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Reduction in the number of early melanomas diagnosed during the COVID-19 pandemic: a single-centre cohort study

To the editor

Early detection of melanoma is an important intervention to reduce morbidity and mortality.[1,2] The COVID-19 pandemic has affected timely access to health care, potentially affecting patient outcomes. Marson *et al*.[3] showed that the incidence of melanoma decreased during the pandemic using the United States data. Lallas *et al*.[4] demonstrated an overall 30.1% decrease in cancers diagnosed during the pandemic in Greece. We sought to evaluate whether melanomas diagnosed during the pandemic at our medical centre differed in stage compared to the prepandemic time period.

This was an IRB-approved, retrospective study. We reviewed consecutive melanoma biopsy reports performed from January 2019 to March 2021 from Pontificia Universidad Catolica de Chile. We included adult (≥18 years) patients with histopathology-confirmed diagnosis of melanoma. We excluded patients that were not evaluated at our institution (e.g. tissue slides sent for consultation) and non-cutaneous melanomas. Patients' demographics and pathological characteristics were recorded. For study purposes and based on our local epidemiology, 'pre-COVID period (preCP)' ranged between January 2019 and March 2020. 'COVID period (CP)' ranged between April 2020 and March 2021. Means, medians and proportions were calculated. The chi-squared test was used for categorical variables. For continuous variables, student's *t*-test was used. All tests were two-sided and statistical significance was set at $P < 0.05$.

A total of 296 cases of melanoma were included in the study period (Table 1 and Fig. 1). The cases per month decreased from 12.7 in the preCP to 8.8 in the CP ($P = 0.013$); this reduction was primarily due to a decrease in early stage melanoma (i.e., in situ, stages I-II, and ≤2 mm melanomas). The number of in situ melanomas per month decreased from 5.1 to 2.3 ($P = 0.0009$). The number of ≤2 mm melanomas per month decreased from 4.8 to 3 ($P = 0.02$) and the number of stage I–II cases per month decreased from 6.2 to 3.8 ($P = 0.025$). There was a trend towards more advanced melanomas during the CP period. During the preCP, 26.3% of melanomas were >2 mm vs. 41.3% during CP ($P = 0.046$). During the preCP, 14.1% were diagnosed at an advanced stage (III & IV) vs. 27.8% during CP ($P = 0.008$; Table 1).

In this study, there was a 31.2% reduction in the melanoma cases diagnosed per month during CP with a decrease in the proportion and counts of localized and thin melanomas. The most probable explanation for this was lack of access to healthcare during the pandemic's lockdowns in association with patient reluctance to present for examination of both symptomatic lesions and screening examinations. Marson *et al*. showed a 43% decrease in melanoma diagnosis in the COVID period and estimated that 19 600 melanomas would be delayed in initial diagnosis/treatment in the United States. Lallas *et al*.[4] demonstrated a 36.4% reduction in melanoma diagnosis in Greece. This might be critical since melanoma is a highly curable disease in early stages and this window might be lost. Tejera-Vaquerizo *et al*.[5] estimated a 45% risk of upstaging after a 3-month delay in diagnosis using melanoma models; highlighting the potential future implications of our results. Limitations of our study include single institution and relatively low number of patients with short follow-up.

Despite the population-based skin cancer screening being not currently recommended,[6] hampering access to health care when needed might affect melanoma stage at diagnosis and

Table 1 Demographics and tumour characteristics

Variable	Pre-COVID-19	COVID	*P*-value
Cases (*n*)	191	105	
Cases per month [mean (SD)]	12.73 (3.45)	8.75 (4.33)	0.013
Mean age (SD)	52.75 (17.21)	53.28 (16.36)	0.79
Gender, male [*n*(%)]	80 (41.9)	54 (51.4)	0.11
Gender, female [*n*(%)]	111 (58.1)	51 (48.6)	
Melanoma characteristics:			
Breslow, mm (median, p25-75)	1 (0.5-2.2)	1.5 (0.5-4.0)	0.153
Breslow $\leq$ 2 mm [*n*(%)]	73 (73.7)	37 (58.7)	0.046
Breslow $>$ 2 mm [*n*(%)]	26 (26.3)	26 (41.3)	
Melanoma, in situ [*n*(%)]	76 (39.8)	28 (26.7)	0.023
Melanoma, Invasive [*n*(%)]	115 (60.2)	77 (73.3)	
Melanoma in situ per month [mean (SD)]	5.06 (2.15)	2.33 (1.43)	0.0009
Localized stage 0, I, II [*n*(%)]	152 (85.9)	57 (72.2)	0.008
Advanced stage III, IV [*n*(%)]	25 (14.1)	22 (27.8)	
Stage I & II [*n*(%)]	76 (75.2)	30 (57.7)	0.025
Stage III & IV [*n*(%)]	25 (24.8)	22 (42.3)	
Stage I & II per month [mean (SD)]	6.2 (1.85)	3.83 (3.24)	0.025
Stage III & IV per month [mean (SD)]	1.73 (1.62)	1.91 (1.5)	0.765

Complete staging (0, I, II, III & IV) was available for 256 cases.

