

## Original Article

# Pattern of pigmented skin tumours seen by private practitioners in Hong Kong

## 香港私家醫生診治的色素性皮膚瘤

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In 2005, we received 1,323 pigmented skin surgical specimens for pathological examination in our laboratory. The pattern of lesions seen and their clinical correlation are analysed and presented. Cases were retrieved from our surgical pathology archive and pathological diagnoses were reviewed and correlated with the clinical characteristics and patient demographics. Of the 1,173 cases of clinically diagnosed melanocytic lesions, 948 (80.8%) were confirmed pathologically. Only 20% of melanoma and 47.6% dysplastic naevi were correctly diagnosed pre-operatively. Dysplastic naevus was more common among Caucasian population. There were differences between Asian and Caucasian patients in tumour size, tumour location and age at presentation. Benign naevus was the most commonly encountered pigmented skin lesion. Melanoma and dysplastic naevus could not be reliably distinguished clinically from benign melanocytic lesions. All excised pigmented lesions should be sent for pathological examination.

本化驗室在2005年共對1,323件色素性皮膚瘤切除作出組織病理檢驗。本文對這類皮膚瘤的種類作出分析，及對其臨床和病理的診斷作出比較。從檔案系統中抽出病例，記錄病人的統計資料、臨床特徵和病理診斷結果，並對上述的相互關係作出分析。在1,173例臨床診斷的黑色素瘤之中，有948例(80.8%)為病理確診。只有20%的惡性黑色素瘤及47.6%的發育不良性痣在手術前被正確診斷。發育不良性痣在白種人中較常見。在求診時，亞洲人和白人的色素性皮膚瘤在大小，身體分佈和病人年齡方面都有明顯分別。良性痣是最常見的色素性皮膚瘤。惡性黑色素瘤及發育不良性痣較難在臨床中被正確診斷，所有切除的色素性皮膚瘤都應送往病理檢驗。

**Keywords:** Clinical diagnosis, pathological diagnosis, pigmented skin tumour

**關鍵詞：**臨床診斷，病理診斷，色素性皮膚瘤

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## Introduction

Private practitioners in Hong Kong see many patients with pigmented skin lesions, which were also one of the most common dermatological specimens submitted for pathological examination in our laboratory. No studies have been published

on the accuracy of clinical diagnosis of pigmented skin lesions in Hong Kong. The purposes of pathological examination of pigmented skin lesions are to rule out malignant tumours, to assess completeness of excision if malignancy is confirmed and to identify dysplastic naevus, which is associated with increased risk of developing melanoma. We conducted a study using specimens submitted by private practitioners in Hong Kong. The preoperative and postoperative diagnoses were examined on the basis of information provided by the clinician and of the subsequent histopathologic diagnosis. This study tried to determine the types of pigmented skin lesions commonly seen in private practice and the accuracy of their clinical diagnosis.

## Methods

We conducted the study at a private histopathology laboratory using specimens submitted in 2005, by private practitioners in Hong Kong. Cases were included on both clinical and pathological bases. Clinical cases were selected if a melanocytic lesion (naevus, mole or melanoma) were the only or the most favoured pre-operative diagnoses. Cases were also selected if a pathological diagnosis of melanocytic lesions of the skin were made. The pathology reports of these cases were reviewed and the clinical information was recorded as

entered on the request forms. The location and size of the lesions, as well as patient demographics were also recorded. The clinical diagnoses were compared with the pathological diagnoses. We used the WHO recommended histopathological criteria for the diagnosis of dysplastic naevus, where both cytologic atypia and architectural abnormalities needed to be present to make a diagnosis.<sup>1</sup> We did not know the criteria used by the clinicians for such diagnosis, and since we received specimens from multiple clinicians, different clinical diagnostic criteria were likely to be used.

