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Original Article

Spitz Nevus: a Study of Clinical and Morphological Variables

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Abstract

Spitz nevus is an uncommon benign melanocytic neoplasia that shares many clinical and histological characteristics typical of melanoma, making difficult the differential diagnosis between these neoplasias. **Objective:** To evaluate clinical and anatomopathological data on Spitz nevus (and Reed nevus – a variant of Spitz nevus) contained in the casuistry of the archives of the Center of Treatment and Research of A. C. Camargo Cancer Hospital, São Paulo, Brazil. **Methods:** A retrospective study consisting in analyzing the archives of the Department of Pathological Anatomy of Hospital of Cancer related to diagnosis of Spitz nevus, youthful melanoma, Reed nevus and Spitzoid melanoma (used for comparison). The analyzed cases cover an interval from 1982 to 2004. Clinical variables were obtained by analyzing patients' history, and the histological analysis was based on anatomopathological criteria for Spitz and Reed nevus. **Results:** In a hundred patient histories, 69 cases were found of Spitz nevus, all with history and/or slides archived in the hospital. Of these, 44 histological preparations had been analyzed. Globally median age of appearance of the lesion was of 20.33 years (varying from 2 to 53), with female predominance (68%), being injuries situated mainly in the inferior members (50%). The histological aspects found correspond to the ones referred in the literature, being circumscribed, symmetrical, consisting of spindle and epithelioid cells, with a moderate degree of nuclear atipies, rare mitoses and Kamino corpuscles (29.5%). However, some cases presented characteristics like small circumscription, asymmetry, intense cellularity and pagetoid dissemination, potential causes of differential diagnosis errors between this disease and melanoma. **Conclusion:** Although dermatological examination can lead to a suspicion of a Spitz and Reed nevus diagnostic, the best parameter for its diagnosis is anatomopathological. The knowledge of these characteristics can prevent an erroneous diagnosis and the inadequate treatment of these lesions.

Key words: Spitz nevus. Reed nevus. Melanoma.

Introduction

Spitz nevus is an uncommon benign melanocytic neoplasia with many clinical and histological characteristics similar to the ones found in melanomas. It was described by Sophie Spitz in 1948 with the nomenclature "youthful melanoma".[1,2] The incidence peak occurs at the two first decades of life, and it affects equally men and women, although there are reports of female predominance. Injuries affect preferentially head and neck areas, lower extremities, more commonly the legs, mainly in women.[3-5] In a series of 200 cases, Paniago-Pereira[6] found 25.2% in the head and neck, 19.5% in the trunk, 12.7% in the arms, 31% in legs and 5.5% in unknown localization. The usual clinical aspect is well circumscribed a brownish or pink papule. Dermoscopy shows an aspect of brown globule (22%) or radiated striae showing a "starburst" standard (56%).[7]

The most known variant of Spitz nevus is a pigmented spindle cell nevus also know as Reed

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nevus. It presents the aspect of a black papule or plaque, affecting frequently young women, mainly in lower extremities.[8,9]

In histopathological exam, Spitz nevus presents symmetry and circumscription, and the epidermis is frequently hyperplasic. Spitz nevus cells can be spindle and epithelioid (ample cytoplasm, intensely eosinofilic, with great nuclei, frequently bizarre). Melanocytic cell nests of dermis-epidermis junction are separated from the epidermis by splits, the dermic component presents maturation, little or no mitosis, and have Kamino bodies (eosinofilic globules that can present isolated or in groups).[4,2,10]

The unequivocal distinction between Spitz nevus and melanoma is a very difficult one, justifying the importance of studies dedicated to find methods for differentiating them, helping the adequate treatment of lesions of this character.[11,12]

Cases with Spitz and Reed nevus diagnosis were analyzed from the archives of the Hospital A.C. Camargo, aiming to create a clinical and anatomopathological database on Spitz nevus. Histopatological aspects were studied and correlated to clinical variables.

Material and Methods

This is a retrospective study using data contained in diagnostic reports of Spitz nevus and Reed nevus from 1982 to 2004. Cases registered in the hospital with histological preparations available in the Department of Pathological Anatomy. Demographic and clinical data were obtained from patients histories. Cases were excluded from the study when their histological preparations did not allow analysis and had no paraffin blocks, because of diagnostic divergence, or with no clinical information (outside consultations).

Clinical variables were studied through gathering information of medical charts in the Medical Archiving Service (SAME) of the Institution, and one used for this a pre-established questionnaire with the following variables: patient age at diagnostic; gender, race; date of last information; size of the clinical injury (in centimeters); localization of the lesion; clinical diagnosis; clinical evolution.

