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Incidence of melanoma and outcomes of longitudinal melanonychia in a cohort of cases referred to a London dermatology department

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Abbreviations: CI, confidence interval; OR, odds ratio.

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Dear Editor,

Longitudinal melanonychia is a pigmented longitudinal band on the nail plate and may occur due to melanocyte activation, nail matrix nevus, lentigo or subungual melanoma.[1] In a racially diverse community, melanonychia is a relatively common presenting complaint. However, despite this, little is known about the incidence of melanoma in longitudinal melanonychia, as well as variations in management approaches.

We describe a cohort of cases of clinically diagnosed melanonychia, referred to us from 2009 – 2018, identified by electronically searching records. Age, sex, number of nails affected, sites of nails affected, grade of reviewing doctor, follow-up plan and biopsy were recorded. The variables of 'follow-up' and 'biopsy' were analysed as binary outcomes and logistic regression analysis was performed to look for associations with these outcomes; a p value of <0.05 was considered significant. All analyses were performed using SPSS software (14.0, SPSS Inc., Chicago, IL, USA).

Of 134 patients included, 57 (43%) were male (Table 1). The mean age was 44 years (± 20.35 years; range 3-89 years). Two-thirds of patients (66%) had only a single nail affected by melanonychia, whilst the remainder had multiple nails involved. The fingernails were most commonly affected (52%) but a number of patients had both finger- and toenail involvement (15%). All patients had dermoscopic examination and 39 (29%) had dermoscopic photography. Only 19 patients (14%) were

referred for a diagnostic nail biopsy, with the vast majority (86%) having baseline photographs and further follow-up (68%). Male patients were more likely to be followed-up, compared with female patients (OR 3.69, 95% CI 1.38-9.85) (Table 1). Patients reviewed by a consultant, rather than specialist registrar, were significantly more likely to have further follow-up (OR 6.92, 95% CI 2.39-20.02). No significant associations with referral for nail biopsy were identified (sex, age, single/multiple nails, sites of nails effected, doctor grade).

Of the 19 nail biopsies undertaken based on clinical suspicion, there was a single case of subungual melanoma in a patient who presented with a bleeding nodule on one fingernail, on a background of a one-year history of changing pigmentation on the nail, for which he had not sought medical review. Two other biopsies showed abnormal changes – one was a squamous cell carcinoma whilst another showed a lentiginous proliferation of atypical melanocytes. The remaining biopsies had a range of benign histological diagnoses including subungual haematoma, lentigo, melanocyte activation and nevus. Eleven patients were biopsied after initial review and eight others were biopsied after a follow-up visit. Fourteen biopsies were incisional/excisional, however, two were removal of nail alone and three were removal of nail followed by a punch biopsy. In 17 cases, both the nail plate and nail bed were sampled. Although this study was limited to searchable electronic records of melanonychia, we identified nine cases of subungual melanoma diagnosed since 2009 in our hospital: seven of these were referred to the plastic surgery department directly, or via MDT discussion; two of these had ulcerated lesions and were diagnosed clinically as melanoma and not melanonychia.

Interestingly, a third of our cohort had melanonychia on more than one nail. Whilst we believe this to be a rather reassuring sign, we note that the majority of these patients continued to be followed-up and indeed three of the 45 patients with multiple melanonychia were referred for a nail biopsy. Our literature search found one case of melanoma developing in three separate nails sequentially,[2] but otherwise we identified no cases of melanoma with multiple melanonychia. It would seem that the

presence of multiple melanonychia is an encouraging sign. Indeed, Lee and colleagues support this opinion and included a criteria of 'single digit lesion' as part of their proposed ABCD criteria for diagnosing subungual melanoma.[3] It is possible, however, that the presence of multiple melanonychia in patients with nail unit melanoma is underreported.

Our results show that baseline photography with a follow-up appointment to evaluate for change is the approach used in the majority of cases in our cohort. Consultant dermatologists were significantly more likely to follow-up melanonychia than specialist registrars, and that may be due to their greater experience and hence likelihood of having encountered subungual melanoma, leading to an 'availability heuristic' scenario.[4,5] However, cases where a consultant was called in by a registrar for review are likely to be more challenging and may explain the higher follow-up rate with consultants.

The single case of subungual melanoma was highly suggestive from the history and examination, giving a crude incidence proportion of 0.7%. Further studies into melanonychia and optimal management would help guide clinicians.

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Table 1: Characteristics of participants and odds ratios (ORs) with 95% confidence intervals (CIs) for outcomes of further follow-up and nail biopsy

Variable		Frequency N (%)	Odds ratio for follow-up (OR, 95% CI)	Odds ratio for biopsy (OR, 95% CI)
Sex	Female Male	77 (58) 57 (43)	**Ref** **3.69 (1.38-9.85)**	Ref 0.52 (0.18-1.53)
Age	< 18 18-30 31-50 51+	13 (10) 23 (18) 54 (40) 44 (33)	Ref 0.39 (0.06-2.58) 0.34 0.08-1.46) 1.11 (0.38-3.21)	Ref 1.06 (0.17 -6.65) 0.51 (0.09-2.88) 1.13 (0.32-4.05)
Single or multiple nails	Single Multiple	89 (66) 45 (34)	Ref 0.52 (0.17-1.61)	Ref 5.21 (0.64-42.12)
Site of nails effected	Fingernails Toenails Both	69 (52) 45 (34) 20 (15)	Ref 1.39 (0.28-6.93) 0.48 (0.09-2.51)	Ref 0.21 (0.02-3.02) 0.39 (0.03-5.53)
Grade of reviewing doctor*	Specialist Registrar Consultant	29 (22) 95 (71)	**Ref** **6.92 (2.39-20.02)**	Ref 0.60 (0.15-2.36)
Follow-up	Specialist registrar - Followed-up - Discharged Consultant - Followed-up - Discharged Total - Followed-up - Discharged	 7 (50) 7 (50) 47 (87) 7 (13) 91 (68) 43 (32)	- 	-
Photography	No Yes	18 (13) 116 (87)	-	-
Biopsy	No Yes	115 (86) 19 (14)	-	-

*Ten missing values due to incomplete records