androgenetic alopecia. In 2000, a multicentre, randomized, double-blind, placebo-controlled study of postmenopausal women treated with finasteride 1 mg daily showed no improvement in increasing hair growth or slowing the progression of hair thinning. In contrast, in 2001 a noncontrolled study of 42 pre- and postmenopausal women with female-pattern hair loss and SAHA syndrome (seborrhoea, acne, hirsutism and alopecia) revealed that finasteride 2.5 mg daily effectively increased hair growth.4

Recently, another study supported the efficacy of medium-high doses of finasteride in the treatment of female-pattern hair loss. Approximately two-thirds of the 37 women without clinical evidence of hyperandrogenism responded well to a medium-high dose of finasteride (2.5 mg daily). The authors stated that the concomitant use of the oral contraceptive drospirenone may also have contributed to the hair growth due to its antiandrogenic effect. Marked efficacy was also observed for higher doses of finasteride (1–5–0 mg daily) in women with normo- or hyperandrogenism in recent reports. As these higher doses of finasteride differ from the standard male androgenetic alopecia dose of 1–0 mg daily, an important unanswered question arises: whether androgenetic alopecia in women demonstrates a dose-dependent therapeutic response or whether some patients respond due to their relative androgen levels. Indeed, in one case report, a woman with androgenetic alopecia had limited response to finasteride 0.5 mg daily and benefited well from dutasteride, a more potent 5α-reductase inhibitor.5

In our case, we cannot rule out that a lower dose of finasteride may have been effective. Further study is necessary to establish the optimal dose regimen for finasteride in female androgenetic alopecia due to androgen supplementation. Practitioners need to be aware that Hamilton type hair loss can occur in women given androgen supplementation, especially at higher doses. In our patient, androgen-induced alopecia was effectively treated with a medium-high dose of finasteride (2.5 mg daily) despite her continued androgen supplementation. Taking her surgically menopausal status into account, the testosterone adjunct to oestrogen replacement therapy may benefit our patient by reducing anxiety and depression, protecting against breast cancer and delaying Alzheimer’s disease.6 We recommend that hormonal supplementation with androgen be appropriately reduced and maintained at a reasonable dose when iatrogenic androgenetic alopecia is found.

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**References**


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**Immunohistochemical characterization of elastofibroma and exclusion of ABCC6 as a predisposing gene**

Sirs, Elastofibroma (EF) is a subcutaneous fibroelastic pseudotumour that usually presents in adulthood at the lower end of the subcapsular space. Microscopy reveals adipose tissue, bundles of collagen interspersed with dystrophic (globular or beaded) elastic fibres, and spindle-shaped cells dispersed in the connective tissue. Multiple and familial EF have been reported, supporting the possibility of a hereditary predisposition.2

We carried out an immunohistochemical study of EF to characterize further the elastic fibres and cells, and a mutation analysis of ABCC6, the gene responsible for pseudoxanthoma elasticum (PXE). One recent paper reported a patient with two EFs and PXE, and questioned a genetic link between both rare conditions with dystrophic elastic fibres.3

Four EF tumours from three unrelated patients were included in the study. All individuals gave informed consent for search for ABCC6 mutations. The EF sections were incubated with antibodies against actin, desmin, vimentin, elastin,
Fig 1. Orcein (Orc) staining and immunohistochemistry on elastofibroma. Orc staining revealed dystrophic beaded elastic fibres (original magnification ×200). Negative actin (Act) and desmin (Des) staining ruled out the hypothesis that spindle-shaped cells are myofibroblasts. Vimentin (Vim) was positive on spindle-shaped cells. Elastin (Ela) and vitronectin (Vit) labelling was strongly positive in elastic fibres. Bone sialoprotein (Sia) labelling was strongly positive in fibroblast-like cells, but only moderate and patchy on elastic fibres. No significant staining was seen with fibronectin (Fbn) or osteonectin (Ost) (original magnification ×200).
fibrillin-1, vitronectin, fibronectin, bone sialoprotein and osteonectin. Von Kossa staining and immunolabellings were performed simultaneously on control biopsy sections of normal young skin and skin conditions with elastic tissue dystrophy (PXE, solar elastosis), and read by two independent observers. Mutation detection was performed as previously published.4

Von Kossa staining was positive on PXE sections but negative on EF and other samples. The labellings were identical in all EFs (Fig. 1). Actin and desmin were negative in connective tissue areas and in spindle-shaped cells. Vimentin was positive on the latter cells. Elastin was strongly positive on elastic fibres. No significant staining was seen with the antifibrillin-1 antibody. Vitronectin was strongly positive on elastic fibres with patchy reinforcement. Bone sialoprotein was strongly positive in cell cytoplasm, and only patchy on EF elastic fibres. No significant staining was seen with antifibronectin or antiosteonectin antibodies. The immunolabelling profile was similar overall to that observed in PXE (Fig. 2) and elastic skin samples, but not to that of healthy skin (not shown). Indeed, vitronectin was strongly positive on elastic samples and to a lesser extent only on elastic fibres in young skin. Bone sialoprotein and osteonectin were absent in young skin dermis but were present to a slight extent in fibroblasts and in the elastic material. ABCC6 gene mutation detection did not reveal any sequence variation in the three patients.

