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Evaluation of the Results of Spitz Nevus through a Cross-Sectional Study in Iraq of 44 Cases

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Abstract: **Background:** Spitz nevus (SN) is a heterogeneous group of melanocytic nevi that have been the subject of considerable debate due to their apparent similarity to melanoma (MM). **Objective:** This study was contributed to assess and analyse clinical outcomes of Iraq patients who have Spitz nevus. **Patients and methods:** The study enrolled 44 cases of Spitz nevus, which were classified into two groups: 24 cases of children and 20 cases of adults. The patients' Spitz nevus was assessed by dermoscopy, which diagnosed all site locations and the histological subtypes of Spitz nevus. Additionally, the study determined the rates of quality evaluations in terms of symptoms, emotions, functioning, and social interactions. **Results:** A total of 44 cases were included in the study, comprising 24 children and 20 adults. The age range of the patients was between 20 and 30 years, with 22 cases. There were more female cases (31) than male cases (13). The rate of comorbidities was 25%. A family history was present in 18.18% of cases, exposure to sunlight in 54.55%, and hormonal changes in 38.64%. The most common lesion type was Spitz naevus, present in 18 cases, spitzoid melanoma in 11 cases, and spitzoid naevus in 9 cases. Regarding the anatomical location of the lesions, it was observed that 16 patients had them in the leg or thigh, 31.82% of patients had them in the head and neck, 22.73% of patients had them in the arm or shoulder, and 9.09% of patients had them in the foot or ankle. In terms of histological subtype, the following were identified: desmoplastic (13 cases), compound (14 cases), and pigmented (9 cases). Head and neck outcomes included face (4 cases), ears (7 cases), scalp (1 case), and neck (2 cases). Furthermore, quality of life was assessed in the patients, with the results indicating that the quality of life of children patients included symptoms at 65.20 ± 5.30 and social interactions at 60.15 ± 5.25. In contrast, the quality of life of adult patients included symptoms at 74.40 ± 21.07 and social interactions at 67.33 ± 6.08. **Conclusions:** Spitz nevus, a non-malignant skin lesion common in children and young adults, can resemble aggressive melanoma. Generally, healthy individuals aren't significantly affected by these lesions. If irregularly shaped, fast-growing lesions are worrisome, consult a dermatologist for a diagnosis. Though not medically problematic, their psychological and social effects should be considered.

Keywords: Melanoma; Dermoscopy; Spitz nevus; Lesion type; Histological subtype.

INTRODUCTION

Spitz nevi (SN) represents a spectrum of benign melanocytic lesions that were first elucidated by S. Spitz in 1948 [Menezes, F. D. *et al*., 2017]. Given their clinical resemblance with melanoma (MM), the diagnostic borders of SN remain unclear. Dermoscopy has undoubtedly advanced the clinical diagnosis of pigmented and non-pigmented SN. Currently, reflectance confocal microscopy (RCM) has greatly improved the distinction between SN and melanoma [Abboud, J. *et al*., 2017].

In 1948, Sophie Spitz first described nests of large epithelioid or spindled melanocytes observed in children as benign juvenile melanomas. Since that time, the classifications of these spitzoid proliferations have diversified and now include a spectrum of diagnoses such as classical or benign Spitz nevi, atypical Spitz tumors, and spitzoid melanomas. [Ring, C. *et al*., 2021]

SN is a dermatological condition that primarily affects children and adolescents. In contrast, MM is more prevalent in middle age and beyond, with a peak incidence in patients over the age of forty [Menezes, F. D. *et al*., 2017; Abboud, J. *et al*., 2017; Stefanaki, C. *et al*., 2016]. The dermoscopic patterns most commonly associated with SN include starburst, negative network, and non-specific and homogenous patterns. Johr and Stolz described six dermoscopic patterns of SN in total [Pollock, J. L, 2018; Ferrara, G. *et al*., 2013]. In addition to the aforementioned four patterns, they also included lesions with a black pigment network and pink lesions [Pollock, J. L, 2018– Kerner, M. *et al*., 2013].