## Results

A total of 1,323 lesions were selected based on the above criteria, 594 (45%) were from Asian (mostly Chinese) patients and 729 (55%) were from Caucasians. When divided by sex, 731 lesions were removed from female patients and 586 lesions were removed from male patients (sex unknown in 6 cases). The overall clinical pathological correlation is presented in Table 1. A total of 1,094 lesions were confirmed to be melanocytic tumours pathologically. Of 806 specimens with preoperative diagnoses of benign mole/naevus, 5 (0.6%) were found to be malignant. This included 4 basal cell carcinomas and 1 melanoma. Additional 28 (3.5%) specimens

**Table 1.** Clinico-pathological correlation of pigmented skin tumours

Pathology diagnosis \ Clinical diagnosis	Benign naevus	Dysplastic naevus	Melanoma	Non-melanocytic benign lesion	Non-melanocytic malignant lesion
Non-specific diagnosis* (n=246)	161	4	2	74	5
Benign naevus (n=816)	665	28	1	119	3
Dysplastic naevus (n=188)	123	30	0	35	0
Melanoma (n=21)	7	1	1	12	0
Non-melanocytic benign lesion (n=57)	56	0	1	-	-
Non-melanocytic malignant lesion (n=14)	14	0	0	-	-

\*includes: nodule/tumour, pigmented lesion or no diagnosis given

were found to be dysplastic naevi. In 170 cases with less specific clinical diagnoses of 'pigmented skin lesion', 5 (2.9%) were found to be malignant (4 basal cell carcinoma and 1 melanoma), and 2 (1.2%) were found to be dysplastic naevi. Non-melanocytic skin lesions commonly diagnosed as melanocytic tumours clinically included seborrheic keratosis, haematoma, skin tag, dermatofibroma, wart, basal cell carcinoma and inflammatory pigmentation. Alternatively, melanocytic lesions were most frequently misdiagnosed clinically as fibroepithelial polyp (skin tag), basal cell carcinoma, seborrheic keratosis or only non-specific diagnoses were given (such as skin nodule). Overall, Caucasian patients tended to present with smaller lesions (average 4.4 mm,  $\pm 1.964$ ) compared with Asian patients (average 5.3 mm,  $\pm 3.64$ ,  $p < 0.001$ , Table 2). Caucasian patients also tended to present with junctional or compound naevi, while more Asian patients presented with intradermal naevi ( $p < 0.01$ ). Asian patients were more likely to have lesions located in the head and neck region (38.2%) than Caucasians (17.4%,  $p < 0.001$ ). Five melanomas were confirmed histologically, accounting for less than 0.5% of all pathologically confirmed melanocytic lesions. Melanoma patients were

significantly older than patients with benign lesions (numbers,  $p < 0.01$ ). Only one melanoma was diagnosed correctly pre-operative. Of the 20 cases considered melanoma clinically, only 1 (5%) was confirmed microscopically. Sixty-three dysplastic naevi (DN) were diagnosed histologically, accounting for 5.8% of all melanocytic lesions, and 30 of these lesions (47.6%) were also considered atypical/dysplastic preoperatively. The proportion of DN was higher in Caucasian patients (7.7% of all melanocytic lesions) than Asian patients (2.8%,  $p < 0.001$ ). Of the 167 lesions considered atypical/dysplastic clinically, only 30 (18.0%) were confirmed microscopically. The accuracy of clinical diagnosis of DN was higher for Caucasian patients (20.7%) than for Asian patients (11.8%), but the difference did not reach statistically significant level ( $p = 0.2$ ).

## Discussion

Considering the small Caucasian population in Hong Kong (less than 5%), the high proportion of lesions from Caucasian patients was consistent with higher prevalence of pigmented lesions in fair skin people than people with darker skin.<sup>2</sup> The

**Table 2.** Analysis of pathologically confirmed melanocytic lesions

Type of lesion	Number of lesions (% of total)		Average Size of lesions (mm)		Age at presentation (years)	
	Asian	Cauc	Asian	Cauc	Asian	Cauc
Congenital naevus	20 (4.4)	1 (0.15)	12.47	3.00	23.47	24.0
Lentiginous proliferation	42 (9.3)	83 (12.9)	4.09	3.47	37.08	40.96
Junctional naevus	19 (4.2)	25 (2.3)	2.33	3.43	33.82	35.46
Compound naevus	190 (42.2)	371 (57.6)	5.30	4.64	35.11	36.06
Dermal/halo/blue naevus	164 (35.6)	105 (57.6)*	4.72	4.83	39.84	38.67
Spitz/PSCN	1 (0.2)	5 (0.8)	4.27	4.76	36.75	38.93
Dysplastic naevus	12 (26.7)	51 (9.4)*	9.5	5.67	37.0	27.5**
Melanoma	2 (0.4)	3 (0.5)	5.00	4.33	56.5***	51.67***
Total/average	450	644	5.36	4.45**	36.68	37.32

Cauc: Caucasian, PSCN: pigmented spindle cell naevus.

