NAIL DISORDERS

THE CONCEPT OF NAIL MATRIX ONYCHODERMIS (ONYCHOMATRICODERMIS) IN THE NAIL UNIT : HISTOLOGY AND ELASTIN IMMUNOHISTOCHEMISTRY

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Backgrounds: We previously demonstrated the presence of onychodermis beneath the nail matrix and nail bed. Because nail matrix plays a major role in nail formation, we hypothesized that the onychodermis below the nail matrix could be the nail counterpart of the follicular dermal papilla. In the current study, we sought to further characterize the histologic, histochemical and immunohistochemical features of the nail matrix onychodermis.

Methods and Results: H&E slides of 10 polydactyly nail units and 10 nail matrix biopsies from children and adults were reviewed. In polydactyly nail units, the onychodermis beneath the nail matrix was characterized by onychofibroblasts showing abundant cytoplasms. Nail matrix biopsy specimens also showed similar histology in the nail matrix onychodermis. Alcian blue stain demonstrated mucin deposition in the onychofibroblasts within the nail matrix onychodermis. Immunohistochemically, elastin was rarely expressed in the nail matrix onychodermis while it was strongly expressed in the dermis of other areas of polydactyly nail units. Elastin was not expressed in follicular dermal papilla of terminal hair follicles of the scalp.

Conclusion: Our results demonstrate the presence and localization of nail matrix onychodermis (onychomatricodermis). Our study also demonstrates similar elastin expression patterns in the onychomatrichodermis and the follicular dermal papilla.