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Case Series of 141 Melanomas Diagnosed and Managed over 5 years by an Australian Dermatologist: with a Suggested Approach to Suspected Pigmented Lesions

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Abstract

Melanoma is one of the most fatal disorders dermatologists have to diagnose and treat. Despite its prevalence and seriousness, there has been no protocol with consensus suggesting systematic approach for diagnosis and treatment of pigmented lesions. A series of 141 melanomas diagnosed and managed over five years in an Australian dermatology clinic are presented. Also a systematic approach has been suggested for the management of suspicious pigmented lesions and melanomas. It is hoped that this paper provides a platform to open discussion for the development of the best systematic approach.

Keywords: Melanoma; Shave Excision; Mapping Biopsy; Aussie Kim approach

Introduction

Melanoma is one of the most fatal disorders dermatologists have to diagnose and treat [1]. Even though many dermatologists are managing suspicious pigmented lesions and melanomas on a day to day basis, there has been no single agreed approach to a suspicious pigmented lesion. A series of 141 melanomas diagnosed and managed over five years in an Australian dermatology clinic are presented. In addition, an approach has been suggested to manage suspicious pigmented lesions.

Methods

Melanomas diagnosed and managed in an Australian dermatology private practice by one dermatologist between 2016 and 2020 are included. This private practice operated for 32 hours per week for patient appointments throughout this period. All the wider excisions were performed in the same clinic. Melanomas diagnosed at a separate teaching facility and referred for wide excision were excluded (approximately an extra three to five cases a year). In addition, severely dysplastic naevi were excluded (approximately 10 cases per year). Patients with lesions diagnosed by doctors at other clinics and referred for wide excisions were excluded as well.

All suspicious lesions were initially managed by shave excision. Shave excision should not be confused with shave biopsy. The intention of shave excision is to achieve margin clearance, not partial biopsy. Disposable biopsy blades (Kai medical, Japan) were used for lesions upon the limbs and trunk, whilst 15c blades were utilised upon facial lesions (Figure 1). When melanoma was diagnosed and shave margins were clear, wider excision was performed. If shave margins were involved, orientated mapping shave biopsies were performed to ascertain the extent and exact location of the residual melanoma (Figure 2), then wider excision was performed. All the patients whose lesions had a Breslow thickness greater than 1 mm underwent PET scan to exclude metastasis.

Patients with Clark level 1 melanoma were followed up every 6 months for the first 5 years, then yearly, whereas patients with Clark level 2 and above were followed up every 3 to 4 months for the first 2 years followed by 6 monthly for the following 3 years, then yearly. Patients who had PET scan had repeat PET scan at 12 months follow up (Figure 3).

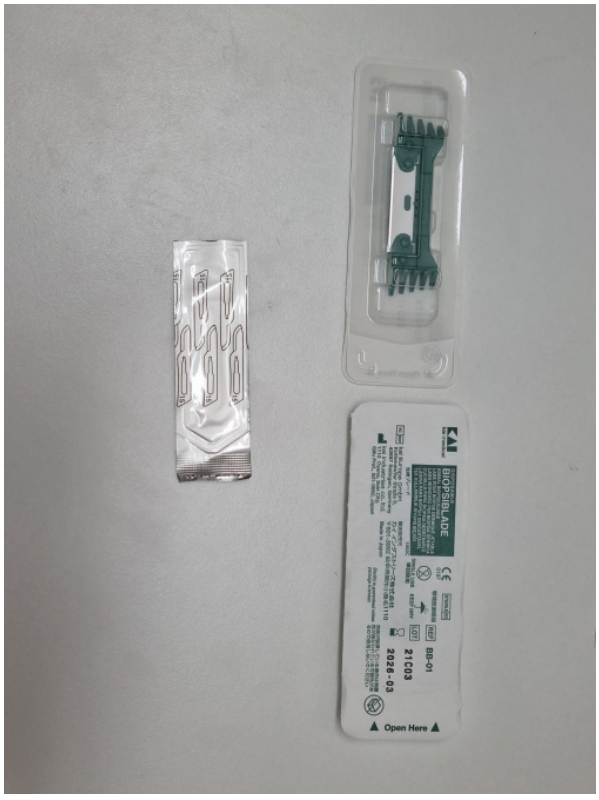

Figure 1: Disposable biopsy blade (Kai medical, Japan) and 15c blade used for shave excision

