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Letter to the Editor

Epidermal Paracrine Signals May Regulate Dupuytren Contracture Myofibroblasts

Dupuytren contracture (DC), frequently treated by hand surgeons, is a common, benign fibrotic condition driven by myofibroblasts causing contractures and stimulating excess collagen production within DC nodules.[1] Within DC cords, myofibroblasts are present in reduced numbers and appear inactive.[2] We hypothesized that keratinocytes differentially express local paracrine signals overlying the DC nodules and cords that induce changes in myofibroblasts within DC lesions.

An Albany Medical Center institutional review board-approved study (#2330) was conducted using tissue obtained from 6 patients undergoing fasciectomy for DC. The samples consisted of adherent skin and underlying diseased fascia; these were analyzed using trichrome staining and standard immunohistochemistry to detect the presence of α-smooth muscle actin and cyclo-oxygenase-2 (COX-2). We observed that within the DC cords, there was abundant fibrous tissue, with reduced numbers of α-smooth muscle actin-positive myofibroblasts that expressed COX-2. Taken together, these data suggested a potentially waning inflammatory local microenvironment because COX-2 induction has been demonstrated to engage in a negative, autocrine feedback loop that restrains the myofibroblast phenotype (Fig.).[3,4]

Our findings, although preliminary, are consistent with a potential role of epidermal keratinocytes in tempering the profibrotic

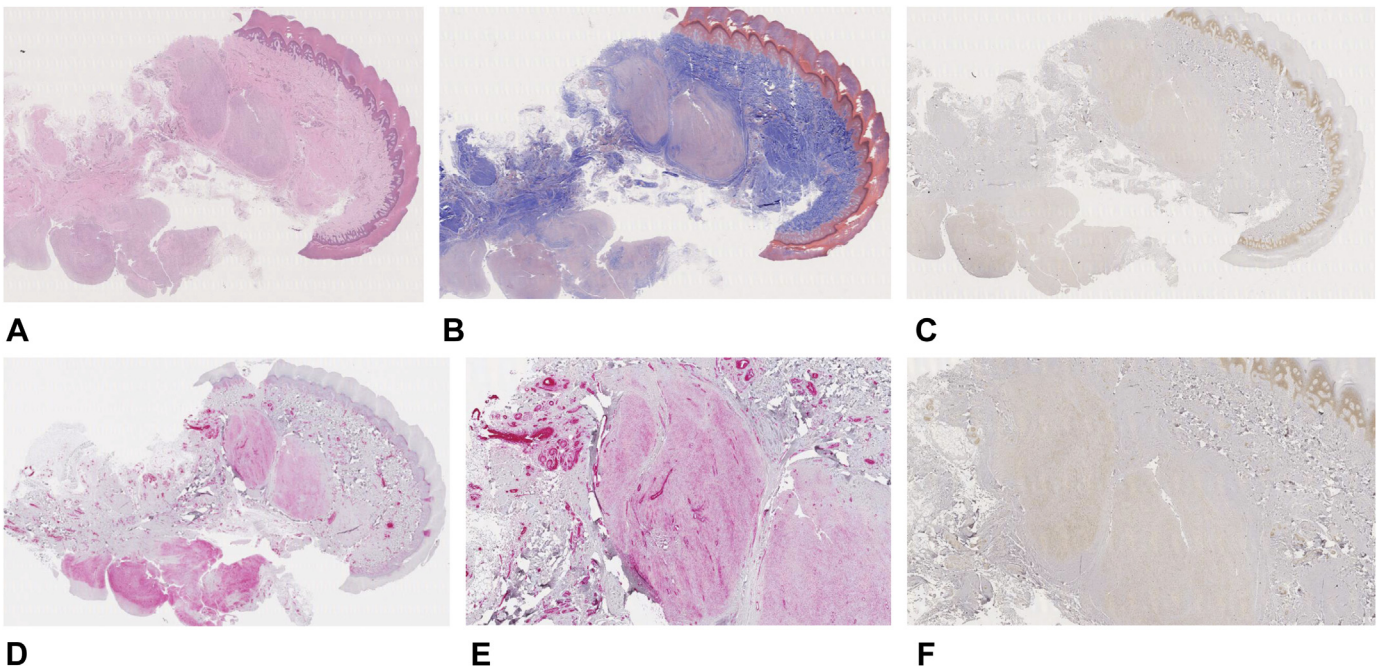

Figure. The adherent skin and underlying diseased fascia excised from a patient undergoing a limited palmodigital fasciectomy. **A** (Hematoxylin-eosin stain; magnification × 13.4). The excised tissue demonstrates nodules of fibroblasts with bland nuclei and surrounding collagen depositions. **B** (Trichrome stain; magnification × 13.6). Collagenous deposition is highlighted within the diseased fascia. **C** (COX-2 immunostain; magnification × 13.4). Cytoplasmic staining of fibroblasts is demonstrated. **D** (SMA-α immunostain; magnification × 10). The deposition of actin within collagen bundles is demonstrated. **E** (SMA-α immunostain; magnification × 30). The deposition of actin within collagen bundles is demonstrated. **F** (COX-2 immunostain; magnification × 30). The cytoplasmic staining of fibroblasts is demonstrated. SMA-α, α-smooth muscle actin.

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myofibroblast phenotype in DC. Paracrine signaling from the epidermis to DC myofibroblasts is currently an understudied area that may provide new therapeutic approaches in which factors inducing fibroblast COX-2 or resulting prostanoids in DC lesions may be beneficial.

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