Anetoderma is a rare disease characterised by localised atrophy of the skin due to destruction of dermal elastic fibres. It can be classified as primary or secondary: the secondary type is associated with several skin diseases, including infectious, inflammatory and neoplastic diseases (1). However, only a few cases of anetoderma secondary to cutaneous B-cell lymphoma have been described previously (2–6). Here, we describe a case of cutaneous marginal zone B-cell lymphoma evolving into anetoderma. In addition, our immunohistochemical analyses suggest that certain soluble factors including matrix metalloproteinase (MMP) produced by the infiltrating lymphocytes may play a role in the elastolytic process.

CASE REPORT
A 50-year-old Japanese man who had a 30-year history of multiple nodules and plaques in his back and extremities, visited our hospital in June 2010. Plaques were gradually evolving into anetodermal lesions. He had had no other remarkable past history. Physical examination revealed multiple brown-reddish slack plaques with atrophic skin and telangiectasia in his back and a purplish nodule on his thigh (Fig. 1A, B). Histological examination taken from the plaque on the thigh revealed the massive infiltration of small atypical lymphocytes and plasma cells throughout the dermis and subcutaneous tissue (Fig. 1C). There was a grenz zone sparing the epidermis. The neoplastic cells had irregular nuclear contours, coarse chromatin, inconspicuous nucleoli and scant cytoplasm (Fig. 1D). Elastica-Van-Gieson staining showed a marked decrease of elastic fibres throughout the dermis (Fig. 1E). On immunohistochemical analyses, infiltrating lymphocytes were positive for CD20 and Bcl-2 (Fig. 1F). The plasma cells expressed CD138 and κ-chain (Fig. 1G). Monoclonal rearrangement of the immunoglobulin H (IgH) gene was detected from a skin lesion. Computed tomography of the whole body and fluorodeoxyglucose-positron emission tomography (FDG-PET) scan detected no abnormal lesions. No atypical haematopoietic cells were found in his bone marrow. He was diagnosed as having cutaneous marginal zone B-cell lymphoma with anetoderma. Plaque on the thigh regressed by the electron beam radiation therapy (Total 36Gy), and there has been no recurrence during a 1-year follow-up period.

Immuno histochemical analyses
To elucidate the pathogenesis of the loss of elastic fibres in dermis of skin lesions, we immunohistochemically examined the expression of MMP-2, MMP-3, MMP-9 and MMP-12 in the lesional skin using anti-MMP-2 antibody (1/100, AB19167, Chemicon), anti-MMP-3 antibody (1/100, SL-1 IID4, Millipore), anti-MMP-9 antibody (1/50, ab2167, Abcam) and anti-MMP-12...
be responsible for the degradation of elastic fibres in our patient. Tumour cell invasion (14). We identified that infiltrating MMP-9 degraded extracellular matrix and facilitated neoplastic plasma cells in multiple myeloma, and it has been reported that MMP-9 was secreted from as leucocytes and macrophages (11–13). Furthermore, expression of MMP-9 in inflammatory infiltrates such and blepharochalasis were associated with the over- fibres, including anetoderma, mid-dermal elastolysis studies, the loose skin diseases with the loss of elastic potential than MMP-2 in human skin (10). In previous expression of MMP-9 in inflammatory infiltrates such as leucocytes and macrophages (11–13). Furthermore, it is possible that certain soluble factors produced by the infiltrating lymphocytes may play a role in the elastolytic process. Interleukin (IL)-6, which induces the final maturation of activated B cells into immunoglobulin-producing cells, may play such a role (7). Another hypothesis is that MMPs secreted from infiltrating tumour cells might be involved in the elastolytic process.

The degradation of elastic fibres is mediated by elastases, including MMP. MMPs consist of more than 25 well-characterised members of secreted or transmembrane proteins that degrade the extracellular matrix and basement membrane macromolecules (8, 9). Four groups of the MMP family of proteinases are known to be capable of degrading elastic fibres: the gelatinases MMP-2 (gelatinase A), MMP-9 (gelatinase B), matrilysin MMP-7, and the macrophage metalloelastase MMP-12 (8, 9). MMP-9 has stronger elastolytic potential than MMP-2 in human skin (10). In previous studies, the loose skin diseases with the loss of elastic fibres, including anetoderma, mid-dermal elastolysis and blepharochalasis were associated with the over-expression of MMP-9 in inflammatory infiltrates such as leucocytes and macrophages (11–13). Furthermore, it has been reported that MMP-9 was secreted from neoplastic plasma cells in multiple myeloma, and MMP-9 degraded extracellular matrix and facilitated tumour cell invasion (14). We identified that infiltrating lymphocytes in the patient’s skin lesion were positive for MMP-9 and negative for MMP-2, MMP-3 and MMP-12. These findings suggest that MMP-9 may play a role in the development of anetoderma in our case. Interestingly, it has been reported that doxycycline inhibits MMP activity in vitro, independent of its antimicrobial activity (15), suggesting that doxycycline might be a therapeutic alternative.

REFERENCES