In some cases, the presentation of these lesions overlaps with that of malignant melanoma. The differential diagnosis of such lesions can be challenging [Wiesner, T. *et al*., 2016]. However, histopathological evaluation of SN reveals distinct

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patterns of genetic aberrations compared to melanoma and common nevi [Kerner, M. *et al*., 2013– Ferrara, G. *et al*., 2015]. Many attempts have been made to determine the dermoscopic diagnostic criteria of SN [Lallas, A. *et al*., 2017]. Diagnosing and managing spitzoid lesions in children has historically been difficult and controversial because their names are increasingly complex and look like melanomas. [Urso, C, 2016]

One of the fatalities that have been reported in patients suffering from spitzoid melanomas, as well as examples of atypical Spitz tumours, include a case where a prior diagnosis of a regular Spitz nevus in a child, which had been termed benign by six pathologists, resulted in metastasis. There appears to be a lack of consensus among dermatologists and surgeons regarding the optimal treatment for Spitz tumours in children [Jing, Y. *et al*., 2019]. This may be due to a lack of comprehensive medical information on this topic. One of the key factors contributing to this uncertainty is the possibility of residual tumour tissue remaining following surgical removal, which could necessitate a subsequent procedure, particularly if the initial biopsy did not yield conclusive results. [Ritter, A. *et al*., 2018]

Tlougan, *et al*., found that over fifty percent of surveyed dermatologists would recommend excision again for a harmless Spitz nevus with still showing signs either clinically or under a microscope, although approximately one-third would advise against it where there is no clinical indication of remaining tumor cells even though it extends up to the lateral histological margin. [Ritter, A. *et al*., 2018]

Spitz-type lesions are well-circumscribed papules or nodules with multiple colours, including non-pigmented, pink, or red. Deeply pigmented lesions are dark or brown. These skin tumours can manifest anywhere on the skin but are often observed on the limbs below the hips and knees. They typically appear before the age of 30-40 years. [Bär, M, 2012]

Histological and molecular stratification may differentiate Spitz-type proliferations, which range from benign Spitz nevi. These nevi may be further subdivided into Classic Spitz Naevi (CSN) and Spitzoid naevi at one end and Spitzoid melanomas at the other. The prognostic potential of Atypical Spitz Tumours (ASTs) that lie in between is uncertain and disputed. [Bär, M. *et al*., 2012]

PATIENTS AND METHODS

A cross-sectional study was conducted involving 44 patients with Spitz's nevus, with ages ranging from 1 to 30 years. All clinical and demographic data were collected from hospitals in different hospitals in Iraq over a period of 15 months between April 8, 2022, and August 18, 2023. The data set included information on age and gender (in both male and female), body mass index (underweight, normal weight, overweight, and obesity), concomitant diseases, and other indicators, such as family history, exposure to sunlight, hormonal changes, and educational level. This study identified common symptoms that were observed in all patients and were recorded as a measure of the patient's quality of life.

This study recorded the clinical and diagnostic results of the patients, who were divided into two groups. The first group included 24 cases of children, while the second group included 20 cases of adults. The patients were diagnosed by dermoscopy, which determined the type of lesion and its location (leg/thigh, arm/shoulder, foot/ankle, and head and neck), the histological subtype, sun protection (back, chest, abdomen, buttocks, and genital area), and head and neck (face, ears, scalp, and neck). Furthermore, this study classified the severity of Spitz nevus using the Spitz-Reed classification system, which categorises all melanocytic lesions based on their microscopic appearance. This classification was determined by examining the anniversary of the lesions and identifying those that are benign and those that are classified as definitely or possibly malignant. Lesions are considered benign when they are not dangerous or cause no harm to the patient's health. Atypical lesions are those that display some irregularities that require them to be monitored frequently but are not cancers. Normalized lesions are very unhealthy, as they can easily metastasize in different parts of the body if there is no treatment in advance. Furthermore, the findings quantified the ratings of quality in terms of symptoms, emotions, functioning, and social interactions. This was achieved by utilising the Skindex-29 scale, which ranged between 0 and 100, with 100 representing the most favourable outcome and 0 representing the most unfavourable outcome.