Figure 2: Initial shave excision, 2 mapping biopsies to achieve margin clearance, and 6 months after wider excision of level 2 lentigo maligna melanoma

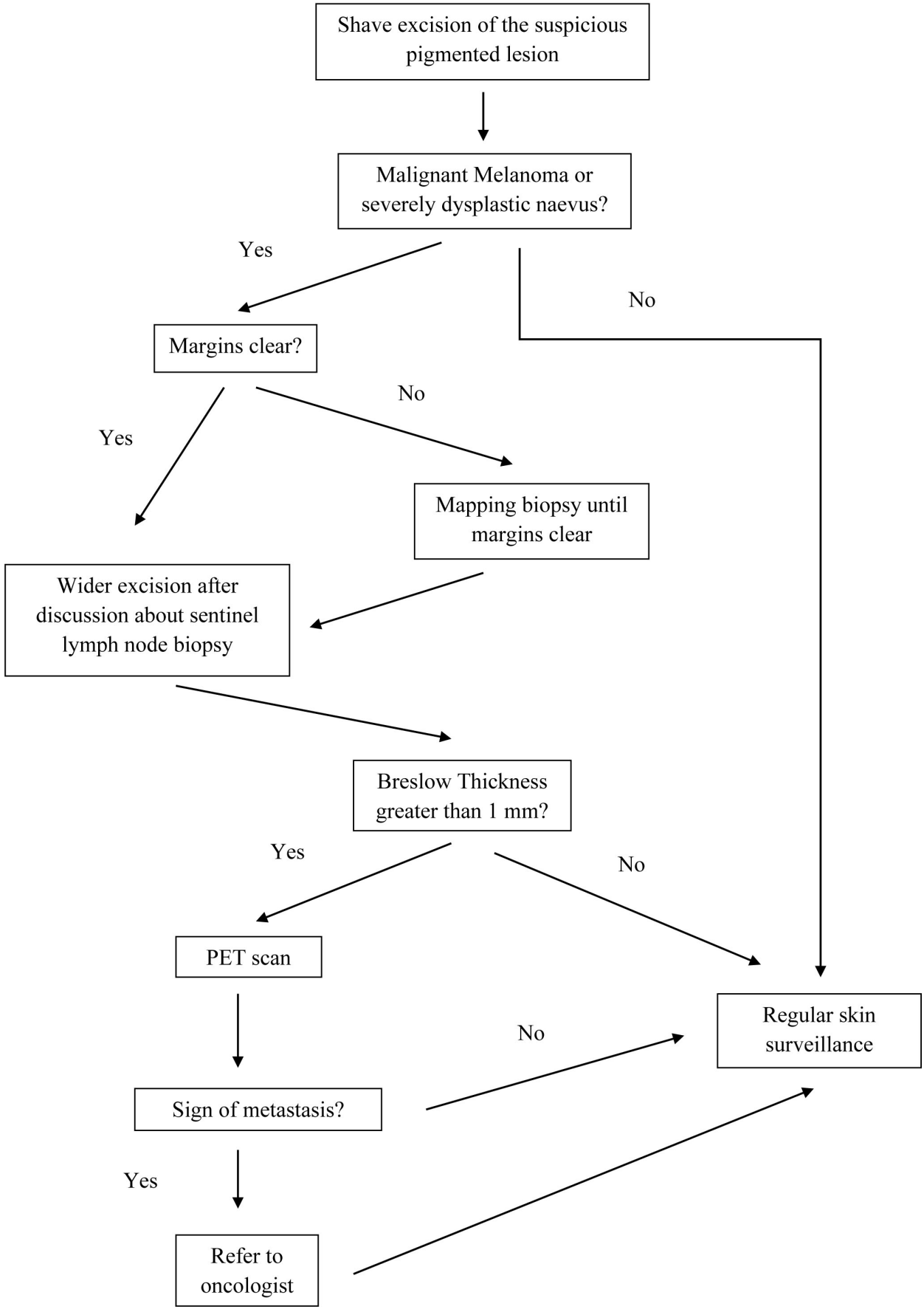

Figure 3: "Aussie Kim approach" for the suspicious pigmented lesion

Results

A total of 141 melanomas were diagnosed and managed during this period (Table 1). There were four patients with two melanomas, as well as one patient with three melanomas diagnosed simultaneously. The mean age of the patients was 66.1 years, with those in their 20's accounting for 2.8% (n=4), 30's 1.4% (n=2), 40's 12.8% (n=18), 50's 14.9%, (n=21), 60's 25.5% (n=36), 70's 22.0% (n=31), 80's 14.9% (n=21), and 90's 5.7% (n=8). Almost 70% of patients were older than 60 years.

Clark level 1 accounted for 69.5% of melanoma (n=98), with level 2 16.3% (n=23), level 3 7.1% (n=10), level 4 6.4% (n=9), and level 5 0.7% (n=1). By location, the face was the most common site, accounting for 24.8% (n=35), followed by back 18.4% (n=26), both arms and legs 12.8% each (n=18 for each), neck 7.8% (n=11), shoulder 6.4% (n=9), abdomen 5.7% (n=8), chest 3.5% (n=5), both scalp and ears 2.8% each (n=4 for each), and buttock 1.4% (n=2).

Year	Age	Site	Type	Clark level	Breslaw thickness (mm)	Mapping biopsy
2016	66	Right Lateral Canthus	Lentigo Maligna	1		No
	66	Left Anterior Thigh	Superficial Spreading	2	0.5	No