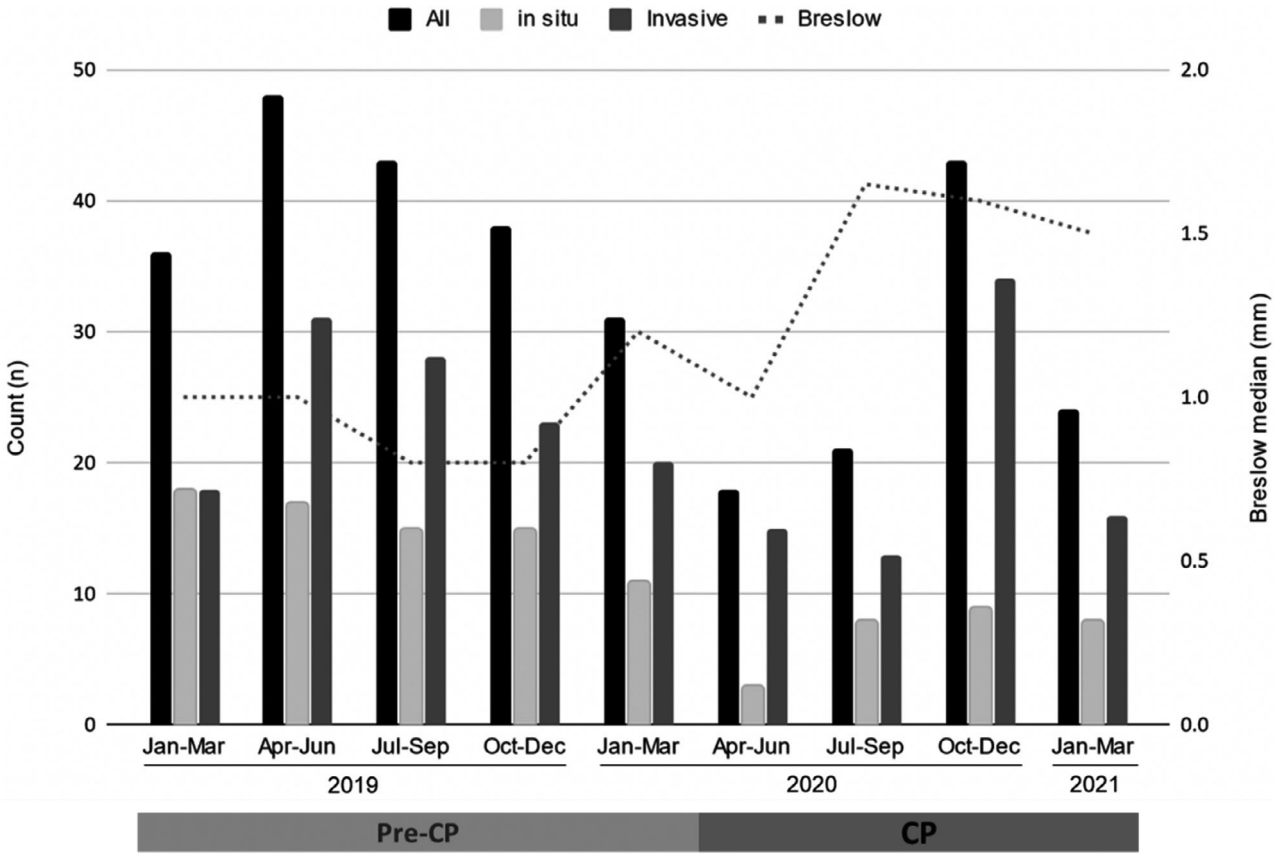

Figure 1 Diagnosis of melanoma and Breslow per quarter. Total cases of melanoma (all), in situ, invasive and Breslow median per quarter between January 2019 and March 2021. Pre-COVID period (preCP) ranges from January 2019 to March 2020, while COVID period (CP) is from April 2020 to March 2021.

mortality rates. COVID-19 pandemic has served as a model that highlights the importance of universal and streamlined healthcare access.

Conflict of interest

Dr Koch received grants from Novartis and honoraria as speaker and travel fees from Novartis, Bristol Myers Squibb, Roche and Merck & Co. Dr Mondaca has received consulting fees from Roche and Foundation Medicine and honoraria as speaker from Bristol Myers Squibb and Merck & Co.

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A skin reaction with rust-like discolouration to mRNA COVID-19 vaccine

Editor

We describe a reaction that occurred in three cases after the BNT162b2 mRNA COVID-19 vaccine (Comirnaty®; BioNTech, Mainz, Germany and Pfizer, New York City, NY, USA). All cases were female, two of them aged 50 and one 51 years. All subjects had experienced a similar reaction after vaccination; part of their skin turned a brownish, rust-like colour. The respective locations of these reactions were (i) the left palmar area and right arm (Fig. 1), (ii) the dorsal surface of the left hand and (iii) the right palm and fingers (Fig. 2).

Two of these reactions occurred after the first vaccination and one after the booster. In the case of the booster, the reaction was observed approximately one and a half hours after the vaccination. In those subjects receiving only one vaccination, the reactions appeared the following night and after 5 days, respectively. All subjects are healthcare workers working with elderly people, and thus among the first to be vaccinated in Finland. All three had been previously vaccinated according to the Finnish national vaccination programme. They had also received the annual influenza vaccine

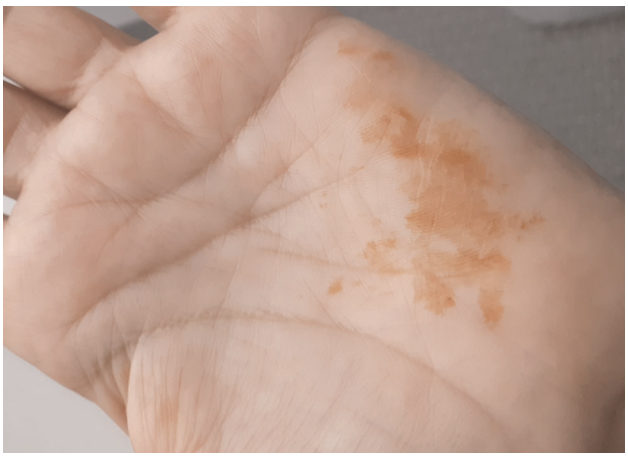

Figure 1 Reaction in left palm.