post inflammatory hypo pigmentation, tuberous sclerosis, nevus depigmentosus, nevus anemicus, psoriatic leukoderma, tinea verscicolor, follicular mucinosis, pytiriasis lichenoides chronica, sarcoidosis, nummular eczema, adult t-cell leukemia/ lymphoma, and mycosis fungoides [13]. Sometimes P. Alba may get confused with vitiligo. Both P. Alba and vitiligo are hypo pigmented inflammatory skin diseases. In P. Alba the loss of pigmentation starts at the centre and extends peripherally, where as in vitiligo the loss of pigmentation is usually complete. A recent study revealed that P.Alba might convert into vitiligo and the four findings that might justify the above statement in their study

are (i) genetic susceptability as confirmed by strong family history of vitiligo among individuals with P. Alba (ii) close association between vitiligo and P. Alba in the same patients (iii) a huge percentage of P. Alba progressed to vitiligo and (iv) the high association of P. Alba and Koebner's phenomena [20].

Skin Biopsy is not usually necessary or recommended in diagnosing P. Alba but may be indicated in the diagnosis of mycosis fungoides. Sometimes pityriasis alba is often confused with tinea versicolor. The diagnosis can be carried out by a Potassium Hydroxide (KOH) examination. The surface of the skin was scrapped off in a small amount onto a glass slide. Then add potassium hydroxide and observe under the microscope. Fungal elements can be observed in conditions like tinea verscicolor but not with P. Alba. KOH stain shows a positive result not only in case of tinea verscicolor but also in the cases of tinea fociei and tinea corposis [30].

Treatment

Corticosteroids and Immuno suppressors

Low potency topical steroids like Hydrocortisone (0.5%) and (1%), Desonide (0.05%) are required for treating the symptoms like erythema, pruritis associated with initial lesions and repigmentation of existing lesions [31-33]. These are extremely safe for prescribing in young children but prolonged use on face is not recommended. Recently immunosupressors like Tacrolimus (0.1%) and Pimecrolimus (1%) had shown an excellent response in atopic related P. Alba. In some countries, prescribing of Tacrolimus (0.1%) for pediatrics was not approved [34, 35]. Instead of Tacrolimus (0.1%), we can prescribe Tacrolimus (0.03%) which was indicated as an off-labeled drug [29]. For endemic P. Alba no clinical trials were reported. In an open label, placebo controlled study, Tacrolimus ointment had shown efficacy and safety in 60 pediatric patients with P. Alba. According to some small open label studies, Pimecrolimus cream was found to be effective in treating p.alba among African and American adult patients [36].

Calcitriol and Other Drugs

Calcitriol (0.0003%) is an endogenous hormonally active derivative of vitamin D. It activates melanocytes, promotes melanin synthesis and has immuno-modulation properties. These features are useful in treating endemic P. Alba [37-41]. For chronic lesions on the trunk, tar paste can be used. But, Tar containing topicals are unfavorable in terms of patient adherence and efficacy too. Bland Emollient creams should be prescribed to reduce scaling of lesions on

face [42]. According to a double blind placebo-controlled trail, Sorbityl furfural palmitate cream was found to be effective in treating mild to moderate atopic dermatitis in P. Alba patients. In another study, patients who were between the ages of 2 months to 15 years, a significant improvement was observed with this cream when compared to those with on placebo after 15 and 30 days [1]. Elidel, a non steroid topical cream, can also be prescribed to reduce itching and erythema associated with P. Alba for those over the age of 2 years. Lac-Hydrin, Zetar (2%) in Cordran cream and Vioform cream (1%) were also found to be effective in treating this disorder [35, 36].

Other treatment approaches

Usually, the patches of P. Alba do not darken in sunlight. In order to decrease the discrepancy in colouration against the surrounding normal skin, effective sun protection is essential. Cosmetic camouflage can be considered as a choice for this [33,34]. In severe cases, Psoralen ultra violet light A (PUVA) therapy was considered but the recurrence rate will be more after discontinuation of the treatment. Treatment with 308nm excimer laser twice a week for 12 weeks is also an effective treatment approach for treating this skin disorder [42].

Patient Education

The precautions to be taken by the P. Alba patients are: Patients should be strictly advised not to expose to harsh sunlight. Lesions become prominent in sun exposure so in order to reduce the discrepancy, sunscreen creams or lotions are recommended. Sunscreens use can be recommended to all patients with various skin types. Several sunscreens have emollient information (eg: water based vs oil based) listed on the label, if not listed it is better to check with the pharmacist/ physician. Prefer moisturizing soaps for bathing and apply moisturizers like petroleum jelly or fragrance free ointments and creams to get the skin to be moisturized. Presence of chlorine in pool water may cause tanning. Hence, swimming should be avoided. Bacterial infections, fungal infections, parasitic infections, nutritional deficiencies and anemia are more frequent in case of patients with P. Alba. Hence, prominent care towards the health is a significant aspect. Advice the patients to attend for the periodic skin examination without fail. Provide awareness regarding health education on personal hygiene and clean environment [15, 43, 44].