	60	Mid Chest	Superficial Spreading	2	0.6	No
	47	Right Posterior Calf	Superficial Spreading	1		No
	53	Right Deltoid	Superficial Spreading	1		No
	58	Left Buttock	Superficial Spreading	3	0.8	No
	83	Right Posterior Shoulder	Superficial Spreading	1		No
	61	Left Posterior Ear	Superficial Spreading	2	0.3	No
	56	Left Cheek	Lentigo Maligna	1		No
	48	Right Mid Back	Superficial Spreading	1		No
	48	Right Posterior Calf	Superficial Spreading	1		No
	31	Left Base Of The Neck	Amelanotic Nodular	3	1.0	No
	22	Right Lateral Neck	Superficial Spreading	2	0.4	No
	55	Right Lateral Thigh	Superficial Spreading	2	0.3	No
	68	Right Posterior Thigh	Superficial Spreading	1		No
	85	Left Upper Back	Superficial Spreading	1		No
	29	Left Posterior Calf	Superficial Spreading	1		No
	76	Left Mid Back	Superficial Spreading	1		No
	76	Right Earlobe Mid	Superficial Spreading	2	0.4	Yes
	64	Mid Glabella	Amelanotic Nodular	3	1.0	No
	70	Left Lower Cheek	Lentigo Maligna	1		No
	66	Right Cheek	Lentigo Maligna	1		Yes
	93	Left Anterior Shin	Superficial Spreading	2	0.3	No
	58	Left Anterior Shin	Superficial Spreading	4	1.5	No
	95	Right Cheek	Lentigo Maligna	1		Yes
	44	Right Abdo	Lentigo Maligna	1		No
	77	Left Upper Back	Superficial Spreading	1		No
	82	Left Temple	Lentigo Maligna	1		Yes
	48	Left Anterior Thigh	Superficial Spreading	1		No
	69	Right Lateral Shin	Superficial Spreading	1		No