Histological analysis was based on the classic anatomopathological criteria considered for Spitz and Reed nevus, and evaluated lesions symmetry, circumscription, slits between melanocytic cells nests and epidermis, Kamino corpuscles, pagetoid dissemination, dermic component maturation, linear symmetry (tracing an imaginary line parallel to the epidermic surface, one evaluates cell homogeneity in all its extension), presence of mitoses, depth and growth pattern in the injury depths (either expansile or as isolated cells), intensity of pigmentation, cellularity (low, moderate or pronounced), nuclear atipia.

All histological preparations were evaluated. When paraffin blocks were available new histological cuts were done, stained with hematoxylin and eosin to confirm diagnosis and evaluate histopathological parameters.

For evaluating the relationship among histolopathological variables, chi-square or Fisher's exact was used, establishing 5% as the rejection level for nullity of the hypothesis.

Results

A hundred patient histories were found in the archives of the Department of Pathological Anatomy of the Cancer Hospital with Spitz nevus diagnostic, juvenile melanoma, Reed nevus and Spitzoid melanoma (used for comparison). Of these, 53 cases where histological preparations were available, nine of which were discarded, three due to the impossibility of reading the glass-slide, six for having received a new diagnostic (melanoma, congenital nevus, blue nevus, combined nevus, atypical nevus, blue or epithelioid nevus, non-epithelioid atypical melanocytic injury). One of the analyses was inconclusive. Therefore, 44 cases were considered for analysis, from which 28 were diagnosed as Spitz nevus and 16 as Reed nevus.

The sample average age was 18.1 years (varying from 2 to 53 years); 66% of patients were female and 87% white. Lesions predominated in the inferior (47%) and superior (23%) extremities, and 54% of them had a diameter less than or equal to 1cm.

Table 1 presents the main comparative histological characteristics between Spitz and Reed nevus. Symmetry, circumscription,

maturation and linear symmetry occurred in both types of injury, when evaluable. Kamino bodies occurred in 33.3 % of Spitz nevus cases and 18.5 % of Reed nevus cases. Slits between nevic cells nests and the epidermis occurred in 66.6% of Spitz nevus cases and 33.4% of Reed nevus cases. Pagetoid dissemination occurred in 66.6% of Spitz nevus cases and 87.5% of Reed nevus ones. Intense nuclear atypia was present in 25% of Spitz nevus and 6.8% of Reed nevus. A pronounced melanic pigmentation was present in 25% of Spitz nevus cases and in 65.5 % of Reed nevus cases. Intense nuclear atypia occurred in 25% of Spitz nevus and 6.8% of Reed nevus (Table 2). When evaluable, expansile growth predominated in both lesions (63.5% in Spitz nevus and 80.0% of in Reed nevus) (cf. Table 3).

Seven nevi were considered atypical, and their histological characteristics are described in Table 4. In atypical Spitz nevus, asymmetry (66%), pagetoid dissemination of neoplasic cells (75%), pronounced nuclear atipia (75%) and infiltration with a standard of isolated cells (66.6%) predominted. In the case of Reed nevus, a pagetoid dissemination of neoplasic cells (100%) and the higher lesion depth (66.6%) prevailed.

Table 1 - Comparative study of histological characteristics found on Spitz and Reed nevi, expressed in percentage and absolute number of cases, when histological preparation allowed analysis

	Present % (N)	Absent % (N)	Total % (N)
Symmetry			
Spitz	87.5 (21)	12.5 (3)	100 (24)
Reed	93.8 (15)	6.2 (1)	100 (16)
Circumscription			
Spitz	83.3 (20)	16.7 (4)	100 (24)
Reed	87.5 (14)	12.5 (2)	100 (16)
Crack between nets and epidermis			
Spitz	66.6 (16)	33.4 (8)	100 (24)
Reed	81.2 (13)	18.8 (3)	100 (16)
Dermic Maturation			
Spitz	68.4 (13)	22.6 (6)	100 (19)
Reed	100 (4)	0	100 (4)
Linear Symmetry			
Spitz	94.7 (18)	5.3 (1)	100 (19)
Reed	100 (5)	0	100 (5)
Kamino Bodies			
Spitz	33.3 (9)	66.7 (18)	100 (27)
Reed	18.8 (3)	81.2 (13)	100 (16)
Pagetoid Dissemination			
Spitz	66.6 (16)	33.4 (8)	100 (24)
Reed	87.5 (14)	12.5 (2)	100 (16)
Mitosis			
Spitz	7.1 (2)	92.9 (26)	100 (28)
Reed	12.5 (2)	87.5 (14)	100 (16)