The present study extends the characterization of EF. EF elastic fibres do contain elastin, but the presence of fibrillin-1 was not demonstrated. Elastorrhexis is absent and von Kossa staining is negative in EF. It has been hypothesized that aberrant accumulation of vitronectin, bone sialoprotein and osteonectin was responsible for the mineralization of the elastic fibres in PXE.5 The unique responsibility of these matrix glycoproteins is questionable as we notice here a similar immunohistochemical profile for dystrophic elastic fibres and cells in EF, elastosis and PXE. Several hypotheses may be proposed to resolve this discrepancy. Firstly, elastorrhexis might be a long-term process that is not fully completed in acquired conditions such as EF or elastosis. Secondly, the mineralization in PXE may be specifically due to osteonectin and/or other still unrecognized molecules that are absent in EF fibres. Lastly, PXE patient serum lacks fetuin-A, a systemic inhibitor of mineralization.6 Bone sialoprotein has been shown to be associated with vascular calcification in patients with end-stage

Fig 2. Immunolabelling on pseudoxanthoma elasticum skin samples. Elastorrhexic fibres were strongly positive for elastin (Ela) and vitronectin (Vit), and to a lesser extent only for osteonectin (Ost) and bone sialoprotein (Sia). Dermal fibroblasts were strikingly positive for Sia (original magnification ×200).
renal disease, but the latter also have low serum fetuin-A levels. Therefore it may be hypothesized that a common process exists that determines skin (and vascular) elastic fibre dystrophy. This process includes the biosynthesis by connective tissue cells of glycoproteins with affinity for calcium salts in response to various stimuli (e.g. mechanical stress, ultraviolet irradiation), but mineralization is not constant. Systemic and/or local promotion of mineralization could represent second hits and critical differences between EF and PXE.

Here no EF cells stained positively for desmin or actin: they are not myofibroblasts but have immunohistochemical features evocative of osteoblast differentiation. The histogenesis of EF remains controversial. Recent cytogenetic findings evidencing chromosomal instability and/or clonal changes suggest a neoplastic process. However, the location of the tumours in areas prone to repetitive mechanical trauma also supports a ‘reactive’ process. Abnormal admixture of microfibril glycoproteins could affect elastic fibre formation. Interestingly, abnormal elastogenesis has also recently been suspected for PXE. Histo-genesis may also be in favour of acquired ‘degeneration’ of elastic fibres. The presence within EF of lysozyme, that is regarded as a useful marker of damage to elastic fibres, has also been identified in the lesions of PXE and elastosis. In this setting of complex disturbance of elastic fibrillogenesis, the importance of a predisposing genetic background remains to be determined. We can assume that there are no germinal ABCC6 mutations in patients with EF.

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The efficacy of tetracycline antibiotics for treatment of lichen planus: an open-label clinical trial

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Sm, Lichen planus (LP) is an inflammatory condition which may involve skin, hair and mucosa. Although its exact pathogenesis remains unknown, LP probably results from a cell-mediated immunological response to an unidentified antigen processed by Langerhans cells. In this type IV hypersensitivity response, epidermotropic T lymphocytes are stimulated to attack keratinocytes, releasing cytokines that perpetuate the lichenoid tissue reaction and eventual epidermal destruction. Classically, a band-like infiltrate of lymphocytes, histiocytes and Langerhans cells disrupts the dermal–epidermal junction. Therapies for cutaneous LP are limited by short-term efficacy, toxicity and inconvenience. Severe LP responds to retinoids and immunosuppressive agents, but chronic use is often required. Some patients may benefit from psoralen and ultraviolet A, although high relapse rates upon discontinuation were reported. These and other limitations underscore the need for novel LP treatments with improved side-effect profiles.

The anti-inflammatory properties of tetracycline antibiotics have previously been studied, with recent evidence pointing to a mechanism involving antibiotic-mediated inhibition of the T-lymphocyte response. To date, however, no studies have determined the utility of tetracyclines for treatment of cutaneous LP, although one case report described the efficacy of topical tetracycline for erosive oral LP, and another showed improved of lichen planus pemphigoides after treatment with tetracycline and nicotinamide. We therefore initiated an open-label pilot study, investigating the role of tetracycline antibiotics for the treatment of LP, hypothesizing that a dampening of this pathologically robust lymphocytic response may be achieved.

The study was approved by the Research and Human Subjects Review Committee of Santa Clara Valley Medical Center.