RESULTS

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Table 1: Baseline and demographic features outcomes of patients with spitz nevus

Features	Number of patients [44]	Percentage [%]
Age		
1 – 9	12	27.27%
10 – 19	10	22.73%
20 - 30	22	50.0%
Sex		
Male	13	29.55%
Female	31	70.45%
BMI, [Kg/m2]		
Underweight	5	11.36%
Normal weight	25	56.82%
Overweight	10	22.73%
Obesity	4	9.09%
Comorbidities		
Yes	11	25.0%
No	33	75.0%
Asthma	3	6.82%
Hypertension	4	9.09%
Diabetes	1	2.27%
Obesity	4	9.09%
HIV	5	11.36%
Kidney diaseases	2	4.55%
History family		
Yes	8	18.18%
No	36	81.82%
Exposure to sunlight		
Yes	24	54.55%
No	20	45.45%
Hormonal changes		
Yes	17	38.64%
No	27	61.36%
Education status		
Not in the school	4	9.09%
Primary	13	29.55%
Secondary	5	11.36%
College/university	22	50.00%

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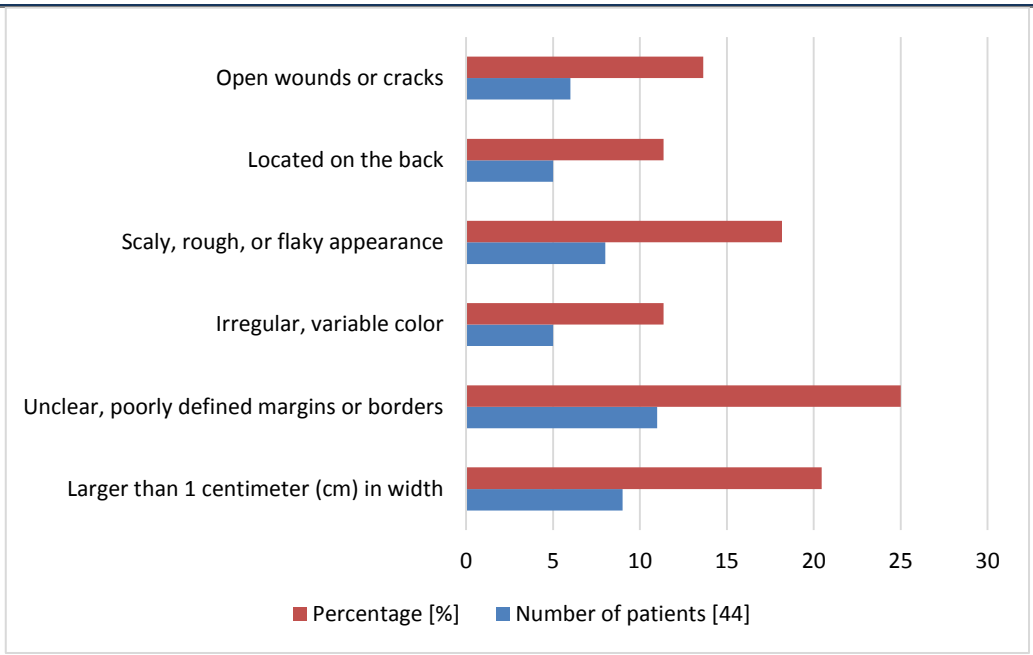

