International Journal of Clinical Dermatology
2026, Vol. 9, No. 1, pp. 10–16
https://doi.org/10.11648/j.ijcd.20260901.12

Research Article

Clinico-epidemiological and Therapeutic Aspects of Alopecia Areata in Children at the Dermatology Department, University Hospital of Antananarivo, Madagascar

Herin'Ny Fitiavana Princia Andriatahina[1, *], Andrianandrianina Mbolatiana Kiady Armando Rakotomanana[1], Fandresena Arilala Sendrasoa[1], Tsiory Iarintsoa Razafimaharo[1], Moril Sata[2], Fenohasina Rakotonandrasana[1], Onivola Raharolahy[3], Malalaniaina Andrianarison[1], Irina Mamisoa Ranaivo[4], Lala Soavina Ramarozatovo[3], Fahafahantsoa Rabenja Rapelanoro[1]

[1]Department of Dermatology, Joseph Raseta Befelatanana University Hospital, Antananarivo, Madagascar

[2]Department of Dermatology, University Hospital of Morafeno, Toamasina, Madagascar

[3]Department of Dermatology-Internal Medicine Pavillon Special A, Joseph Raseta Befelatanana University Hospital, Antananarivo, Madagascar

[4]Department of Dermatology, University Hospital Place Kabary, Antsiranana, Madagascar

Abstract

Introduction: Alopecia areata (AA) is an autoimmune disease of the hair follicles that causes non-scarring hair loss. We aim to describe the epidemiological, clinical, and therapeutic aspects of AA seen in Malagasy children. Materials and Methods: A descriptive retrospective study was conducted over a 71-month period in children <15 years old with AA, seen in the two dermatology departments of the University Hospital Joseph Raseta Befelatanana, Antananarivo Madagascar. Results: Twenty-five cases of AA in children were included. The sex ratio was 0.47. The mean age was 10.36 ± 3.7 years. Patchy alopecia was the most frequent presentation (n=12), then totalis alopecia (n=3), ophiasis alopecia (n=2), and finally alopecia universalis (n=1). An association of patchy and ophiasis alopecia was found in 7 cases. The first-line treatments used were very potent topical corticosteroids in 18 cases, combined with systemic treatment in 8 cases. Mini-pulse corticosteroid therapy was used in 10 cases. Corticosteroid boluses (5-10 mg/kg/day for 3 days) were used in 5 cases. As a second-line treatment, methotrexate (5-7.5 mg/week) was used in 3 cases. After first-line treatment, complete regrowth (≥80%) was observed in 3 patients, and partial regrowth (29 to 80%) in 14 patients. Conclusion: AA has a heterogeneous presentation and unpredictable clinical course. Our study shows the therapeutic difficulty of AA in children.

Keywords

Alopecia Areata, Children, Madagascar

*Correspondence: Herin'Ny Fitiavana Princia Andriatahina (andriaprincia@gmail.com)

Received: 13 January 2026; **Accepted:** 26 January 2026; **Published:** 9 February 2026

Copyright: © The Author(s), 2026. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

1. Introduction

Alopecia areata (AA) is an autoimmune disease of the hair follicles, responsible for non-scarring hair loss [1]. It often leads to significant psychological distress, especially in the pediatric population [2, 3]. Alopecia areata affects 2% of the global population [4]. In Madagascar, AA accounted for 1.4% of consultations over a 3-year period (2014 to 2017) in the Dermatology department at the University Hospital of Befelatanana, Antananarivo [5]. The worldwide prevalence of pediatric AA was 0.11% between 2009 and 2020 [6]. There is limited data available on childhood AA in Madagascar and Africa. Therefore, we conducted this study with the objective of describing the epidemiological, clinical, and therapeutic aspects of alopecia areata cases in children in the two dermatology departments at the University Hospital in Antananarivo, Madagascar.

