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LANGERHANS CELL ACTIVATION IN DIABETIC SMALL FIBER POLYNEUROPATHY

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A 63-year-old man with type 2 diabetes developed painful feet with touch allodynia. Skin biopsy revealed prominent Langerhans cells (LC) staining with the standard epidermal nerve fiber antibody PGP9.5 when compared to a normal control (figure). Fiber density was severely decreased at the leg (mean 0.2 fibers/mm, 95% confidence interval [CI] 0.1–0.4) and thigh (mean 2.2 fibers/mm, 95% CI 1.8–2.8). These findings were consistent with small fiber neuropathy.

LC are reported to be increased in the skin with diabetes, small fiber polyneuropathy, and mechanical allodynia.^{1,2} They are dendritic cells with S-100 antibody positivity and are important in antigen presentation. With denervation, PGP9.5 is upregulated within LC, but their exact role in small fiber pathogenesis is not understood.

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Figure Comparison of LC activation in diabetic small fiber neuropathy and normal control

(A) PGP9.5 immunostaining shows decreased density of epidermal nerve fibers (ENF, arrow) and robust Langerhans cells (LC) staining (arrowheads). (B) PGP9.5 immunostaining in a 75-year-old man, normal control (distal leg 10.2 ENF/mm, 95% confidence interval [CI] 9.11, 11.4; mid-thigh 9.9 ENF/mm, 95% CI 8.87, 11.05). (C) LC are identified by their positivity to langerin (CD-207). (D) LC staining positive (arrowheads) with S-100.

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