Figure 1: Identify common symptoms prevalence on patients with spitz nevus

Table 2: Identification of tumour characteristics associated with spitz nevus

Tumour characteristics	Number of patients [44]	Percentage [%]
Lesion type, n (%)		
Spitz naevus	18	40.91%
Spitzoid naevus	9	20.45%
Atypical Spitz tumour	4	9.09%
Spitzoid melanoma	11	25.0%
Melanoma arising in Spitz naevus	2	4.55%
Localization, n (%)		
Leg/thigh	16	36.36%
Arm/shoulder	10	22.73%
Foot/ankle	4	9.09%
Head and neck	14	31.82%
Histological subtype, n (%)		
Pigmented	9	20.45%
Pagetoid	3	6.82%
Desmoplastic	13	29.55%
Compound	14	31.82%
Junctional	1	2.27%
Halo	1	2.27%
Intradermal	1	2.27%
Acral	2	4.55%
Sun protected (10, 22.73%)		
Back	4	9.09%
Chest	3	6.82%
Abdomen	2	4.55%
Buttocks	1	2.27%
Genital area	0	0.00%
Head and neck (14, 31.82%)		
Face	4	9.09%
Ears	7	15.91%
Scalp	1	2.27%
Neck	2	4.55%

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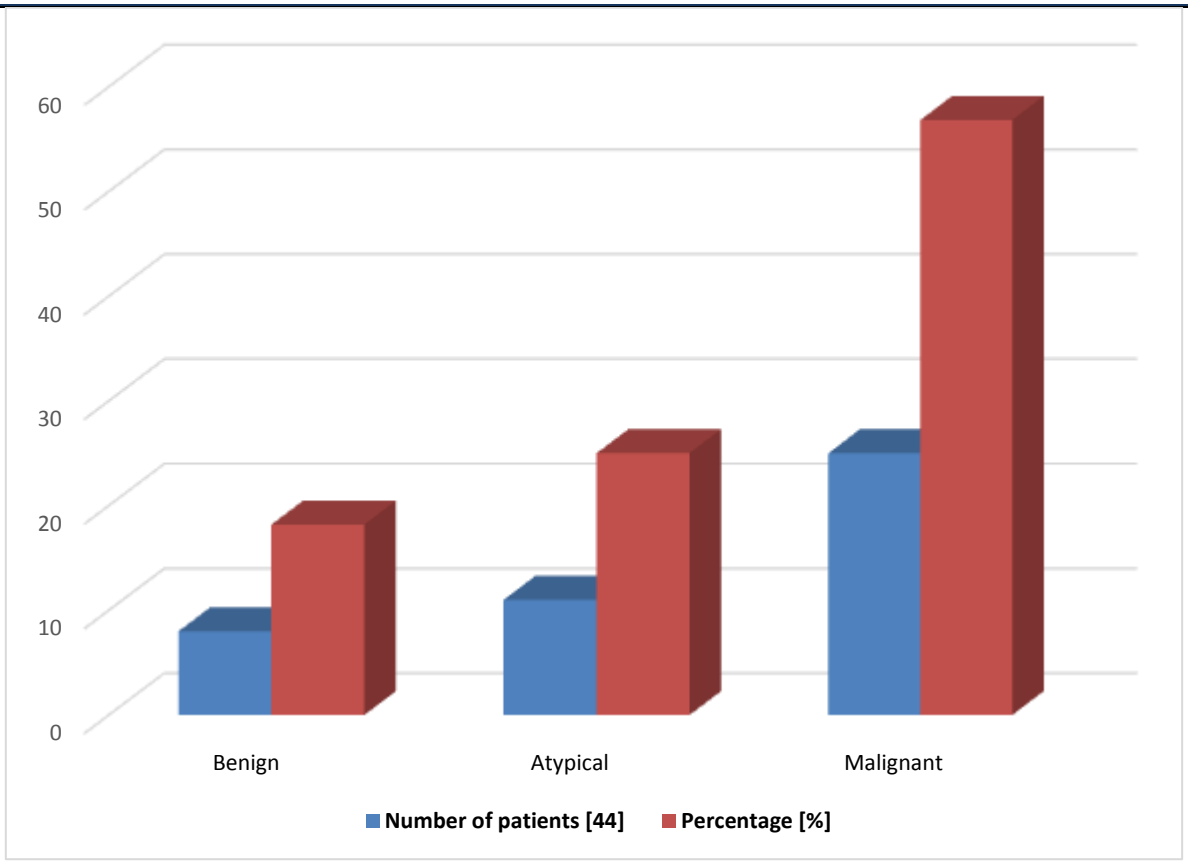

Figure 2: Classify the severity of Spitz nevus by the Spitz-Reed classification system.