2. Materials and Methods

This is a descriptive and retrospective study conducted over a 71-month period. We included all consecutive patients under 15 years old diagnosed with alopecia areata in the Dermatology departments at the University Hospital of Befelatanana Antananarivo. This age cut-off corresponds to the pediatric age definition used in our hospital records. The diagnosis of AA was established clinically by a dermatologist, based on non-scarring alopecia without atrophy. The recorded data included sociodemographic, clinical, therapeutic and outcome parameters. Age and gender were the sociodemographic parameters. The clinical parameters studied were the duration of the disease, personal history or comorbidities of atopy, autoimmune disease, family history of AA, history of stress or emotional shock, clinical presentation (patchy, ophiasis, totalis, universalis), and nail involvement. The therapeutic parameters studied were first- and second-line treatments. First-line treatments included very potent topical corticosteroids, mini-pulse corticosteroid therapy (prednisone or prednisolone 5 mg, 2 days/week), topical corticosteroids associated with mini-pulse therapy, and corticosteroid bolus (oral bolus: prednisone or prednisolone 5 mg/kg/day or IV bolus: methylprednisolone 10 mg/kg/day) for 3 days/month, during 3 months. IV corticosteroid bolus therapy was reserved for selected severe and/or extensive cases or rapidly progressive disease, particularly when topical therapy alone was considered insufficient. Second-line treatments included mini-pulse corticosteroid therapy, corticosteroid bolus and methotrexate at a dose of 5 to 7.5 mg/week according to the patient's weight. The choice of systemic treatment was based on disease extent/severity and/or failure of topical therapy, as documented in the medical records.

Patient outcomes after 3 and 6 months of first- and second-line treatments were studied too. Outcomes were assessed clinically based on the percentage of hair regrowth. Complete regrowth was defined as regrowth >80% of the initial alopecic area, partial regrowth as regrowth between 20-79%, and treatment failure as regrowth <20%.

Data collection was done through review of medical records. The data were entered into Microsoft Excel® software and imported and analyzed using Epi info version 7.1.3® software. Analysis of qualitative variables was performed using the chi-square test or Fisher's exact test. Statistical significance was set at $p \leq 0.05$. Anonymity and confidentiality of the subjects studied were respected.

3. Results

Twenty-five cases of AA in children were included. During the study period, 1,525 children under 15 years of age were seen among a total of 9,166 dermatology consultations. AA in children represented 1.63% of pediatric consultations and 19.68% of all AA cases. The sex ratio was 0.47. The mean age was 10.36 ± 3.7 years with an average duration before consultation of 1.2 ± 1.53 years.

Regarding the medical history of our patients, 10 (40%) had stress or emotional shock preceding the onset of AA. Three (12%) had a history of atopy, including asthma, allergic rhinitis, and atopic dermatitis. Two (8%) had dysthyroidism, and 1 (4%) had associated vitiligo. One (4%) had a family history of AA. (Table 1).

Concerning clinical presentations, patchy alopecia was the most common with 12 patients (48%), followed by totalis alopecia which is 3 patients (12%), after ophiasis alopecia with 2 patients (8%), and universalis alopecia 1 patient (4%). An association of patchy and ophiasis alopecia was found in 7 (28%) cases. Nail involvement, characterized by rough nails, longitudinal grooves, and/or pitting, was found in 4 (16%) cases. (Table 1).

Table 1. *Patient Antecedents and Clinical Forms.*

		N (total=25)	Percentages
Antecedents	Stress and emotional shock	10	40%
	Atopy	3	12%

		N (total=25)	Percentages
	Dysthyroidism	2	8%
	Vitiligo	1	4%
	Family history of alopecia areata	1	4%
		N (total=25)	Percentages
Clinical forms	Patchy alopecia	12	48%
	Patchy alopecia + ophiasis	7	28%
	Totalis alopecia	3	12%
	Ophiasis alopecia	2	8%
	Universalis alopecia	1	4%
	With nail involvement	4	16%

Regarding treatment, the first-line treatments used were very potent topical corticosteroids in 10 patients (40%), topical corticosteroids combined with oral corticosteroids such as Prednisone or Prednisolone in mini-pulse therapy in 8 cases (32%), oral corticosteroid bolus (Prednisone or Prednisolone 5 mg/kg/day) or injectable corticosteroid bolus (Methylprednisolone 10 mg/kg/day) for 3 days in 5 cases (20%), and corticosteroid mini-pulse therapy alone such as Prednisone or Prednisolone 5 mg twice a week in 2 cases (8%). (Table 2).

