ISSN 2521-1455 (Print)
ISSN 2523-4250 (Online)

ВИПАДКИ З ПРАКТИКИ

DOI: 10.21802/artm.2024.3.31.281
UDC 616-071+615.5+616-006

CLINICAL CASES OF SPITZOID NEOPLASMS

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Abstract. Spitz nevi account for about 2% of the total number of melanocytic skin neoplasms. There are benign Spitz nevi, atypical Spitz tumour, and malignant Spitz melanoma. These clinically similar lesions, usually represented by a flesh-coloured, pink or brownish-black spot or nodule, are often heavily vascularised, grow rapidly in size and change in structure, raising concerns about malignancy. Dynamic observations have revealed the possibility of long-term stabilisation and periods of regressive changes.

Dermoscopy is used for early diagnosis due to the initially small size of nevi. When examining the magnified image of the tumour surface, the structure of the neoplasm is recognized. In the case of Spitz nevi, special patterns of "starburst" and "stardust" are identified, which allow to suspect the diagnosis and the period of involution, respectively.

Pathohistologically, Spitz nevi are defined as melanocytic proliferations with large epithelioid or spindle-shaped melanocytes with large nuclei, vesicular chromatin and prominent nucleoli. However, the differentiation between different subtypes of spitzoid neoplasms remains a difficult issue. As of today, the review of H&E-stained structures still prevails over immunohistochemical and molecular genetic diagnostic methods.

Even nowadays, Spitz nevi still cause difficulties in clinical and morphological diagnosis and management approaches. The publication considers several interesting cases from personal clinical practice.

Case 1: Patient A, a 24-year-old woman. She complained of a single rash on the outer surface of the right thigh, which gradually increased in size over the last year. On clinical examination, a small erythematous, partially pigmented, heterogeneous nodule was observed in this area.

The demonstrated Spitz nevus is heterogeneous in structure. Being in the phase of active growth, it showed an asymmetrical "starburst" pattern formed by vascular elements in a linear arrangement, and white reticular lines or structureless zones.

Case 2: Patient B, 34 years old. A full examination of the right popliteal fossa revealed a heterogeneous spot up to 4 mm in diameter, which caused concern.

A case of Spitz nevus is represented by a globular pattern in the centre and a reticular pattern on the periphery, which is more common for lesions that have been on the skin for some time, but no longer show signs of active growth.

Case 3: Patient C, a 25-year-old woman, skin phototype 2, with a family history of skin tumours in several previous generations. The examination revealed a heterogeneous nodule of suspicious morphology in the left scapula.

Dermoscopically, the above-described lesion is represented by two zones of different structure. The central zone has the signs of radial markings formed by various pattern elements; the polychromatic zone has areas of negative pigment network, white lines, dots and globules. There was also an eccentrically located area with a radially oriented hyperchromatic pigment network and a clear border along the outer edge.

Most Spitz nevi are independent lesions, but some of them can be associated with other skin neoplasms. This is likely to be the example in the above-mentioned case, so it was the nevus-associated Spitz melanoma.

Spitz nevi are an urgent problem of modern medicine. The similarity of the clinical, dermoscopic and pathological picture to malignant skin neoplasms causes diagnostic difficulties. Visual variability requires considerable clinical experience of a specialist.

Keywords: skin neoplasms, diagnostic, spitz nevi, melanoma, dermoscopy, clinical cases, excisional biopsy, treatment.

ISSN 2521-1455 (Print)
ISSN 2523-4250 (Online)

Introduction. In 1948, Sophie Spitz first described the clinical and histopathological observation of 13 melanocytic lesions in children, which she termed "juvenile melanomas" [1]. Subsequent studies have changed the attitude towards lesions of this nature, recognized them as mostly benign in children and probably malignant in adults. Since 1967, in tribute to the scientific achievements of the discoverer, the term "juvenile melanoma" has been changed to "Spitz nevus" [2]. Even at the current stage, Spitz nevi (SN) still cause difficulties in clinical and morphological diagnosis and management approaches.

