

Case Series

# Clinical Correlation Between Alopecia Areata and Salmon Patches: A Case Series

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## ARTICLE INFO

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## ABSTRACT

*Alopecia areata (AA) has different clinical types moreover its severity can be predicted by the extra-follicular involvement such as nails, eyes, and salmon patch (SP) on the nape of the neck. As provided by previous authors the aim of this study was to determine whether the presence of a salmon patch on the midline of the nape of the neck and whether its size is related to the recurrence of AA after treatment withdrawal and a more severe prognosis. We report a case series of 24 patients with recurrent AA having congenital SP from March 2022 to April 2023 at Tripoli Central Hospital (TCH) and in a private clinic. We found that the majority of the cases were diagnosed with recurrent AA ophiasis (AAO) (n= 11, 45.8%) of which Ten (91%) of them were females and that can be interpreted as an indication of severity since AAO carries the risk of the worst prognosis. The other cases were AA Universalis (n=9, 37.5%), AA Totalis (n=2, 8.3%), and multiple patches AA (n=1, 4.2%). and 11 (45.8%) patients demonstrated large SP and Ten (41.7%) had a small SP. In some cases of SP areas, hair growth was noticed after the treatment. As an alternative in other cases, the areas of SP didn't show hair growth compared to the other sites.*

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## INTRODUCTION

Alopecia areata (AA) is one of the common multigenetic non-scarring hair loss conditions with a link to immunity and environmental triggering factors with unpredictable clinical course and recurrence. Furthermore, it was established to have a risk of developing chronic disease by 8 % mainly involving autoimmune disease [1]. In serious and severe cases of extra-follicular involvement such as nails, eyes, and salmon patches on the nape of the neck [2]. Therefore, many studies have been published suggesting an association with nevus simplex [3-6].

Nevus simplex (NS) also known as Salmon Patch (SP) is one of the commonly congenital inherited capillary malformations that presents early in newborns due to reduced regulation by autonomic neurons [7]. It manifests as pinkish-red macules or patches with irregular margins that blanch with pressure and accentuate with crying or fever [5]. Additionally, in 50 % of patients it involves the nape of the neck or occiput but it may occur in other sites of the body such as the midline of the forehead, eyelids, or sacral region [8].

Cases of facial involvement tend to fade rapidly however in 50 % of nuchal lesions it has more tendencies to be persistent throughout life [3,5]. Many previous studies found a statistically significant association between the chronicity of AA and the presence of SP [3,5,6]. In addition, the presence of SP could reflect the severity of AA [4]. The study was conducted to determine the associated chronicity and severity of AA in relation to the size of the SP and whether it has a role in AA recurrence.

## METHODS

We conducted a descriptive study that included patients after we determined the presence of SP in 24 individuals depending on the history of the presence of congenital pinkish-red patches in the nape of the neck or the occiput in current patients diagnosed with recurrent either; AA ophiasis (OAA), AA totalis (AAT) or AA universalis (AAU). Followed by a thorough examination and confirmation with dermatoscopy findings such as black dots, exclamation marks, broken hair or tapering of the proximal part of hairs (figure 1).

Likewise, SP was diagnosed by dermatoscopy by finding dilated capillaries (figure 2). We regarded the patch as small if it's localized to the nape of the neck (figure 3) and large if it's extended to the occiput (figure 4). Clinical data and examination of all cases have been collected in Tripoli Central Hospital (TCH) and a private clinic between March 2022 to April 2023. Demographic data was collected and analyzed using SPSS 26.



**Figure 1. (Left) 2-year-old girl with ophiasis alopecia areata in remission and relapse. (Right) Dermoscopic findings: reticular arrangement of dilated capillaries (blue arrows), black dots (white arrow).**



**Figure 2. (Left) Small salmon patch on the nape of the neck in ophiasis alopecia areata, (Right) Dermoscopy salmon patch shows dilated blood vessel ( white arrows)s.**



**Figure 3.** 4-year-old boy with Alopecia universalis and a small punctuate salmon patch.



**Figure 4.** Ophiasis alopecia areata with a large salmon patch.

### Case series

The patients diagnosed with AA with preexisting SP included in our observation were 18(75%) females and 6 (25%) males with a mean age of 25 ( $\pm 11.35$ ) years (range 3-46) (table 1). We found that the majority of the cases were diagnosed with recurrent AAO (n= 11, 45.8%) of which ten (91%) of them were females and that can be interpreted as an indication of severity since AAO carries the risk of the worst prognosis. The other cases were AAU (n=9, 37.5%), AAT (n=2, 8.3%), and multiple patches AA (n=1, 4.2%). About 11 (45.8%) patients demonstrated large SP and Ten (41.7%) had a small SP. In some cases of SP areas, hair growth was noticed after the treatment (figure 5). As an alternative in other cases, the areas of SP didn't show hair growth compared to the other sites (figure 1).