The second-line treatments included corticosteroid mini-pulse therapy in 11 cases (44%), oral or injectable corticosteroid bolus for 3 days in 8 cases (32%), and Methotrexate at a dose of 5 to 7.5 mg/week according to patient's weight in 3 cases (12%). (Table 3).

Three months after the first-line treatment, 3 patients (12%) achieved complete regrowth, meaning that more than 80% of the hair had regrown, and 14 (56%) had partial regrowth, meaning that 29 to 80% of the hair had regrown. Six months after the second-line treatment, 12 patients (48%) achieved complete regrowth, 7 (28%) had partial regrowth, and 3 (12%) alternating regrowth and relapse. (Table 4). No association was found between treatments and complete regrowth in this study (Table 5).

Table 2. *First-line Treatment Used.*

First-line treatment	N (total=25)	Percentages
Very potent topical corticosteroid	10	40%
Topical corticosteroid + mini-pulse therapy	8	32%
Corticosteroid bolus (oral: 5mg/kg/day or IV: 10mg/kg/day)	5	20%
Mini-pulse corticosteroid therapy (5mg, 2 days/week)	2	8%

Table 3. *Second-line Treatment Used.*

Second-line treatment	N (total=25)	Percentages
Mini-pulse corticosteroid therapy (5mg, 2 days/week)	11	44%
Corticosteroid bolus (oral: 5mg/kg/day or IV: 10mg/kg/day)	8	32%
Methotrexate (5-7.5mg/week)	3	12%
None	3	12%

Table 4. Clinical outcomes.

Clinical outcomes	After First-line Treatment	After Second-line Treatment
Complete regrowth (>80%)	3 (12%)	12 (48%)
Partial regrowth (29-80%)	14 (56%)	7 (28%)
Alternation of regrowth and relapse		3 (12%)

Table 5. Association between Treatments and Complete Regrowth.

				Complete regrowth	OR	95% CI	p
First-line Treatment	Dermocorticoid	Yes	10	2	3,5	[0,27-44,95]	0,543
		No	15	1			
	Dermocrticoid + mini-pulse	Yes	8	0	ND	ND	0,526
		No	17	3			
Second-line Treatment	Corticosteroid bolus	Yes	8	6	5,5	[0,8-36,19]	0,0968
		No	17	6			
	Methotrexate	Yes	3	3	ND	ND	0,0956
		No	22	9			

4. Discussion

In our study, pediatric AA represented a small proportion of dermatology consultations but a substantial proportion of AA cases.

A predominance of alopecia areata in females has been reported in the literature [7], which is similar to our results. Stress and emotional shock are well-recognized triggering or aggravating factors of AA [5], requiring multidisciplinary management involving psychiatrists or psychologists.

Children with AA are more likely to develop atopic and autoimmune conditions [8]; they have a 1.86-fold increased risk of developing or associating with other autoimmune diseases [9], such as autoimmune thyroiditis, vitiligo, rheumatoid arthritis, systemic lupus erythematosus, and others [9, 10]. In this study, associated atopy, thyroid disorders, and vitiligo were also observed. Previous studies suggest that immune responses of helper T cells could be involved in the pathogenesis of AA, explain this increased risk of comorbid atopic and autoimmune conditions in patients with AA [8, 11]. In the literature, the percentage of a family history of AA varies from 8.4% to 51.6% [12, 13], while it is 4% in this study.

In the literature, localized alopecia is the most frequent clinical form in children, followed by alopecia totalis and alopecia ophiasis [7, 14, 15], which is similar to our results. Nail involvement, although reported in a substantial proportion of pediatric cases [12], was less frequent in our study. This finding is often underestimated and not reported by the patient. Further studies are needed to understand the correlation between nail involvement and the severity of alopecia [16].

Regarding treatment choice, it is based on the clinical form of alopecia, its duration, and its psychosocial impact [17]. For localized forms, topical treatments such as potent to very potent topical corticosteroids and topical immunotherapy are indicated [1, 18]. For extensive, chronic, refractory forms that have a significant psychosocial impact, oral or injectable systemic corticosteroids are recommended [17]. For recent forms, mini- pulse therapy is indicated [17].

