Original Research Article

Pediatric psoriasis: clinical aspects and comorbidities

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ABSTRACT

Aims: The objective of our study was to describe the epidemiological and clinical characteristics of pediatric psoriasis, as well as metabolic comorbidities and cardiovascular diseases .
Study design: Retrospective descriptive study.
Place and Duration of Study: Dermatology department of the CHU of Rabat Morocco over a two- and half-year period.
Methodology: We conducted a retrospective descriptive study collecting the cases of psoriasis in children followed in the pediatric dermatology consultation of Ibn Sina University Hospital of Rabat Morocco over a two- and half-year period.
Results: We collected 50 patients. A female predominance was noted with a sex ratio of 0.58. Concerning the antecedents; Parental consanguinity was identified in 8 % of cases, family history of psoriasis in only 6% and the atopy in 16%. The triggering factors were an infection in 12% of cases and psychological trauma in 6 % of cases.Concerning the metabolic comorbidity, one case of diabetes (2%), one case of obesity (2%) and three cases of overweight (6%) were noted. however, no cases of dyslipidaemia were reported. Psoriasis vulgaris was the most frequent clinical presentation (48 %), followed by guttate psoriasis (34%), inverted psoriasis (10%), napkin psoriasis (4 %) and blaskoline psoriasis (2 %). Palmoplantar involvement was observed in 10 % of cases, nail involvement in 22% and scalp involvement in 40 %. Oral mucosal involvement was noted in only one patient.

Keywords: psoriasis, comorbidities, pediatric

1. INTRODUCTION

Psoriasis is a multifactorial systemic inflammatory disease that primarily affects the skin, nails and joints. It affects 1-3% of the general population. An onset in childhood is reported in one-third of patients [1]. All forms of psoriasis are seen in the pediatric population. However, the frequency of the different forms depends on the age of the child [2].Recently ,an association with several comorbidities has been reported in multiple publications [3].
The objective of our study was to describe the epidemiological and clinical characteristics of pediatric psoriasis, as well as metabolic comorbidities and cardiovascular diseases .

2. MATERIAL AND METHODS

Retrospective study covering a period of 2 and a half years (between June 2019 and December 2021) involving infants (< 2 years old), children (2 -13 years old) and adolescents (13 -17 years old), followed up for psoriasis in the pediatric dermatology consultation of Ibn Sina University Hospital of Rabat (Morocco). Epidemiological, clinical and paraclinical data were collected from the consultation files.

3. RESULTS

We collected 50 patients; 4 infants (8%), 32 children (64%) and 14 adolescents (28 %). The average age of the patients was 8 years with extremes ranging from 6 months to 17 years. The predominant age range was between 2 and 13 years (64%). We noted a female predominance with a sex ratio of 0.78 (M/F: 22/28). Parental consanguinity was identified in 8 % of cases and a family history of psoriasis was present in only 6%. 16% of the patients had atopy, namely: allergic conjunctivitis in 8%, atopic dermatitis in 6% and asthma in 2%.

The triggering factors were an infection in 12% of cases [angina (8%), bronchitis (2%) and streptococcal anitis (2%)] and psychological trauma in 6 % of cases [parental divorce (4%) and the death of a father (2%)].

Concerning the metabolic comorbidity, one case of diabetes (2%), one case of obesity (2%) and three cases of overweight (6%) were noted. however, no cases of dyslipidaemia were reported.

Psoriasis vulgaris was the most frequent clinical presentation (48 %), followed by guttate psoriasis (34%), inverted psoriasis (10%), napkin psoriasis (4 %) and blaskoline psoriasis (2 %). Palmoplantar involvement was observed in 10 % of cases, nail involvement in 22% and scalp involvement in 40 % distributed as follows: Erythematosquamous plaque in 24%, squamous state in 12% and carapace in 4%. Oral mucosal involvement was noted in only one patient in the form of a geographic tongue.

4. DISCUSSION

Psoriasis is a multifactorial disease involving genetic, immunological and environmental factors. In children, triggers are dominated by stress, streptococcal infections and trauma [2,3]. In our study, family history of psoriasis was present in only 6 % of cases. A triggering factor was dominated by infection (12%). These data are in line with the literature.