SN account for about 2% of the total number of melanocytic skin neoplasms. There are benign SN, atypical Spitz tumour or Spitz melanocytoma (as an intermediate lesion with uncertain malignancy potential), and malignant Spitz melanoma [3]. These clinically similar lesions, usually represented by a flesh-coloured, pink or brownish-black spot or nodule, are often heavily vascularised, grow rapidly in size and change in structure, raising concerns about malignancy. Dynamic observations have revealed the possibility of long-term stabilisation and periods of regressive changes [4].

Dermoscopy is used for early diagnosis due to the initially small size of nevi. When examining the magnified image of the tumour surface, the structure of the neoplasm is recognized. In the case of SN, special patterns of "starburst" and "stardust" are identified, which allow to suspect the diagnosis and the period of involution, respectively [5].

Pathohistologically, SN are defined as melanocytic proliferations with large epithelioid or spindle-shaped melanocytes with large nuclei, vesicular chromatin and prominent nucleoli. However, the differentiation between different subtypes of spitzoid neoplasms remains a difficult issue. As of today, the review of H&E-stained structures still prevails over immunohistochemical and molecular genetic diagnostic methods [6].

Given the relevance of the topic, we would like to demonstrate several interesting cases from our personal clinical practice.

Case 1 Synopsis:

Patient A, a 24-year-old woman with skin phototype 2. She complained of a single rash on the outer surface of the right thigh, which gradually increased in size over the last year. On clinical examination, a small erythematous, partially pigmented, heterogeneous nodule was observed in this area (Fig 1A).

Dermoscopy reveals a 4x8 mm lesion slightly elevated above the skin level. The centre is represented by pigment circles and lines, with single grey-blue inclusions, as well as vascular elements in the form of dotted and linear vessels. Peripherally, on the upper, and on the lower pole, there is a zone of negative pigment network and reticular white lines, which turn into areas of relatively homogeneous pink colour, where centrally located dotted and linear vessels are observed, some of which are probably pigmented (Fig. 1B).

To exclude friction-induced inflammation, the patient was prescribed a topical corticosteroid for a short period of time, and he was advised to avoid trauma. Examination on day 5 showed no significant changes in the structure of the lesion. The pigment elements are mainly represented by circles and dots, sometimes forming linear groupings; the zone of negative pigment network turns into white structureless areas. The number of vascular inclusions remained virtually unchanged (Fig. 1C).

Given the lack of positive dynamics and suspicion of a malignant neoplasm, an excisional biopsy was performed in agreement with the patient. The pathological conclusion was Spitz nevus (Fig. 1D).

