IS MALESSEZIA FURFUR REASON FOR FOLLICULITIS IN MELANOCYTIC NEVUS?

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Abstract: A melanocytic nevus (commonly known as a mole) is a benign growth composed of melanocytes (pigment-producing cells). In general, Malassezia furfur (pityrosporum) does not directly cause melanocytic nevi or affect the formation of these nevi. However, Malassezia could theoretically contribute to folliculitis in areas near or around a melanocytic nevus, especially if there are other contributing factors like excess sebum production or compromised skin integrity. Pityrosporum folliculitis, also known as Malassezia folliculitis, is an infection caused by the overgrowth of Malassezia yeast within hair follicles. This condition typically presents as itchy, acne like eruptions on areas such as the upper trunk, shoulders, and face.
While Pityrosporum folliculitis is a common condition, there isn't specific evidence directly linking it to melanocytic nevi (moles). Melanocytic nevi are benign proliferations of melanocytes, and folliculitis generally occurs in hair follicles. However, if a melanocytic nevus is located in an area prone to folliculitis, it might be possible for both conditions to coexist in the same region.
Keywords: Melanocytic nevus, malassezia folliculitis, itching

1. INTRODUCTION

In this retrospective – prospective study, paraffin embedded tissue blocks of patients with definitive pathologic diagnosis of melanocitic lesions who had undergone excisional biopsy were retrieved from the archives of the department of pathology of Clinical Hospital Shtip, affiliated with Faculty of Medical Sciences, Goce Delchev University, North Macedonia. Diagnosis of studied cases were reevaluated by tree pathologists, one of them dermatopathologyst. The clinical and histopathological characteristics of selected cases, including age, gender, and pathologic characteristics were recorded from the pathology reports of the patients and verified by a pathologist also. It's unlikely that Malassezia specifically targets a melanocytic nevus or directly causes folliculitis in or around a mole. However, if the folliculitis occurs near a nevus, the skin inflammation might draw attention to the area. In some cases, patients with existing skin conditions (like seborrheic dermatitis or oily skin) might notice folliculitis in areas that have multiple moles.

2. MATERIALS AND METHODS

In our study we have included 184 melanocytic lesions, of which 141 (77%) were melanocytic nevi and 43 (23%) were melanomas (table1). Gender and age distribution are given in table 1 and 2 correspondly. All samples immediately after surgical excision were fixed in 10% formalin for 24 hours, after which a macroscopic dissection was performed, during which the macroscopic characteristics of the changes were noted, and material for pathohistological analysis was taken according to the protocol for skin excisions with benign and malignant changes. Tissues were processed according to standard procedure and embedded in paraffin blocks. Sections with a thickness of 3-5 μm were made and stained with Hematoxylin and Eosin. For yeast visualization we did Alcian blue-PAS staining, according to staining protocol given by the Sigma-Aldrich manufacture.

Tablel.1 Gender distribution

	Melanocytic nevi		Melanoma		Total	
	N	%	N	%	N	%
Female	110	78%	17	40%	127	69%
Male	31	22%	26	60%	57	31%

Source: The author

Table.2 Age distribution in years

	N	Min	Max	AS	SD
Melanocytic nevi	141	13	77	39	14
Melanoma	43	42	93	67	12
Total	184	13	93	46	18

Source: The author

Histopathological analysis: The histopathological analysis of the sections was performed on a conventional light microscope of the Nikon brand Eclipse E400, using lenses with magnifications from x40 to x400 times.
Statistical analysis: Statistical analyses were conducted with Xlstat software for Windows. Categorical variables were presented as frequencies and compared by using the Fisher's exact tests. Due to non-normal distribution, Kruskal Walis and Mann-Whitney U-test were applied to compare groups with continuous data. A p-value <0.05 was set as the point of significance.

3. RESULTS

We have found folliculitis in 39 (21%) of the examined melanocitic lesions. Differences in identification of folliculitis statistically were not significant between nevi (19%) and melanomas (28%), Fisher's exact test (p=0.286) (table 3). We identified malassezia furfur (picture1 a,b,c and d) mostly on the epidermal surface and in some hair follicules in 40 (22%) melanocitic lesions with statistically significant differences between nevi (27%) and melanomas (5%), Fisher's exact test (p=0.001) (table 4 and 5). The correlation between Pytirosporum presence and melanocytic lesion associated with folliculitis was statistically significant (Spearman's p= 0.146),with coefficient of determination (Spearman^2) of 2% (table 6).