\* significant difference between Asian and Caucasian patients ( $p < 0.01$ , chi square test).

\*\* significant difference between Asian and Caucasian patients ( $p < 0.01$ , 2-tailed t test).

\*\*\* significant difference in age at presentation compared with other types of lesions ( $p < 0.01$ , 2-tailed t test).

presence of acquired benign naevi is a risk factor for cutaneous melanoma, in both Caucasians and Asians.<sup>3-5</sup> Compared with non-melanocytic malignant and pre-malignant skin lesions, clinical examination had a lower sensitivity and specificity for the detection of melanomas and dysplastic naevi.<sup>6</sup> Clinical criteria suggesting DN correlated poorly with histologic melanocytic dysplasia.<sup>7</sup> One study in the US showed accuracy of clinical diagnosis of dysplastic naevus being 20%,<sup>8</sup> which is similar to our findings for Caucasian patients. Conversely, a small percentage of clinically benign naevi were found to be malignant tumours pathologically. In a similar study conducted in the US, of 1,946 specimens clinically diagnosed and submitted as benign naevi, 45 (2.3%) were histologically diagnosed as malignant tumours. This included 12 melanomas, 30 basal cell carcinomas, and 3 squamous cell carcinomas.<sup>9</sup> We found a slightly lower incidence of malignant tumours in our data, probably as a result of lower incidence of all malignant skin tumours in Asian populations. Studies on both Caucasian and Asian population showed that the absolute number of naevus was higher in males than in females.<sup>2,4</sup> The higher number of lesions removed from female patients in our study suggested behavioural differences between male and female patients in seeking medical attention. Except for dysplastic naevus, there is no significant difference between the ages of Asian and Caucasian patients at presentation of melanocytic lesions. In a Japanese study, it was found that the number of acquired melanocytic naevi on the whole body increased with age in birth and reached the highest number in 20 to 39-year-old.<sup>4</sup> This is consistent with our finding of average age of presentation at 30 to 40-year-old. There are two possible explanations for the tendency of Asian (mostly Chinese) patients to present with lesions from the head and neck region. One being that the distribution of melanocytic lesions differs between Asians and Caucasians, and the other being that Asians were more likely to seek medical attention when the

lesions were located in the head and neck region. It is known from previous studies that in whites, the distribution of naevi differs in different sexes. Male children tended to have more naevi in the head and neck and trunk, thought to be due to the fact that boys tended to have more outdoor activities than girls. Female children 13 years or older tended to have more naevi in the arms and legs, and the paper suggested that this might be related to differences in mode of dressing but did not elaborate.<sup>3</sup> It is logical to think that girls might tend to clad in sleeveless attire and skirts that increased their sun exposure to the arms and legs. We were not aware of studies on the distribution of naevi in Asian populations, thus there was lack of data to support or refute the first theory. We did not observe significant difference between the proportion of lesions submitted for pathological examination from the head and neck region between male and female. Since benign naevi were believed to arise from the dermal-epidermal junction and migrate into the dermis, we could also conclude that Caucasians tended to present at an earlier stage of disease (junctional and compound stage) than Asian patients, which was also consistent with the observation that Caucasian patients on average presented with smaller lesions.

## Conclusions

The commonest pigmented skin lesions seen in private practice in Hong Kong are benign compound naevus. Caucasian patients tended to present with smaller lesions and also at an earlier stage of development. Asians and Caucasians patients showed somewhat different disease pattern in location of lesions, with Asian patients more frequently presented with lesions in the head and neck region. Few melanomas and dysplastic naevi were correctly diagnosed pre-operatively. Clinically benign naevi should also be submitted for pathological examination in order not to miss a small percentage of malignant tumours.

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