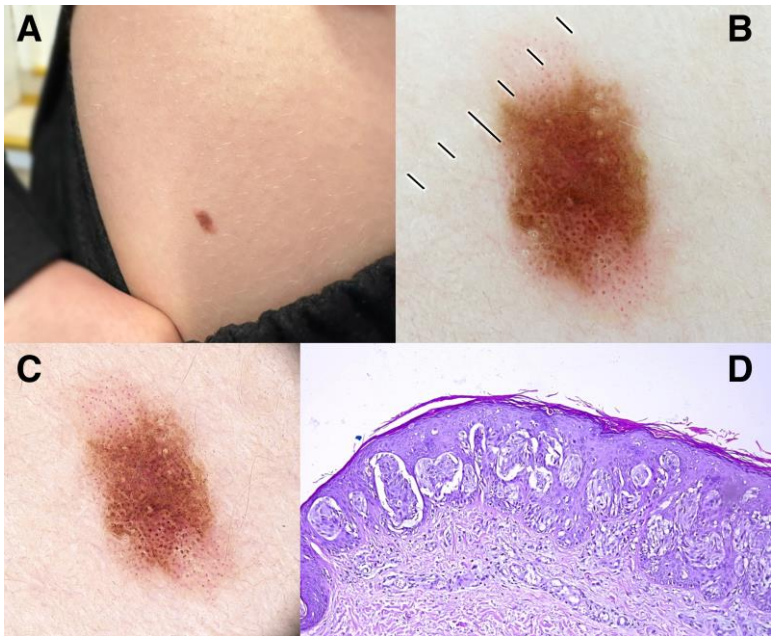

Figure 1A-D. Patient A, 24-year-old woman.
1A – Clinical photo, a small erythematous, partially pigmented, heterogeneous nodule on the outer surface of the right thigh.
1B – Dermoscopy, cross-polarisation and light-conducting liquid, 30x (10x dermoscope and 3x optical zoom of iPhone 14 Pro Max camera, digital post-processing was performed to improve clarity and visualisation of structures [7])
1C – Dermoscopy. Control before removal. FotoFinder Medicam 1000s camera, 30x magnification in polarisation mode using a light-conducting liquid.
1D – Microscopy, H&E, 10x.

Case 1 Discussion:

Thus, the demonstrated Spitz nevus was heterogeneous in structure and consisted of a centrally located pigmented form and a peripheral part with signs of pigmentless SN. Being in the phase of active growth, it showed an asymmetrical pattern of "starburst" formed by vascular elements in a linear arrangement, and white reticular lines or structureless zones.

Case 2 Synopsis:

Patient B, 34 years old, with skin phototype 2. A full examination of the right popliteal fossa revealed a heterogeneous spot up to 4 mm in diameter, which caused

ISSN 2521-1455 (Print)
ISSN 2523-4250 (Online)

concern. The patient could not specify the duration of its presence on the skin, but recently noted a possible increase (Fig. 2A).

Dermoscopically, the lesion is heterogeneous. The central zone is formed by a large globular pattern and makes a negative pigment network. The globules are coloured in different shades of brown, rarely grey; they differ in shape and size, some of them probably represent central pigmented vessels. The peripheral area is formed by a pattern of reticular lines, with their hyperintensity in some sectors (Fig. 2B, 2C).

Due to the heterogeneous morphology, the lesion was removed. The pathomorphological structure is typical of Spitz nevus (Fig. 2D).

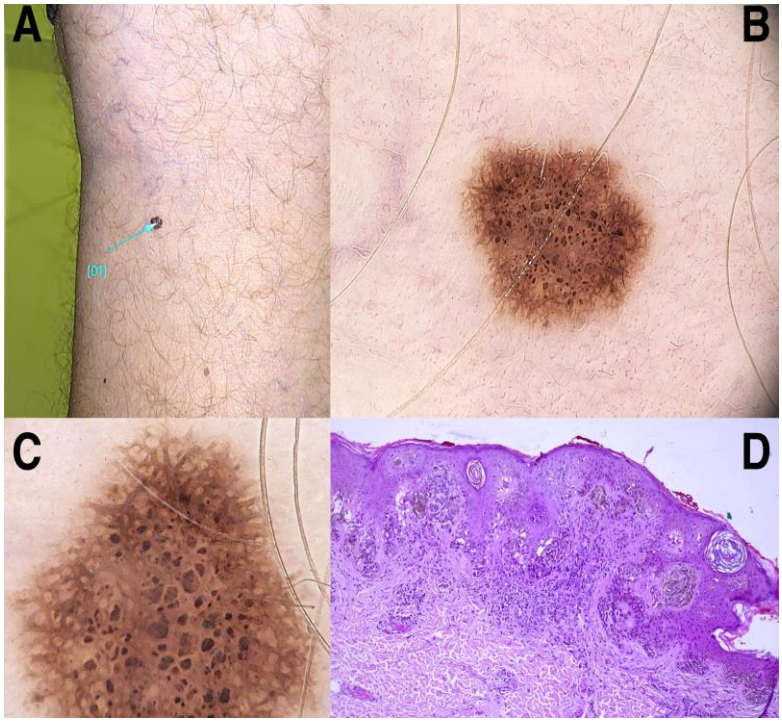

Figure 2A-D. Patient B, 34-year-old male.
2A – Clinical photo, spot in the right popliteal fossa.
2B – Dermoscopy, cross-polarisation and light-conducting liquid, 20x (FotoFinder Medicam 1000s)
2C – Dermoscopy, cross-polarisation and light-conducting liquid, 50x (FotoFinder Medicam 1000s).
2D – Microscopy, H&E, 10x