Table 3: Comparison of the site locations and the histological subtypes of Spitz nevus between children and adults

Items	Children, [n = 24]	Adults, [n = 20]	P – value
Localization, n (%)			**0.124**
Leg/thigh	7 (29.17%)	6 (30%)	
Arm/shoulder	5 (20.83%)	4 (20%)	
Foot/ankle	3 (12.50%)	4 (20%)	
Head and neck	9 (37.50%)	6 (30%)	
Histological subtype, n (%)			**0.280**
Pigmented	4 (16.67%)	5 (25%)	
Pagetoid	6 (25%)	4 (20%)	
Desmoplastic	3 (12.5%)	2 (10%)	
Compound	5 (20.83%)	2 (10%)	
Junctional	2 (8.33%)	3 (15%)	
Halo	2 (8.33%)	1 (5%)	
Intradermal	1 (4.17%)	1 (5%)	
Acral	1 (4.17%)	2 (10%)	

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Table 4: Assessment of quality of life for patients with spitz nevus by Skindex-29 scale

Items	Children	Adults	P – value
Symptoms	65.20 ± 5.30	74.40 ± 21.07	0.035
Emotions	55.60 ± 8.80	62.11 ± 6.50	0.032
Functioning	52.20 ± 6.48	56.44 ± 3.79	0.0450
Social interactions	60.15 ± 5.25	67.33 ± 6.08	0.0443

Table 5: multivariate analysis of risk factors effect on patients with spitz nevus

Variables	Children, [n = 24]	Adults, [n = 20]	P - value
Exposure to sunlight	2.03 [0.3 – 4.60]	3.12 [0.77 – 5.56]	0.126
Hormonal changes	4.5 [1.1 – 6.80]	6.68 [2.85 – 9.36]	0.18
Unclear, poorly defined margins or borders	3.25 [0.7 – 5.55]	2.15 [1.64 – 6.59]	0.470
Larger than 1 centimeter (cm) in width	2.11 [0.82 – 5.78]	3.70 [1.01 – 6.90]	0.382
Spitz naevus	7.66 [4.61 – 12.5]	4.80 [2.78 – 8.94]	0.12
Leg/thigh	4.68 [2.24 – 5.70]	7.65 [2.35 – 9.10]	0.603
Head and neck	4.78 [3.32 – 5.45]	5.80 [3.43 – 8.54]	0.426
Pigmented	6.78 [2.56 – 12.28]	5.76 [2.18 – 8.62]	0.181
Desmoplastic	4.80 [1.35 – 6.74]	4.88 [2.68 – 9.68]	0.20
Compound	5.44 [2.12 – 10.22]	5.30 [2.45 – 11.68]	0.460

DISCUSSION

Our study was found patients with ages (20 - 30) years were a height rate with 22 cases, followed by patients with age (10 -19) years was 10 cases, and patients with ages (1 - 9) years included 12 cases; females included more cases with 31 cases to compare with males, included 13 cases, BMI classified into underweight was 5 cases, normal weight was 25 cases, overweight was 10 cases, and obesity was 4 cases, rate of comorbidities was 25%, where common diseases were HIV included 5 cases, obesity included 4 cases, and hypertension included 4 cases, family history was 18.18%, exposure to sunlight was 54.55%, and hormonal changes were 38.64%. Also, findings enrolled the common symptoms prevalence into patients, which are unclear, poorly defined margins or borders got 11 cases, larger than 1 centimeter (cm) in width got 9 cases, and scaly, rough, or flaky appearance got 8 cases.