2017	71	Right Lateral Neck	Superficial Spreading	1		No
	64	Left Mid Helix	Lentigo Maligna	1		No
	91	Right Posterior Forearm	Superficial Spreading	4	2.0	Yes
	47	Left Abdo	Superficial Spreading	1		No
	84	Left Dorsal Ring Finger	Superficial Spreading	1		No
	48	Right Anterior Neck	Naevoid	3	1.0	No
	69	Right Upper Back	Lentigo Maligna	1		No
	74	Left Superior Shoulder	Lentigo Maligna	1		No
	61	Left Flank	Superficial Spreading	3	0.5	No
	70	Left Superior Shoulder	Superficial Spreading	1		No
	65	Right Chest	Superficial Spreading	1		No
	75	Right Cheek	Lentigo Maligna	1		No
	51	Right Popliteal Fossa	Lentigo Maligna	1		No
	70	Right Chest	Superficial Spreading	3	0.5	No
	89	Left Lateral Forehead	Lentigo Maligna	1		No
	27	Right Mid Back	Superficial Spreading	2	0.6	No
	77	Right Upper Arm Anterior	Superficial Spreading	1		No
	77	Right Cheek	Superficial Spreading	1		Yes
	61	Left Mid Back	Superficial Spreading	1		No
	94	Right Cheek Medial	Superficial Spreading	1		No
	61	Right Upper Cutaenous Lip	Superficial Spreading	1		Yes
	87	Right Lateral Forehead	Lentigo Maligna	1		Yes
	57	Right Postauricular	Lentigo Maligna	1		No
	52	Right Lateral Upper Neck	Lentigo Maligna	1		No
	68	Left Upper Back Lateral	Lentigo Maligna	1		No
	73	Right Deltoid	Lentigo Maligna	2	0.3	No
	61	Right Deltoid	Lentigo Maligna	1		No
	56	Left Lateral Neck	Superficial Spreading	3	0.7	No
2018	81	Left Abdo	Superficial Spreading	1		Yes
	86	Right Cheek	Superficial Spreading	1		Yes
	74	Left Parietal Scalp	Nodular	4	2.0	No
	69	Right Lateral Superior Calf	Superficial Spreading	1		Yes
	41	Left Abdo Medial	Superficial Spreading	2	0.3	No
	86	Left Posterior Calf	Lentigo Maligna	2	0.2	No
	62	Right Medial Calf	Superficial Spreading	2	0.2	No
	82	Right Frontal Scalp	Lentigo Maligna	3	1.0	No
	64	Left Superior Shoulder	Lentigo Maligna	1		No
	72	Left Upper Back	Lentigo Maligna	1		No
	71	Right Cheek	Lentigo Maligna	1		No