Table 2 - Comparative study of cellularity, nuclear atipies and intensity of pigmentation found in Spitz and Reed nevi, expressed in percentage and absolute number of cases, when histological preparation allowed analysis

	Low % (N)	Moderate % (N)	High % (N)	Total % (N)
Cellularity				
Spitz	17.9 (5)	32.1 (9)	50 (14)	100 (28)
Reed	12.5 (2)	37.5 (12)	50 (8)	100 (16)
Nuclear Atypia				
Spitz	25 (7)	50 (14)	25 (7)	100 (28)
Reed	43.8 (7)	50 (8)	6.2 (1)	100 (16)
Intensity of pigmentation				
Spitz	25 (7)	50 (14)	25 (7)	100 (28)
Reed	0	37.5 (6)	65.5 (10)	100 (16)

Table 3 - Comparison of growth form between Spitz and Reed nevi

	Spitz N (%)	Reed N (%)	Total N (%)
Expansive growth	12 (42.9)	4 (25.0)	16 (36.4)
Isolated cells growth	6 (21.4)	0 (0)	6 (13.6)
Both Expansive and isolated cells growth	1 (3.6)	1 (6.2)	2 (4.6)
Non-evaluable	9 (32.1)	11 (68.8)	20 (45.4)
Total n (%)	28 (100)	16 (100)	44 (100)

Discussion

The study of this sample shows demographic data similar to the ones of the literature, that shows Spitz nevus peak of incidence to be in the first two decades of life, and the average age was of 20.33 years. The prevalence of lesions in inferior extremities (52%) and the female predominance (62%) also are in accordance with literature.[3-5] Most lesions diameter were less than or equal to 1cm.

As regards histological characteristics, in both nevi, one found symmetry, circumscription, maturation, linear symmetry, little or no mitotic activity and expansile growth. The predominance

Table 4 - Comparison of histopathological characteristics presented in atypical Spitz and Reed nevi

	Atypical Spitz n/t (%)	Atypical Reed n/t (%)
Asymmetry	2/3(66.6)	1/3 (33.3)
Circumscription	1/4(25.0)	1/3 (33.3)
Pagetoid dissemination	3/4 (75.0)	3/3 (100)
High cellularity	1/4 (25.0)	1/3 (33.3)
Pronounced atypia	3/4 (75.0)	1/3 (33.3)
Absence of maturation	2/4 (50.0)	0/1 (0)
Linear symmetry	2/3 (66.6)	NA
Depth to reticular dermis	1/4 (40.0)	2/3 (66.6)
Presence of Kamino bodies	1/4 (25.0)	0/3 (0)
Presence of mitoses	1/4 (25.0)	0/3 (0)

of spindle cells, the presence of nests in the dermal-epidermal junction with exhibition of slits between its cells and the epidermis, dermic maturation, little or no mitosis, all data compatible to the literature.[2,3,10] Spitz nevi presented a predominance of spindle cells, data also compatible to the literature. Reed nevus and intensely pigmented Spitzoid lesion also presented predominance of spindle cells.[2,9,10]

It is worthwhile to note that, although present, Kamino bodies frequency is low: 33.3 % on Spitz nevus and 18.5 % on Reed nevus. Kamino et al.[13] had found 175/293 (59.7%) corpuscles in Spitz nevus, and 6/293 (2.0%) melanomas.[14] Arbuckle et al.[15] had found Kamino bodies in 86% of Spitz nevus and in 12% of melanomas. Slits are tissue retraction artifacts after fixation that occurs between nevic cells nests and the epidermis. The majority of examined Spitz nevi (66.6%) presented slits, a characteristic not predominant in Reed nevi (33.4%). In this sample, Reed nevus had minimal intradermal component, and this may have contributed for a lesser neoplasic tissue retraction effect.

Some Spitz nevus diagnostic criteria are shared by cutaneous melanoma, such as the presence of pagetoid dissemination and cellular atypia, data that can make difficult differential diagnostics between Spitz nevus and melanoma. Intense melanic pigmentation in Reed nevus adds a further difficulty in differential diagnostic.[3,8,9,16-20] Seven lesions considered atypical (4 Spitz nevus and 3 atypical Reed nevus). In atypical Spitz nevus asymmetry (66%), pagetoid dissemination of neoplasic cells, pronounced nuclear atipia and infiltration with a standard of isolated cells prevaled. In Reed nevus, though, pagetoid dissemination of neoplasic cells and the greater depth of the injury, compromising reticular dermis were a predominant feature.

Data observed in this work allow us to perceive that distinguishing Spitz from Reed nevus from melanoma are difficult, justifying studies that research methods for differentiating them.[1,11]

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