CONCLUSION

The presence of hypo pigmented lesions remains difficult to find, remaining the term P. Alba more pertinent and precise. In some circumstances, P. Alba remained mysterious to understand because of no exact etiology, histological pattern and effective treatment approaches. Hence there is an urgent need for the evaluation of etiology, pathogenesis, diagnosis and effective therapeutic plans to provide better patient care for individuals with P. Alba.

REFERENCES

1. Patrizi A, Raone B, Raboni R, Neri I. Efficacy and tolerability of a cream containing AR-GG27® (sorbityl furfural palmitate) in the treatment of mild/moderate childhood atopic dermatitis associated with pityriasis alba. A double-blind, placebo-controlled clinical trial. G Ital Dermatol Venereol, 2012; 147(6, Suppl 1):1-8.
2. Pinto FJ, Bolognia JL.Disorders of hypo pigmentation in children. Pediatr. Clin. North Am, 1991; 38 (4): 991–1017.
3. Du Toit MJ, Jordaan HF. Pigmenting pityriasis alba. Pediatr Dermatol, 1993; 10(1):1-5.
4. Craig GB, Craig NB. Pityriasis Alba: A Condition with Possibly Multiple Etiologies. The Open Dermatology Journal, 2009; 3:7-8.
5. Watkins DB. Pityriasis Alba: a form of atopic dermatitis. A preliminary report. Arch Dermatol, 1961; 83:915-919.
6. O'Farrell NM. Pityriasis alba. AMA Arch Dermatol, 1956; 73:376-377.
7. Ruiz Maldonado R. Hypomelanotic Conditions of the Newborn and Infant. Dermatologic Clinics, 2007; 25(3): 373–382.
8. Nanda A, Al-Hasawi F, Alsaleh QA. A prospective survey of pediatric dermatology clinic patients in Kuwait: an analysis of 10,000 cases. Pediatr. Dermatol, 1999; 16:6–11.
9. Nordlund JJ, Sober AJ, Hansen TW. Periodic synopsis on pigmentation. JAAD, 1985; 12:361.
10. Weber MB, De Avila LGS, Albaneze R, De Oliveira OLM, Sudhaus BD, Cestari TF. Pityriasis alba: a study of pathogenic factors. JEADV, 2002; 16: 463-468.
11. Wolff K, Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ. Hypomelanoses and hypermelanoses. In: Fitzpatrick's Dermatology in General Medicine, 7th ed. New York; Springer: 2008, pp. 624–625.
12. Vanderhooft SL, Francis JS, Pagon RA. Prevalence of hypo pigmented macules in a healthy population. J. Pediatr, 1996; 129: 355–361.

13. Jadotte YT, Janniger CK. Pityriasis alba revisited: perspectives on an enigmatic disorder of childhood. Cutis, 2011; 87(2):66–72.
14. Mohammed AA. Pigmenting pityriasis alba: Case report and review of the literature. Journal of the Saudi Society of Dermatology & Dermatologic Surgery, 2012; 16:31–33.
15. Bassaly M, Miale AJ, Prasad AS. Studies on pityriasis alba: a common facial skin lesion in Egyptian children. Arch Dermatol, 1963; 88:272-275.
16. Wells BT, Whyte HJ, Kierland RR. Pityriasis Alba: a tenyear survey and review of the literature. Arch Dermatol, 1960; 82:183-189.
17. Bechelli LM, Haddad N, Pimenta WP. Epidemiological survey of skin diseases in schoolchildren living in the Purus Valley (Acre State, Amazonia, Brazil). Dermatologica, 1981; 163(1):78-93.
18. Sori T, Nath AK, Thappa DM, Jaisankar TJ. Hypopigmentary disorders in children in South India. Indian J Dermatol, 2011; 56(5):546-549.
19. Inanir I, Sahin MT, Gunduz K. Prevalence of skin conditions in primary school children in Turkey: differences based on socioeconomic factors. Pediatr Dermatol, 2002; 19:307-311.
20. Khalifa ES, Adil AN, Haitham MS. Pityriasis Alba versus vitiligo Journal of the Saudi Society of Dermatology & Dermatologic Surgery, 2013; 17: 51–54.
21. Abdel-Hafez K, Abdel-Aty MA, Hofny ER. Prevalence of skin diseases in rural areas of Assiut Governorate, Upper Egypt. Int. J. Dermatol, 2003; 42 (11): 887–892.
22. Dogra S, Kumar B. Epidemiology of skin diseases in school children: a study from northern India. Pediatric dermatology, 2003; 20 (6): 470–473.
23. Popescu R, Popescu CM, Williams HC, Forsea D. The prevalence of skin conditions in Romanian school children. Br. J. Dermatol, 1999; 140 (5): 891–896.
24. Kim D, Lockey R. Dermatology for the allergist. World Allergy Organ J, 2010; 3(6): 202-215.
25. Zaynoun ST, Aftimos BG, Tenekjian KK. Extensive pityriasis alba: a histological histochemical and ultra structural study. BJD, 1983; 108: 83–90.
26. Galadari E, Helmy M, Ahmed M. Trace elements in serum of pityriasis alba patients. Int J Dermatol, 1992; 31: 525-526.
27. Martin RF, Lugo-Somolinos A, Sanchez JL. Clinicopathologic study on pityriasis alba. Bol Asoc Med PR, 1990; 82: 463-465.
28. Vinod S, Singh G, Dash K, Grover S. Clinico epidemiological study of pityriasis alba. Indian J Dermatol Venereol Leprol, 2002; 68:338-340.