Psoriasis is also a systemic disease, associated with numerous comorbidities, including metabolic ones. The prevalence of comorbidities in children with psoriasis is almost twice as high as in healthy children [4]. Overweight and obesity are identified as the main comorbidities in children with psoriasis. Their presence is correlated with disease severity and risk of hospitalization [5]. A family history of overweight or obesity is considered the main risk factor for obesity in children with psoriasis [6]. The pathogenic link between these two disorders is not completely understood, but recent evidence suggests that leptin may play a major role in the relationship between obesity and psoriasis [7]. The results of studies regarding the relationship between pediatric psoriasis and diabetes, dyslipidemia, and cardiovascular disease are controversial and require further confirmation. Although the current literature suggests a significant association between pediatric psoriasis and glucose dysmetabolism (diabetes and insulin resistance) [8,9], the data remain very limited, especially concerning pathogenesis. Regarding dyslipidemia, some authors have shown that children with psoriasis have higher blood lipids than healthy children and a more atherogenic risk profile [10-11], but this has not been confirmed by other studies. In adults, several studies confirm the association between psoriasis and hypertension, but the current data in children are controversial. [12,13]. In our patients, we noted 6% of overweight, 2% of obesity and 2% of type 1 diabetes. However, no cases of dyslipidemia or hypertension were reported. This is in accordance with the review of the literature performed by A. Badaoui et al [14], which suggests that only obesity and overweight should be systematically looked for in children with psoriasis.

Clinically, psoriasis in children is similar to psoriasis in adults. However, there are some peculiarities, including a predilection for involvement of the face and anogenital regions, a high prevalence of neonatal diaper rash, and guttate psoriasis [15]. Psoriasis vulgaris is manifested in the pediatric population by smaller plaques and thinner, softer scaling, preferentially affecting bastion areas, and its frequency varies by age group; it is more common in adolescents than in children [15,16]. Guttate psoriasis is the most common form in children, affecting mainly the trunk, abdomen and back. It is often preceded by a

streptococcal infection, which should be investigated systematically. Its evolution is generally acute, with spontaneous remissions in a few months in 50% of cases [15-17]. Napkin psoriasis is the most frequent form of psoriasis in infants, typically occurring as a well-demarcated, shiny, scaly erythema, predominantly on the convexities. A form involving the folds may also be observed. The main complications of this location are candidal or bacterial infection and fissures [15,16]. Inverted psoriasis is quite common in the pediatric population, affecting the flexural areas, namely the retroauricular, axillary, inguinal, and genital or perianal areas [15]. Palmoplantar, patchy or pustular forms are seen in children. The most usual form is dry pulpitis, which may be fissured. It has a significant impact on school. The acral and pustular form, which may be associated with destructive osteitis, known as Hallopeau's disease is rarer. However, Pustular, erythrodermic, annular and linear psoriasis are unusual. In children, scalp psoriasis manifests in severe forms as pityriasis amiantacea characterised by thick, fixed, silvery scales and in mild forms as finely scaly erythematous plaques [18]. As for adult psoriasis, nail, tongue and joint involvement may be observed. One third of children have nail involvement. The most usual clinical features are thimble-like appearance, distal onycholysis, Beau lines, and salmon spots. Less than 10% of children have lingual involvement, principally the geographic tongue type. Finally, psoriatic arthritis affects less than 5% of children and more frequent in adolescents [15-17].

In our study, psoriasis vulgaris was the most prevalent type of psoriasis, predominating in the adolescent group with 57.1%, followed by guttate psoriasis which predominated in the children's group with 43.7%, and all cases of napkin psoriasis were observed in infants.

According to the topography: Scalp involvement was predominant (40%), followed by nail involvement in 22% and lastly palmoplantar involvement in 10% of cases. However, no cases of arthropathic psoriasis were reported (Table 1 compares our results with the various pediatric series).

4. CONCLUSION

Psoriasis remains a benign disease in children, with a clinical presentation similar to adult psoriasis with some particularity. obesity and overweight are identified as the principal comorbidities in psoriatic children.

CONSENT

The cases'parents or legal guardiens provided informed consent.

ETHICAL APPROVAL

it is not applicable.

REFERENCES

1. Tollefson, M.M.; Crowson, C.S.; McEvoy, M.T.; Maradit Kremers, H. Incidence of psoriasis in children: A population-based study. J. Am. Acad. Dermatol. 2010, 62, 979–987.
2. E .Mahé et al .Childhood psoriasis. Eur J Dermatol 2016; 26(6): 537-48
3. Parisi, R.; Symmons, D.P.; Griffiths, C.E.; Ashcroft, D.M. Identification and Management of Psoriasis and Associated ComorbidiTy (IMPACT) project team. Global epidemiology of psoriasis: A systematic review of incidence and prevalence. J. Investig. Dermatol. 2013, 133, 377–385. [CrossRef] [PubMed]
4. Marani, A.; Rizzetto, G.; Radi, G.; Molinelli, E.; Capodaglio, I.; Offidani, A.; Simonetti, O. Metabolic Comorbidities and Cardiovascular Disease in Pediatric Psoriasis: A Narrative Review. Healthcare 2022, 10, 1190.