**Table 1.** Data of cases

<i>Parameter</i>	<i>Results</i>	
<i>Age</i>	Mean (SD)	25.92 ( $\pm 11.35$ )
	Median (range)	26 (3-46)
<i>Sex</i>	Female	18 (75%)
	Male	6 (25%)
<i>Type of AA</i>	AAO	11 (45.8%)
	AAT	2 (8.3%)
	AAU	9 (37.5%)
	Multiple patches AA	1 (4.2%)
<i>Size of SP</i>	Large	11 (45.8%)
	Small	10 (41.7%)

AAO= Alopecia Areata. AAT= Alopecia areata totalis. AAU= Alopecia areata universalis



**Figure 5. (Left) 3-year-old girl with Alopecia universalis before. (Right) After 2 years of treatment has a large salmon patch involving the occiput and the nape of the neck.**

## DISCUSSION

Alopecia areata is one of the most challenging causes of autoimmune hair loss worldwide with apparent association with other systemic diseases, finding an association is crucial to reach a new perspective in treatment, and one of the observed associations is salmon patch, in our study preexisting SP since birth had seen more in females 75% were diagnosed with AA.

We aimed to determine the association between salmon patch and recurrent alopecia areata and we found alopecia areata ophiasis which is a form of aggressive alopecia areata with symmetrical hair loss along the sides of hair line was associated in the majority of the cases 45.8%, it has similar result to the previous studies showing that the prevalence of SP was significantly increased in patients with AA, especially sever forms [4,6].

We also aimed to assess the relation of the size of the salmon patch and whether it was related to the recurrence of AA and found it was slightly higher in large SP in 45.8 % of our patients, similar results to the previous study in hospital clinic de Barcelona, Spain [5].

Yet, the unexplored exact mechanisms responsible for this association. It has been suggested that patients with salmon patch has recurrent AA could be related to reduce regulation by autonomic neurones supply [7], which have not been completely clarified and what significance could be possibly applied in terms of management.

Our main limitation was the small sample size as we needed a larger number of patients to achieve more generalizable outcomes and to help understand the disease more. Due to that, we couldn't assess whether having a SP could affect the regrowth of hair or not after starting treatment.

Finally, our study gives additional evidence and supports previous studies that salmon patch could carry a valuable indication of a more recurrent and persistent course of alopecia areata particularly with increased size regardless of the type of AA. Moreover, the size could predict a more severe and recurrent course and it could be used as a skin marker for the prediction of worse clinical course.

## Conclusion

Even though speculations and uncertainty surround the connection of AA and NS and the unidentified cause that links these two conditions, an association is observed and needs to be confirmed. We anticipate further studies and investigations to bring further information on this topic.

**Conflict of Interest.** There are no financial, personal, or professional conflicts of interest to declare.

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## العلاقة السريرية بين داء الثعلبة وبقع السلمون: سلسلة حالات

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### المستخلص

داء الثعلبة لها أنواع مختلفة، علاوة على ذلك يمكن التنبؤ بخطورتها من خلال التأثير على مناطق أخرى غير بصيلة الشعر مثل الأظافر والعينين ورقعة السلمون على العنق. كما ذكر مؤلفون سابقون، كان الهدف من هذه الدراسة هو تحديد ما إذا كان وجود رقعة السلمون على منتصف العنق وما إذا كان حجمها مرتبطاً بتكرار داء الثعلبة بعد توقف العلاج والانداز بتشخيص أكثر خطورة. قمنا ببحث عن سلسلة حالات مكونة من 24 مريضاً يعانون من داء الثعلبة المتكرر في وجود رقعة السلمون منذ الولادة في الفترة من مارس 2022 إلى أبريل 2023 في مستشفى طرابلس المركزي وفي عيادة خاصة. لقد وجدنا أن غالبية الحالات تم تشخيصها على أنها مصابة بداء الثعلبة من نوع ophiasis (العدد = 11، 45.8%) منهم عشرة (91%) كانوا من الإناث ويمكن تفسير ذلك على أنه مؤشر على الخطورة حيث أن نوع ophiasis يصاحب حالات الأكثر خطورة في داء الثعلبة. الحالات الأخرى كانت من نوع Universalis (العدد = 9، 37.5%) ونوع Totalis (العدد = 2، 8.3%)، ونوع المتعدد (العدد = 1، 4.2%). وأظهر 11 (45.8%) من المرضى أن لديهم بقعة سلمون من الحجم الكبير وعشرة (41.7%) لديهم الحجم الصغير. في بعض الحالات منطقة بقعة السلمون، لوحظ نمو الشعر بعد العلاج. وعلى العكس فالحالات الأخرى، لم تظهر هذه المناطق نمو الشعر مقارنة بالمواقع الأخرى.

**الكلمات المفتاحية:** الثعلبة البقعية، الوحمة البسيطة، رقعة السلمون، سلسلة الحالات.