Title: Hyperlipidaemia presenting as palmoplantar pain.

Running Title: Hyperlipidaemia: palmoplantar pain.

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Hyperlipidaemia presenting as palmoplantar pain.

A 50-year-old female presented with a two-week history of a painful eruption on bilateral palms and soles. There was no history of trauma. She suffered from type 2 diabetes mellitus, asthma, depression, and had a past history of pancreatitis six years prior and cerebrovascular accident seven years prior. There was no history of familial dyslipidaemia. Physical examination revealed multiple tender, small, yellow dermal deposits, each a few millimetres in diameter, on the palms and soles (Figure 1). There was no palmar crease involvement. Laboratory investigations revealed serum cholesterol 14.4mmol/L (reference range, 3.5-5.5mmol/L), serum triglyceride 26.7mmol/L (reference range, <1.5mmol/L), serum high-density lipoprotein 1.05mmol/L (reference range, >1.20mmol/L), cholesterol/high-density lipoprotein ratio 13.7 (reference range <4.5). Low-density lipoprotein could not be performed where the triglyceride exceeds 4.5mmol/L. Liver function, C-reactive protein and serum protein electrophoresis were within normal limits. There was no clinical or biochemical evidence of pancreatitis. Histopathologic examination of palmar skin biopsies demonstrated small nodular aggregates of foamy macrophages around dermal nerves and vessels (Figure 2). Fite's acid fast stain was negative. The features were consistent with xanthomas, with a perineural distribution.

She was initially prescribed rosuvastatin 20mg once daily in addition to dietary advice, and the lesions resolved in two weeks. Four months after the episode, the lipid levels continue to trend down with total cholesterol 4.2mmol/L and serum triglyceride 6.6mmol/L. Rosuvastatin was then switched to fenofibrate 145mg once daily to target the hypertriglyceridaemia.

To our knowledge, there are only two other case reports of perineural xanthomas, and herein we present the third.^{1,2} The term was first coined in 1986 by Nakayama *et al* who described a 50-year-old male with tender perineural xanthomas on the soles of the feet, measuring 5 x 10 mm and 6 x 6 mm.¹ More recently in 2013, Arai *et al* described a 58-year-old male with tender perineural

xanthomas to the upper back.² These presented as four erythematous nodules approximately 3 cm in diameter. All three cases reported pain, possibly associated with the perineural deposition. In all three cases, patients were in their fifties, with a history of type 2 diabetes mellitus and hyperlipidaemia. This case is unique due to its eruptive presentation.

Eruptive xanthoma presents as crops of small, pink-yellow papules, variable in size from 1-4mm, typically on the extensor surfaces. Variable symptoms have been described, from asymptomatic, to variable pruritis and tenderness.³ Koebner phenomenon has been reported. Eruptive xanthomas most often occur in the context of hypertriglyceridaemia of any cause. It has been associated with hyperlipidaemia (Fredrickson Type I, IV and V), diabetes mellitus, pancreatitis, nephrotic syndrome, cholestatic liver disease, obesity and as an adverse effect of certain medications such as systemic retinoids.⁴ Clinically this case is distinct from palmar xanthoma, also known as xanthomata striata palmaris, which is associated with type III hyperlipoproteinaemia, as the crease lines were not involved.

We report this unique case of perineural xanthomas, presenting in an eruptive fashion, due to hypertriglyceridaemia. It additionally highlights dermatologists' important role in recognition of xanthomas and subsequent diagnosis of associated systemic disease.

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Figure Legends.

Figure 1. Multiple, small, yellow dermal deposits on the palmar surface of the right fingers.

Figure 2. H&E. Punch biopsy from right palm. Small nodular aggregates of foamy macrophages surrounding nerves and vessels in the dermis.

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