29. Vargas-Ocampo. Pityriasis Alba: a histologic study. International Journal of Dermatology, 1993; 32(12): 870–873.
30. Otto Braun F. Dermatology. 2nd ed. New York; Springer Science & Business Media: 2000, pp. 1684.
31. Jorizzo J, Levy M, Lucky A. Multicenter trial for long-term safety and efficacy comparison of 0.05% desonide and 1% hydrocortisone ointments in the treatment of atopic dermatitis in pediatric patients. J Am Acad Dermatol, 1995; 33(1):74-77.
32. Queille C, Pommarede R, Saurat JH. Efficacy versus systemic effects of six topical steroids in the treatment of atopic dermatitis of childhood. Pediatr Dermatol, 1984; 1(3): 246-253.
33. Harper J. Topical corticosteroids for skin disorders in infants and children. Drugs, 1988; (36, Suppl 5): 34-37.
34. Rigopoulos D, Gregoriou S, Charissi C, Kontochristopoulos G, Kalogeromitros D, Georgala S. Tacrolimus ointment 0.1% in pityriasis alba: an open-label, randomized, placebo-controlled study. Br J Dermatol, 2006; 155(1): 152-155.
35. Fujita WH, McCormick CL, Parneix Spake A. An exploratory study to evaluate the efficacy of pimecrolimus cream 1% for the treatment of pityriasis alba. Int J Dermatol, 2007; 46(7):700-705.
36. High WA, Pandya AG. Pilot trial of 1% pimecrolimus cream in the treatment of seborrheic dermatitis in African American adults with associated hypopigmentation. JAAD, 2006; 54: 1083.
37. Clemens TL, Adams JS, Horiuchi N. Interaction of 1, 25-dihydroxyvitamin-D3 with keratinocytes and fibroblasts from skin of normal subjects and a subject with vitamin-Ddependent rickets, type II: a model for study of the mode of action of 1, 25-dihydroxyvitamin D3. Journal of Clinical Endocrinology and Metabolism, 1983; 56(4): 824–830.
38. Smith EL, Walworth NC, Holick MF. Effect of 1α, 25-dihydroxyvitamin D3 on the morphologic and biochemical differentiation of cultured human epidermal keratinocytes grown in serum-free conditions. Journal of Investigative Dermatology, 1986; 86(6):709–714.
39. Korver JEM, Vissers WHPM, Van Rens DWA. A double-blind, randomized quantitative comparison of calcitriol ointment and calcipotriol ointment on epidermal cell populations, proliferation and differentiation. British Journal of Dermatology, 2007; 156(1): 130–137.

40. Reichrath J, Perez A, Muller SM. Topical calcitriol (1, 25-dihydroxyvitamin D3) treatment of psoriasis: an immunohistological evaluation. Acta Dermato-Venereologica, 1997; 77(4): 268–272.
41. Van de Kerkliof PCM. Reduction of epidermal abnormalities and inflammatory changes in psoriatic plaques during treatment with vitamin D3 analogs. Journal of Investigative Dermatology Symposium Proceedings, 1996; 1(1):78–81.
42. Gambichler T, Kramer HJ, Boms S, Skrygan M, Tomi NS, Altmeyer P. Quantification of ultraviolet protective effects of pityriacitrin in humans. Arch Dermatol Res, 2007; 299(10): 517-520.
43. Robinson JK, Rigel DS, Amonette RA. Summertime sun protection used by adults for their chiidren. Am Acad Dermatol, 2000; 42: 74.
44. Galan EB, Janniger CK. Pityriasis Alba. Cutis, 1998; 61:11-13.