Topical corticosteroids are the first-line treatment of choice for pediatric alopecia due to their ease of application, minimal side effects [7], and they have the highest level of evidence [17]. They were also the most commonly used treatment in this study. However, the rate of complete regrowth after first-line therapy remained limited, reflecting the well-known therapeutic challenge of AA in children, particularly in extensive or recurrent forms [7, 19, 20].

In our setting, systemic treatments, including mini-pulse and intravenous corticosteroid boluses, were reserved for selected severe or refractory cases.

This therapeutic approach is supported by recent pediatric

literature describing the use of pulse-dose corticosteroid therapy, including intravenous regimens, in children with severe or rapidly progressive alopecia areata. [21].

Better regrowth outcomes were observed after second-line therapy, supporting the role of systemic treatment in carefully selected pediatric patients, although their use remains limited by potential adverse effects, the lack of standardized pediatric protocols, and restricted access to certain therapeutic options. [22].

The limited availability of certain therapeutic options may also have influenced treatment choices and clinical outcomes in this study.

5. Conclusion

AA has a heterogeneous presentation and unpredictable clinical course. Our study demonstrates the therapeutic challenge of alopecia in Malagasy children. Many treatment options are available, but unfortunately, not all of them are accessible in Madagascar.

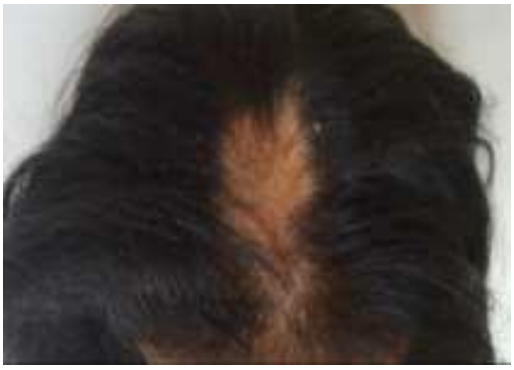

Figure 1. *Patchy Alopecia.*

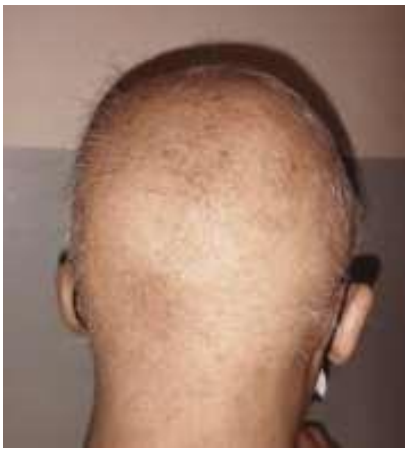

Figure 2. *Universal Alopecia with Regrowth of White Hair.*

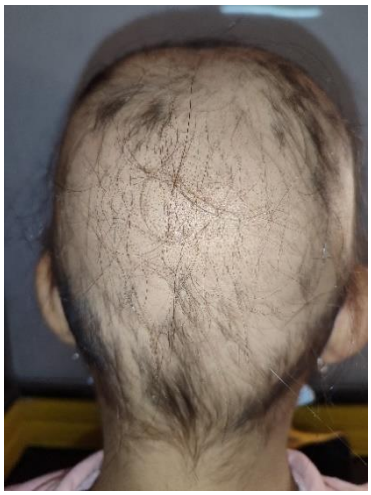

Figure 3. *Totalis Alopecia.*

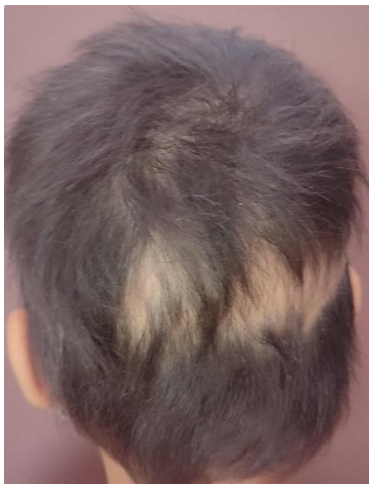

Figure 4. *Clinical evolution of the patient in Figure 3, after three corticosteroid boluses.*