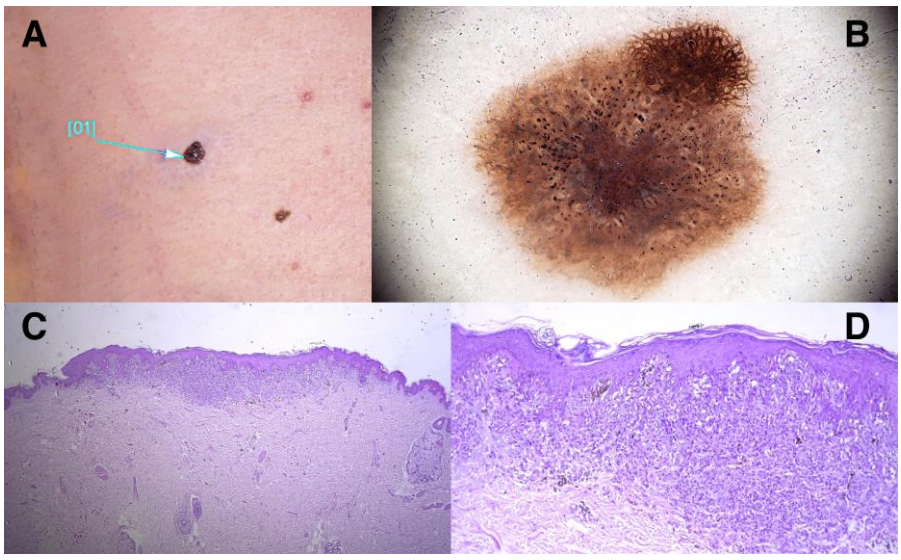

Figure 3A-D. Patient C, 25-year-old woman.
3A – Clinical photo, heterogeneous nodule in the left scapula.
3B – Dermoscopy, cross-polarisation and light-conducting liquid, 30x (FotoFinder Medicam 1000s camera)
3C – Microscopy, H&E, 2.5x.
3D – Microscopy, H&E, 10x.

ISSN 2521-1455 (Print)
ISSN 2523-4250 (Online)

Case 2 Discussion:

The demonstrated Spitz nevus is represented by a globular pattern in the centre and a reticular pattern in the periphery, which is more common for lesions that have been on the skin for some time, but no longer show signs of active growth.

Case 3 Synopsis:

Patient C, a 25-year-old woman, skin phototype 2, with a family history of skin tumours in several previous generations. She came for a full examination for dangerous lesions. The examination revealed a heterogeneous nodule of suspicious morphology in the left scapula (Fig. 3A).

Dermoscopically, the above-described lesion is represented by two zones of different structure. The central zone has the signs of radial markings formed by various pattern elements; the polychromatic zone has areas of negative pigment network, white lines, dots and globules. There was also an eccentrically located area with a radially oriented hyperchromatic pigment network and a clear border along the outer edge (Fig. 3B).

Considering the age of the patient and the suspicious morphology of the lesion, an excisional biopsy was performed. The pathologist's conclusion was Spitz melanoma, Breslow 0.940 mm (Fig. 3C, 3D).

Case 3 Discussion:

Most SN are independent lesions, but some of them can be associated with other skin neoplasms. This is likely to be the example in the above-mentioned case, so it was the nevus-associated Spitz melanoma.

Conclusion:

Spitz nevi are an urgent problem of modern medicine. The similarity of the clinical, dermoscopic and pathological picture to malignant skin neoplasms causes diagnostic difficulties. Visual variability requires considerable clinical experience of a specialist.

