

## Material and methods

To retrieve cases of tattoo complications, we collected patient material three ways (**Figure 1**). First, we reviewed the data of patients seen at the Department of Dermatology at Helsinki University Central Hospital who had had at least one skin biopsy and the mention of tattoo (“tatovatio” and “tatuointi”) in the final diagnosis on the pathology report (between 1992 and 2013). The patient files were then accessed and analysed. The following was collected: demographic data (gender, age, medical history, number of tattoos), clinical data regarding the tattoo reaction (delay after tattooing, duration of the symptoms, clinical presentation, and restriction to a colour or not), microscopic findings with a focus on epidermal and dermal reactions, diagnosis, treatment and outcome. Cases of radiotherapy markings, traumatic tattoo and tattoo removal for cosmetic purposes were excluded.

Second, in 2012 and 2013, the dermatologists belonging to the Finnish Dermatological Society (*Suomen Ihotautilääkäriyhdistyksen*, Sily) using the Society’s internal webmail service were invited to take part in the study by reporting their past, recent or present cases of tattoo reactions. The respondents willing to participate contacted the author, at which point they were asked to fill out a standardized questionnaire for each case, providing the same data as mentioned above. They also provided copies of the pathology reports and clinical pictures if available.

Last, additional cases collected after 2013 by the author himself (private practice, referrals by tattooists, direct contact by patients through email, professional internet forums or colleagues) were reviewed. The institutional review board approval was waived of consent for this retrospective chart study.

After reviewing all the cases, a final diagnosis was made for each. Cases that were not informative enough, with no clear diagnosis, or still under investigation were excluded. Clinical pictures of all the available tattoo reactions were analysed again. Lesions were classified according to the presence of papules or nodules, complete infiltration of the colour, and presence of scales, crusts and excoriations.

Of note, 4 of the patients in the present series were previously reported in separate publications due to the specificity of their cases, namely 3 melanomas on tattoos [11,12] and a case of *Aspergillus fumigatus* infection after home-tattooing [13].