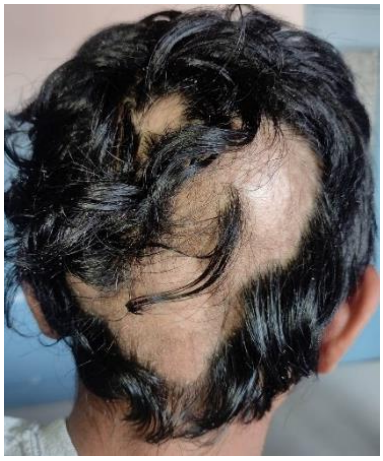

Figure 5. *Ophiasis Alopecia.*

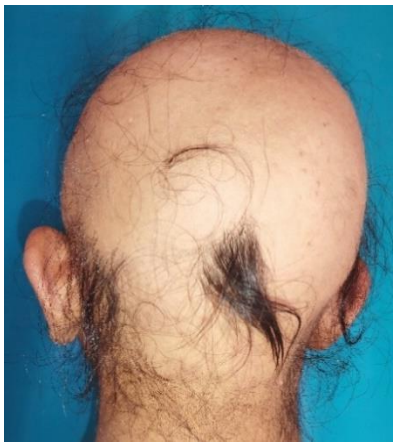

Figure 6. *Clinical evolution of the patient in Figure 5, three months after first-line treatment.*

Abbreviations

AA	Alopecia Areata
IV	Intravenous
OR	Odds Ratios
95% CI	95% Confidence Intervals
ND	Not Determined

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Cranwell WC, Lai VW, Photiou L, Meah N, Wall D, Rathnayake D, et al. Treatment of alopecia areata: An Australian expert consensus statement. Australas J Dermatol. 2019; 60: 163-70. https://doi.org/10.1111/ajd.12941

[2] Strazzulla LC, Wang EHC, Avila L, Lo Sicco K, Brinster N, Christiano AM, et al. Alopecia areata: Disease characteristics, clinical evaluation, and new perspectives on pathogenesis. J Am Acad Dermatol. 2018; 78: 1-12. https://doi.org/10.1016/j.jaad.2017.04.1141

[3] Ranaivo IM, Sendrasoa FA, Andrianarison M, Raharolahy O, Razanakoto NH, Rakotoarisaona MF, et al. Factors associated with impaired quality of life in patients with alopecia areata in Antananarivo, Madagascar. Rev M éd Madag. 2017; 7(1): 770–773.

[4] Lee HH, Gwillim E, Patel KR, Hua T, Rastogi S, Ibler E, et al. Epidemiology of alopecia areata, ophiasis, totalis, and universalis: A systematic review and meta- analysis. Journal of the American Academy of Dermatology. 2020; 82: 675-82. https://doi.org/10.1016/j.jaad.2019.08.032

[5] Raharolahy O, Andrianarison M, Sendrasoa FA, Razanakoto NH, Rakotoarisaona MF, Ranaivo IM, Rapelanoro Rabenja F, Ramarozatovo LS. Alopecia areata at the Dermatology Unit of Befelatanana University Hospital, Antananarivo: Ten years later. Ann Dermatol Venereol. 2017; 144: S232.

[6] McKenzie PL, Maltenfort M, Bruckner AL, Gupta D, Harfmann KL, Hyde P, et al. Evaluation of the Prevalence and Incidence of Pediatric Alopecia Areata Using Electronic Health Record Data. JAMA Dermatology. 2022; 158: 547-51. https://doi.org/10.1001/jamadermatol.2022.0351

[7] Stefanaki C, Kontochristopoulos G, Hatzidimitraki E, Stergiopoulou A, Katsarou A, Vosynioti V, et al. A Retrospective study on alopecia areata in children: clinical characteristics and treatment choices. Skin Appendage Disorders. 2021; 7: 454-9. https://doi.org/10.1159/000518042

[8] Holmes S, Harries M, Macbeth AE, Chiu WS, de Lusignan S, Messenger AG, et al. Alopecia areata and risk of atopic and autoimmune conditions: population-based cohort study. Clin Exp Dermatol. 2023; 48: 325-31. https://doi.org/10.1093/ced/llac084