References:

1. Spitz S. Melanomas of childhood. Am J Pathol. 1948;24(3):591–609.
2. Moles and malignant melanoma: Terminology and classification. Med J Aust. 1967;1(3):123–5. DOI: http://dx.doi.org/10.5694/j.1326-5377.1967.tb21063.x
3. Herzum A, Occella C, Vellone VG, Gariazzo L, Pastorino C, Ferro J, et al. Paediatric spitzoid neoplasms: 10-year retrospective study characterizing histological, clinical, dermoscopic presentation and FISH test results. Diagnostics (Basel). 2023;13(14):2380. DOI: http://dx.doi.org/10.3390/diagnostics13142380
4. Voloshynovych M, Rosendahl C, Girnyk G, Tsidylo I, Blaha I. Clinical evolution of Spitz nevi. Galician Med J. 2020;27(2):E2020213. DOI: http://dx.doi.org/10.21802/gmj.2020.2.13
5. Brunetti B, Briatico G, Scharf C, Cabo H, Scalvenzi M, Barbato F, et al. Stardust pattern as evolution of pigmented Spitz nevi during childhood. Dermatol Pract Concept. 2023;e2023041. DOI: http://dx.doi.org/10.5826/dpc.1301a41
6. Mosquera-Zamudio A, Launet L, del Amor R, Moscardó A, Colomer A, Naranjo V, et al. A Spitzoid Tumor dataset with clinical metadata and Whole Slide Images for Deep Learning models. Sci Data. 2023;10(1). DOI: http://dx.doi.org/10.1038/s41597-023-02585-2
7. Voloshynovych M, Girnyk G, Chmut V, Blaga I, Kozak N. Application of machine learning technologies to improve the diagnostic value of dermatoscopy, combined with digital photo-fixation of skin neoplasms. Dermatol Pract Concept. 2022;e2022181. DOI: http://dx.doi.org/10.5826/dpc.1204a181

УДК 616-071+615.5+616-006

КЛІНІЧНІ ВИПАДКИ ШПІЦОЇДНИХ НЕОПЛАЗІЙ

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Резюме. Невуси Шпіца становлять близько 2% від загального числа меланоцитарних новоутворів шкіри. Виділяють доброякісний невуси Шпіца, атипову пухлину Шпіца, та злоякісну меланому Шпіца. Ці клінічно подібні утворення, як правило представлені плямою або вузликом тілесного, рожевого чи коричнево-чорного забарвлення, частіше значно васкуляризовані, швидко зростають у розмірах та змінюють структуру, чим викликають занепокоєння на предмет злоякісності.

З метою ранньої діагностики, зважаючи на первинно дрібні розміри, використовується дермоскопія.

Патогістологічно невуси Шпіца визначаються як меланоцитарні проліферації з великими епітеліоїдними або веретеноподібними меланоцитами з великими ядрами, везикулярним хроматином і помітними ядерцями. Проте диференціація поміж різними підтипами шпіцоїдних новоутворень залишається складним питанням. Станом на сьогодні, огляд структур зафарбованих гематоксилін-еозином, все ще переважає над методами імуногістохімічної та молекулярно-генетичної діагностики.

Навіть на сучасному етапі, невуси Шпіца все ще викликають складнощі в клініко-морфологічній

ISSN 2521-1455 (Print)
ISSN 2523-4250 (Online)

діагностиці та підходах до менеджменту. Зважаючи на актуальність теми у публікації розглянуто кілька цікавих випадків з особистої клінічної практики.

Case 1: продемонстрований Шпіц невус, неоднорідний по структурі. Перебуваючи у фазі активного зростання проявив несиметричний патерн «вибухаючої зірки» сформований судинними елементами в лінійному розташуванні, та білими ретикулярними лініями чи безструктурними зонами.

Case 2: випадок невуса Шпіца представленого глобулярним патерном в центрі, та ретикулярним на периферії, що частіше характерні для утворень з довгою історією перебування на шкірі в період коли вони більше не проявляють ознак активного росту.

Case 3: Шпіц меланома асоційована з пігментним невусом.

Невуси Шпіца - актуальна проблема сучасної медицини. Подібність клінічної, дермоскопічної та патоморфологічної картини до злоякісних новоутворів шкіри викликає діагностичні складності. Візуальна варіативність вимагає клінічного досвіду.

Ключові слова: пухлини шкіри, діагностика, невуси Шпіца, меланома, дермоскопія, клінічні випадки, ексцизійна біопсія, лікування.

Стаття надійшла в редакцію 09.06.2024 р.
Стаття прийнята до друку 11.09.2024 р.