5. Paller AS, Mercy K, Kwasny MJ, *et al*. Association of pediatric psoriasis severity with excess and central adiposity: an international cross-sectional study. *JAMA Dermatol* 2013; 149: 166-76.
6. Mahé E, Beauchet A, Bodemer C, *et al*. Psoriasis and obesity in French children: a case-control, multicentre study. *Br J Dermatol* 2015; 172: 1593-600.
7. Hwang J., Yoo J.A., Yoon H., Han T., Yoon J., An S., Cho J.Y., Lee J. The Role of Leptin in the Association between Obesity and Psoriasis. Biomol. Ther. 2021;29:11–21. doi: 10.4062/biomolther.2020.054.
8. Pietrzak A., Grywalska E., Walankiewicz M., Lotti T., Roliński J., Myśliński W., Chabros P., Piekarska-Myślińska D., Reich K. Psoriasis and metabolic syndrome in children: Current data. *Clin. Exp. Dermatol.* 2017;42:131–136.
9. Phan K., Lee G., Fischer G. Pediatric psoriasis and association with cardiovascular and metabolic comorbidities: Systematic review and meta-analysis. *Pediatr. Dermatol.* 2020;37:661–669.
10. Koebnick C, Black MH, Smith N, *et al*. The association of psoriasis and elevated blood lipids in overweight and obese children. *J Pediatr* 2011; 159: 577-83.
11. Tom WL, Playford MP, Admani S, *et al*. Characterization of lipoprotein composition and function in pediatric psoriasis reveals a more atherogenic profile. *J Invest Dermatol* 2016; 136: 67-73.
12. Phan K., Lee G., Fischer G. Pediatric psoriasis and association with cardiovascular and metabolic comorbidities: Systematic review and meta-analysis. *Pediatr. Dermatol.* 2020;37:661–669.
13. Kelati A., Baybay H., Najdi A., Zinoune S., Mernissi F.Z. Pediatric psoriasis: Should we be concerned with comorbidity? Cross-sectional study. *Pediatr. Int.* 2017;59:923–928.
14. Badaoui, P. Tounian , E. Mahe Psoriasis et comorbidités cardiovasculaires et métaboliques chez l'enfant : revue systématique de la littérature http://dx.doi.org/10.1016/j.annder.2017.09.324
15. Mahé E, Gnossike P, Sigal ML. Le psoriasis de l'enfant. Arch Pediatr 2014; 21: 778-86.
16. Bonigen J, Phan A, Hadj-Rabia S, et al. Impact de l'âge et du sexe sur les aspects cliniques et épidémiologiques du psoriasis de l'enfant. Données d'une étude transversale, multicentrique francaise. Ann Dermatol Venereol 2016; 143: 354-63.
17. Ko HC, Jwa SW, Song M, et al. Clinical course of guttate psoriasis: long-term follow-up study. J Dermatol 2010; 37: 894-9.
18. E .Mahé et al .Childhood psoriasis. Eur J Dermatol 2016; 26(6): 537-48
19. Tollefson MM, Crowson CS, McEvoy MT, Kremers HM. Incidence of psoriasis in children: A population-based study. J Am Acad Dermatol. Author manuscript; available in PMC 2013 November 06.
20. Kumar B, Jain R, Sandhu K, KaurI,Handa S. Epidemiology of childhood psoriasis: a study of 419 patients from northern India. Int J Dermatol 2004; 43: 654-8.