[9] Chen C-H, Wang K-H, Lin H-C, Chung S-D. Follow-up study on the relationship between alopecia areata and risk of autoimmune diseases. J Dermatol. 2016; 43: 228-9. https://doi.org/10.1111/1346-8138.13124

[10] Conic RZ, Tamashunas NL, Damiani G, Fabbrocini G, Cantelli M, Network YDI, et al. Comorbidities in pediatric alopecia areata. Journal of the European Academy of Dermatology and Venereology. 2020; 34: 2898-901. https://doi.org/10.1111/jdv.16727

[11] Gilhar A, Laufer-Britva R, Keren A, Paus R. Frontiers in alopecia areata pathobiology research. Journal of Allergy and Clinical Immunology. 2019; 144: 1478-89. https://doi.org/10.1016/j.jaci.2019.08.035

[12] Wohlmuth-Wieser I, Osei JS, Norris D, Price V, Hordinsky MK, Christiano A, et al. Childhood alopecia areata—data from the National Alopecia Areata Registry. Pediatric dermatology. 2018; 35: 164-9. https://doi.org/10.1111/pde.13387

[13] Xiao F-L, Yang S, Liu J-B, He P-P, Yang J, Cui Y, et al. The epidemiology of childhood alopecia areata in China: a study of 226 patients. Pediatric dermatology. 2006; 23: 13-8. https://doi.org/10.1111/j.1525-1470.2006.00161. x

[14] Alkhalifah A, Alsantali A, Wang E, McElwee KJ, Shapiro J. Alopecia areata update: Part I. Clinical picture, histopathology, and pathogenesis. Journal of the American Academy of Dermatology. 2010; 62: 177-88. https://doi.org/10.1016/j.jaad.2009.04.089

[15] Bhardwaj P, Basu D, Podder I, Gharami RC. Clinico-epidemiological profile of childhood alopecia areata along with dermoscopic correlation: A cross-section, observational study. Indian Dermatol Online J. 2021; 12: 250-7. https://doi.org/10.4103/idoj.IDOJ_900_20

[16] Elmansouri M, El Fatoiki F, Skali H, Hali F, Chiheb S. Nail involvement in childhood alopecia areata. Ann Dermatol Venereol. 2020; 147: A215.

[17] Barton VR, Toussi A, Awasthi S, Kiuru M. Treatment of pediatric alopecia areata: A systematic review. J Am Acad Dermatol. 2022; 86: 1318-34. https://doi.org/10.1016/j.jaad.2021.04.077

[18] Waśkiel-Burnat A, Ko\lodziejak M, Sikora M, Stochmal A, Rakowska A, Olszewska M, et al. Therapeutic management in paediatric alopecia areata: a systematic review. Journal of the European Academy of Dermatology and Venereology. 2021; 35: 1299-308. https://doi.org/10.1111/jdv.17298

[19] Tosti A, Piraccini BM, Pazzaglia M, Vincenzi C. Clobetasol propionate 0.05% under occlusion in the treatment of alopecia totalis/universalis. Journal of the American Academy of Dermatology. 2003; 49: 96-8. https://doi.org/10.1067/S0190-9622(03)01040-3

[20] Tosti A, Iorizzo M, Botta GL, Milani M. Efficacy and safety of a new clobetasol propionate 0.05% foam in alopecia areata: a randomized, double-blind placebo- controlled trial J Eur Acad Dermatol Venereol. 2006; 20(9): 1243–7. https://doi.org/10.1111/j.1468-3083.2006.01956. x

[21] Gallaga NM, Carrillo B, Good A, Munoz-Gonzalez A, Ross L. Pediatric pulse dose corticosteroid therapy dosing and administration in the treatment of alopecia areata: A review of literature. Pediatr Dermatol. 2023; 40(2): 276-281. https://doi.org/10.1111/pde.15209

[22] Chen Y, Zhu H, Shen Y, Zhu Y, Sun J, Dai Y, et al. Efficacy and safety of JAK inhibitors in the treatment of alopecia areata in children: a systematic review and meta-analysis. Journal of Dermatological Treatment. 2022; 33: 3143-9. https://doi.org/10.1080/09546634.2021.1947527