	87	Right Deltoid	Lentigo Maligna	1		No
	96	Right Mid Helix	Lentigo Maligna	1		Yes
	76	Left Lateral Forearm Proximal	Superficial Spreading	1		No
	76	Left Lateral Forearm Distal	Superficial Spreading	1		No
	82	Right Superior Shoulder	Superficial Spreading	1		Yes
	48	Left Anterior Forearm	Superficial Spreading	1		No
	63	Left Lateral Forearm	Superficial Spreading	1		Yes
	68	Right Temple	Lentigo Maligna	1		Yes
	54	Left Upper Back	Superficial Spreading	1		No
	71	Left Cheek	Lentigo Maligna	1		No
	55	Right Lateral Neck	Lentigo Maligna	1		Yes
	46	Left Mid Back	Superficial Spreading	1		No
	90	Mid Glabella	Lentigo Maligna	1		Yes
	68	Right Cheek	Lentigo Maligna	1		Yes
	73	Right Chest	Lentigo Maligna	1		Yes
	97	Left Anterior Upper Neck	Lentigo Maligna	1		Yes
	84	Left Cheek	Lentigo Maligna and Superficial Spreading	1		Yes
	72	Right Flank	Lentigo Maligna	1		Yes
	44	Left Deltoid	Superficial Spreading	1		Yes
	66	Right Superior Shoulder	Superficial Spreading	2	0.2	No
	94	Left Lateral Forearm	Superficial Spreading	1		Yes
	66	Left Posterior Shoulder	Lentigo Maligna	1		No
	48	Right Popliteal Fossa	Superficial Spreading	1		No
	56	Left Mid Back	Superficial Spreading	2	0.4	No
	61	Left Buttock	Superficial Spreading	2	0.3	No
	59	Mid Upper Back	Lentigo Maligna	1		No
	81	Left Angle Of Mandible	Lentigo Maligna	1		Yes
	54	Left Lateral Neck	Lentigo Maligna	1		No
2019	63	Mid Parietal Scalp	Lentigo Maligna	1		No
	81	Left Angle Of Mandible	Lentigo Maligna	1		Yes
	79	Left Anterior Thigh	Nodular	5	6.8	No
	78	Right Upper Back	Superficial Spreading	1		No
	78	Left Mid Back Medial	Lentigo Maligna	2	0.3	No
	78	Left Mid Back Lateral	Superficial Spreading	4	1.1	No
	28	Left Upper Back	Superficial Spreading	2	0.3	No
	49	Right Forehead	Lentigo Maligna	1		Yes
	66	Right Posterior Shoulder	Superficial Spreading	4	2.0	Yes
	83	Right Tip Of The Nose	Lentigo Maligna	1		No

	41	Right Anterior Shin	Superficial Spreading	1		No
	87	Mid Tip Of The Nose	Lentigo Maligna	1		No
	72	Right Deltoid	Lentigo Maligna and Superficial Spreading	1		Yes
	55	Right Tip Of The Nose	Lentigo Maligna	1		Yes
	66	Right Anterior Upper Arm	Lentigo Maligna	1		No
	61	Left Upper Back	Superficial Spreading	1		Yes
	65	Left Lateral Forearm	Superficial Spreading	1		No
	57	Left Upper Forehead	Lentigo Maligna	1		Yes
	57	Right Posterior Upper Arm	Lentigo Maligna and Superficial Spreading	1		Yes
	76	Right Temple	Lentigo Maligna	1		Yes
	55	Left Anterior Shin	Superficial Spreading	1		Yes
	74	Left Cheek	Lentigo Maligna and Superficial Spreading	1		Yes
	67	Mid Lower Dorsal Nose	Lentigo Maligna	1		Yes
	41	Left Mid Back	Lentigo Maligna and Superficial Spreading	1		Yes
	56	Right Upper Back	Nodular	4	2.5	No
2020	85	Right Deltoid	Lentigo Maligna	1		Yes
	81	Right Lateral Neck	Superfical Spreading	2	0.3	No
	53	Right Mid Back	Nodular	4	1.5	No
	52	Right Mid Back	Lentigo Maligna	1		No
	38	Left Mid Back	Superfical Spreading	1		No
	45	Right Chest	Superfical Spreading	2	0.3	No
	44	Right Preauricular	Lentigo Maligna	1		No
	74	Right Mid Back	Superfical Spreading	3	0.6	Yes
	76	Right Flank	Superfical Spreading	2	0.3	No
	78	Left Flank	Superfical Spreading	4	3.0	No
	64	Right Upper Back	Superfical Spreading	2	0.4	No
	68	Right Lower Cheek	Lentigo Maligna	1		Yes
	70	Left Cheek	Lentigo Maligna	1		No
	69	Right Lower Back	Lentigo Maligna	1		No
	73	Left Posterior Neck	Desmoplastic	4	2.0	No
	80	Left Vertex	Superfical Spreading	2	0.4	No
	67	Left Cheek	Lentigo Maligna	2	0.2	Yes
	85	Left Posterior Shoulder	Superfical Spreading	1		Yes
	47	Left Inner Upper Arm	Superfical Spreading	3	0.7	No
Total	141					

Table 1: Analysis of the 141 melanoma cases

Superficial spreading melanoma was the most common subtype (Table 2), accounting for 51.1% (n=72), followed by lentigo maligna 39.7.4% (n=56), combined superficial spreading and lentigo maligna 3.5% (n=5), nodular 2.8% (n=4), amelanotic 1.4% (n=2), naevoid 0.7% (n=1), desmoplastic 0.7% (n=1).