According to characterizing of tumours diagnosis, the most lesion type clarity in patients were spitz naevus with 18 cases, spitzoid melanoma with 11 cases, and spitzoid naevus with 9 cases. In terms of anatomical location, we noticed that 16 patients had in the Leg or thigh, 31.82% of patients had in Head and neck, 22.73% of patients had in arm/shoulder, and 9.09% of patients had in Foot or ankle. In terms of histological subtype, we had desmoplastic with 13 cases, compound with 14 cases, and pigmented with 9 cases, as well as sun-protected got 10 cases, which include back with 4 cases, chest with 3 cases, abdomen with 2 cases, buttocks with one case, and genital area with zero cases. Furthermore, head and neck outcomes enrolled face had 4 cases, ears had 7 cases, scalp had 1 case, and neck had 2 cases.

In the classification related to the severity of Spitz nevus, the scale of the Spitz-Reed classification system classified into benign got 8 cases, atypical got 11 cases, and malignant got 25 cases. In comparison between children and adults in terms of the site locations and the histological subtypes of Spitz nevus, clinical findings of children were found the most location identified were Leg/thigh got 7 cases, arm/shoulder got 5 cases, head and neck got 9, and foot/ankle got 3 cases, while clinical findings of adults were the most location identified were Leg/thigh got 6 cases, arm/shoulder got 4 cases, head and neck got 4, and foot/ankle got 6 cases, as well as the most histological subtype of children patients included pagetoid had 6 cases, compound had 5 cases, the most histological subtype of adults patients included pagetoid had 5 cases, pagetoid had 4 cases. Moreover, we identify the quality of life in the patients, which shown the quality of life of children patients who included symptoms was 65.20 ± 5.30, and social interactions was 60.15 ± 5.25, while the quality of life of adult patients who included symptoms was 74.40 ± 21.07, and social interactions was 67.33 ± 6.08.

Last studies insured that Spitz nevi as an noncancerous growth found primarily among children and young adults, where all people who have them usually do well, though the type of person that gets Spitz nevus is unclear, as well as the growths may affect one group more than another, but most people with these growths will

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get better eventually, where Spitz nevi tend to occur oftener in younger age group resulting at most occasions in individual aged less than 30 years, all them can tend to affect individuals with fair complexion who have exposed themselves to sunlight before. [Argenziano, G. *et al*., 2011; Zedek, D. C. *et al*., 2009; Pogorzelska-Antkowiak, A. *et al*., 2021]

An American study found the symptoms of Spitz nevus can manifest in individuals in various ways, depending on whether they are children or adults, where Spitz nevi typically presents as rounded pink-red growths in children, which may appear as raised bumps on the skin or have a shape of a dome, which become dark brown or even black, with either flat surface areas or nodules, particularly when observed closely, as well as the nevus may be limited to a single spot, similar to the appearance of many melanocytic nevi, where its size is less than 1 cm. [Pellacani, G. *et al*., 2009]

Some studies shown that almost prevalence of Spitz nevi is relatively low internationally, representing only approximately 1 to 2% of all melanocytic neoplasms, where these nevi are commonly observed in children and young adults, particularly teenagers, but can also manifest in other stages of life, which it is important to note that while the majority of Spitz nevi are benign, some may exhibit characteristics that warrant further investigation to confirm a melanoma diagnosis. [Guida, S. *et al*., 2016; Carrera, C. *et al*., 2016]

CONCLUSION

Spitz nevus, a skin lesion frequently observed in children and young adults, is typically non-malignant, but it can resemble melanoma, a highly aggressive form of skin cancer. It is noteworthy that individuals with generally robust health are not significantly affected by Spitz nevi. In the event of irregularly shaped, fast-growing lesions exhibiting worrisome characteristics, it is advisable to seek the opinion of a dermatologist, who may be able to make a diagnosis of cancer. While Spitz nevi are typically not medically problematic, their psychological and social effects should be considered.

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