	OUR SUDY	TOLLEFSON ET AL (19)	KUMAR ET AL (20)
PSORIASIS VULGARIS (%)	48	73,7	60,6
GUTTATE PSORIASIS(%)	32	13,7	9,7
NAPKIN PSORIAIS(%)	4	-	0,4
INVERSED PSORIASIS (%)	10	6	0,4
LINEAR PSORIASIS(%)	2	-	-
SCALP INVOLVEMENT (%)	40	46,8	5,9
NAIL INVOLVEMENT (%)	22	16,5	2,3
PALMOPLANTAR INVOLVEMENT (%)	10	5	5,7
MUCOUS (%)	2	0	0

TABLE 1 : COMPARATIVE TABLE OF RESULTS WITH PEDIATRIC SERIES

FIGURE 1 : SCALP PSORIASIS

FIGURE 2 : PSORIASIS VULGARIS

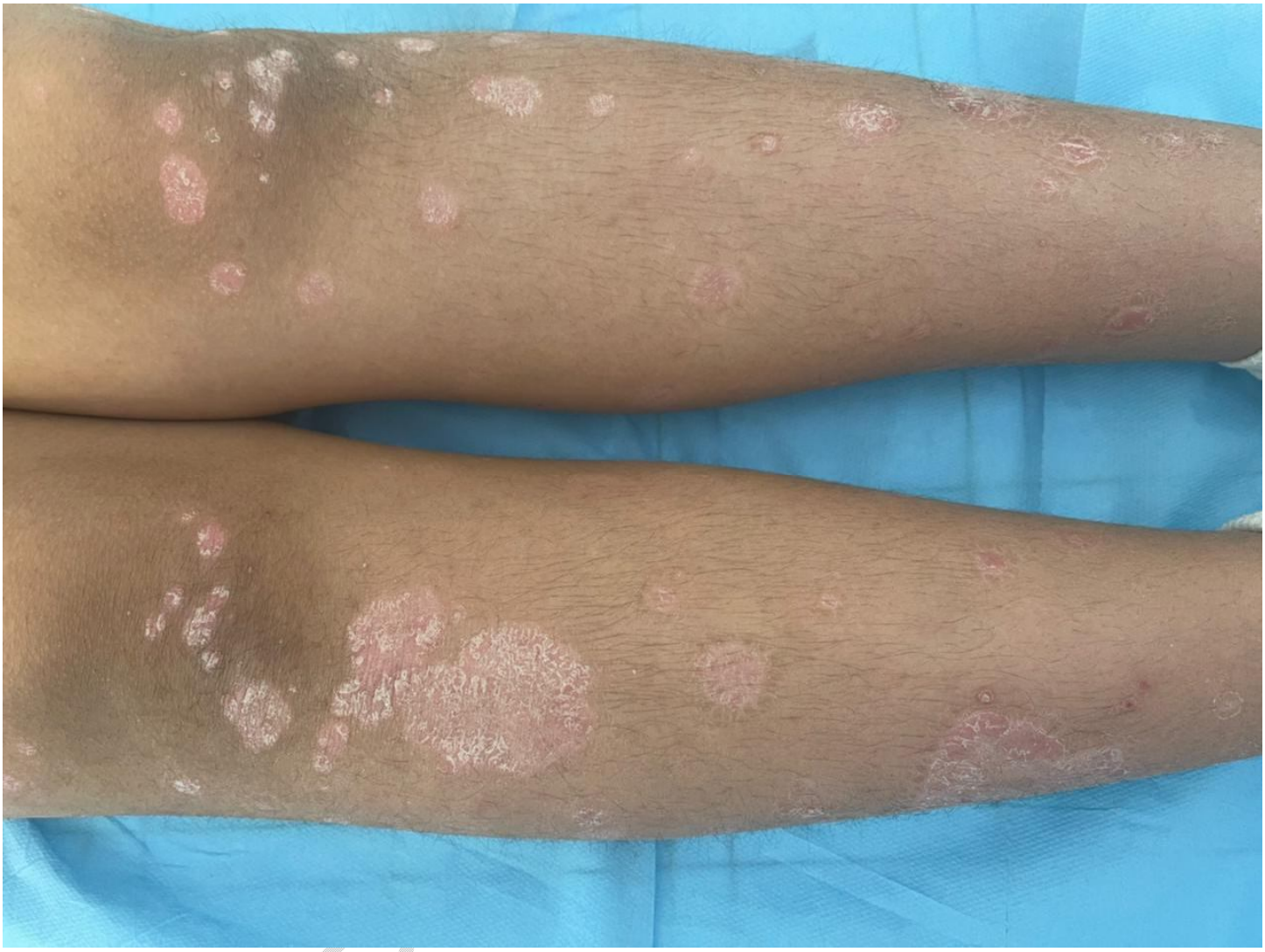

FIGURE 3 (A,B) : PALMOPLANTAR PSORIASIS


A

FIGURE 4: NAIL PSORIASIS : A : CLINICAL, B : DERMOSCOPY


B