Table.3 Fisher's exact test (p=0.286):

	Melanocytic nevus		Melanoma		Total	
Folliculitis	N	%	N	%	N	%
0	114	81%	31	72%	145	79%
1	27	19%	12	28%	39	21%

Source: The author

Table.4 Fisher's exact test (p=0.001)

	Melanocytic nevi		Melanoma		Total	
Pityrosporum	N	%	N	%	N	%
0	103	73%	41	95%	144	78%
1	38	27%	2	5%	40	22%

Source: The author

Table.5 Fisher's exact test (p=0.001)

	Fisher's exact test (p)	
Pityrosporum	0	1
Melanocytic nevi	0,001	0,001
Melanoma	0,001	0,001

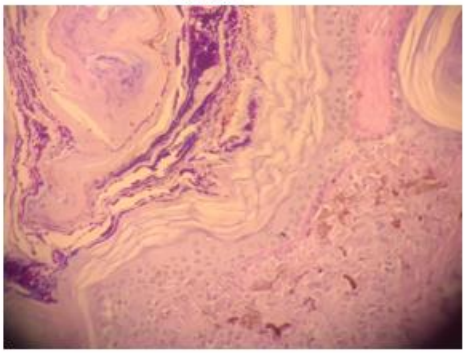
Source: The author

Table.6 The correlation between Pytirosporum presence and melanocytic

	Spearmen's exact test (p)	
	0	1
Pityrosporum/Folliculitis	0,048	0,146

Source: The author

Figure 1.



Source: The author

Figure 2.

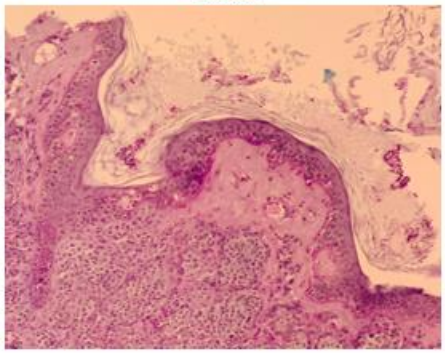


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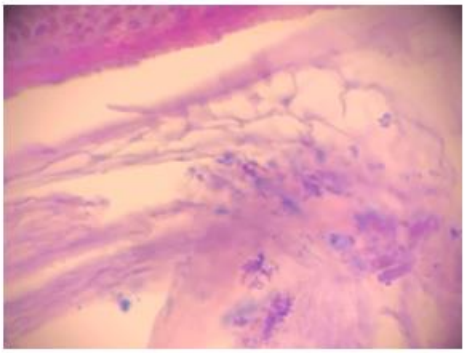
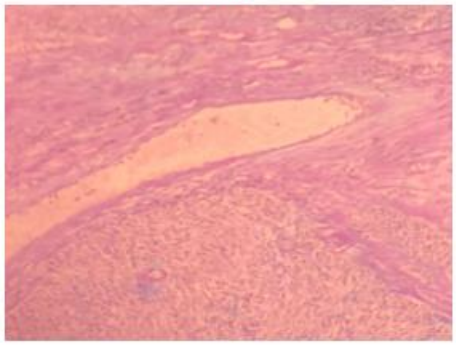
Figure 3.



Source: The author

Figure 4.



Source: The author

Figure 1 and Figure 2 mallezia furfur on the surface of papillomatous melanocytic nevi.
Figure 3 malessezia in a hair follicule in melanocytic nevi.
Figure 4 the yeast on the surface of epidermal invagination in nodular melanoma.

4. CONCLUSION

With this study, we have shown a statistically significant correlation between the presence of Malessezia furfur (Pityrosporium) and the finding of folliculitis, which indicates the yeast as a possible etiological factor for it. Malessezia infection in melanocytic nevi and associated folliculitis are likely causes of clinical changes that raise suspicion of malignancy. Although the incidence of infection is lower in melanomas, it may still play a role in the clinical symptoms of malignant melanomas (eg itching). If you suspect you have folliculitis in or around a melanocytic nevus, it's best to consult a dermatologist for an accurate diagnosis and appropriate treatment.

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