Of the 141 melanomas diagnosed, 29.8% had mapping biopsies performed (n=43), with two cases requiring mapping biopsy twice for margin clearance. None of the cases had margin involvement on wide excision.

Age	Number of Cases	Percentage
10	0	0%
20	4	2.8%
30	2	1.4%
40	18	12.8%
50	21	14.9%
60	36	25.5%
70	31	22.0%
80	21	14.9%
90	8	5.7%
Clark level		
Level 1	98	69.5%
Level 2	23	16.3%
Level 3	10	7.1%
Level 4	9	6.4%
Level 5	1	0.7%
Melanoma Subtype		
Superficial spreading	72	51.1%
Lentigo maligna	56	39.7%
Superficial spreading and lentigo maligna	5	3.5%
Nodular	4	2.8%
Amelanotic nodular	2	1.4%
Naevoid	1	0.7%
Desmoplastic	1	0.7%
Location of melanoma		
Face	35	24.8%
Back	26	18.4%
Arm	18	12.8%
Leg	18	12.8%
Neck	11	7.8%
Shoulder	9	6.4%
Abdomen	8	5.7%
Chest	5	3.5%
Scalp	4	2.8%
Ear	4	2.8%
Buttock	2	1.4%
Hand	1	0.7%

Table 2: Number of cases in Melanoma

Conclusion

It would be beneficial to all dermatologists if a practical and efficient protocol was developed to manage suspicious pigmented lesions. The dermatology clinic where the cases were diagnosed also has a surgical interest, and so was fortunate enough to be able to manage the melanomas from initial diagnosis to wider excision, and will subsequently be able to provide long term follow up.

The approach used in this series has two distinct points: shave excision and mapping biopsy.

The intention of shave excision is to achieve margin clearance, not partial biopsy. Some dermatologists advocate for excisional biopsy with various margins. If excisional biopsy is performed and confirms melanoma, further excision is often required depending on the Clark level and Breslow thickness of the melanoma. Also, if the histology shows mildly or moderately dysplastic naevus, shave excision would have been sufficient without further excision [2,3]. Shave excision is a much more time efficient and economical way to achieve a diagnosis, and prevents multiple excisions in the case of melanoma.

Mapping biopsies can prevent multiple excisions to achieve margin clearance, particularly in case of lentigo maligna, where margins can be very difficult to assess clinically. Mapping biopsies are similar to slow Mohs surgery; however the histology is assessed by a pathologist so it can be performed by any non-Mohs dermatologist. In addition immunohistochemistry/deeper levels may be performed to assess accurate margins if required, as further mapping biopsies or wider excision can be delayed for few days.

In this series, all cases were given options of sentinel lymph node biopsy prior to the wider excision, but all patients declined when it was explained that there was no proven survival advantage [4,5]. Positive sentinel lymph node biopsy may qualify for preventive immunotherapy in some countries, but this discussion is beyond the scope of this paper. In addition, further studies to establish any survival difference between patients investigated with PET scan and sentinel lymph node biopsy would be helpful.

The case numbers in this study are too small to provide meaningful epidemiological data. However, these numbers should be sufficient to support the functionality of the systematic approach the author suggests. The author suggests the name "Aussie Kim approach" for the management of a suspicious pigmented lesion described in this paper.

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Conflict of Interest

The author has no conflict of interest to declare. This content has never been presented previously.

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