Case-based review

Unilateral nevoid telangiectasia syndrome of pregnancy

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Unilateral Nevoid Telangiectasia Syndrome (UNTS) is a rare vascular dermatosis characterized by linearly arranged telangiectasias in a unilateral, dermatomal, or blaschkoid pattern (1-3). UNTS can be congenital or acquired. Many cases of UNTS have been described in association with pregnancy, puberty, liver disease (including alcohol abuse, HBV infection, and HCV infection), and the use of hormonal contraceptive medication (1, 2). The disease is noted more often in women during hyperestrogenic states (4). Estrogen could stimulate release of endothelium-derived vasodilator substances (e.g. nitric oxide) or act directly on the vascular smooth muscle cells (5). Some authors suggested hypersensitivity of the estrogen and progesterone receptors located on the surface of the endothelial cells with consequent vasodilatation (4). However, this hypothesis is not completely supported because in some cases, estrogen and progesterone receptors were no differently expressed on involved and uninvolved skin (6). Here we describe a case of UNTS present since puberty, suddenly worsened during pregnancy, and completely resolved after delivery.

Summary

Unilateral Nevoid Telangiectasia Syndrome (UNTS) is a rare vascular dermatosis characterized by linearly arranged telangiectasias in a unilateral, dermatomal, or blaschkoid pattern that can be congenital or acquired. We report on a 36-year-old Caucasian female who presented UNTS localized in the supracleavicular dermatomal region. The lesions were present since puberty, but suddenly worsened during pregnancy, and completely resolved after delivery. Histological examination revealed ectatic blood vessels in the dermis. Immunohistochemistry showed the expression of estrogen receptors limited to perivascular cells of ectatic vessels but not on endothelial cells. UNTS associated with pregnancy may be due to excessive estrogenic stimulation of pericytes, which in turn allow vasodilatation. This may also explain the spontaneous resolution of the lesions following delivery.

KEY WORDS: telangiectasia; pregnancy; estrogen receptors; pericytes.

Case report

A Caucasian 36-year-old pregnant presented with telangiectasias confined to the right side of the neck, right shoulder, right upper chest wall and right arm (Figure 1). The rest of the skin, scalp, genitalia, nails and mucous membranes were clear of lesions. She had no history of bleeding from the nose, mouth, gastrointestinal tract, and other mucosal surfaces, and there was no sign of organ involvement. At the first control she was primiparous at the 21st week of pregnancy. The results of laboratory investigations, including whole blood count, sedimentation rate, urinalysis, blood glucose, renal and liver function tests, total protein, globulin, albumin, immunoglobulins, prothrombin time, partial thromboplastin time, protein electrophoresis, total tryptase, hormone analysis including free T3, free T4, thyroid stimulating hormone (TSH), were within normal limits. Tests for hepatitis B surface antigen (HbsAg), anti-HIV, anti-hepatitis C virus (anti-HCV), Venereal Disease Research Laboratory test (VDRL), anti-nuclear anti-core (ANA) gave negative results. Abdominal ultrasonography of liver showed normal findings. A skin punch biopsy specimen taken from the involved skin showed ectasia of the superficial and medium dermal vessel, without inflammatory infiltrate (Figure 2A). An immunohistochemistry assay performed on paraffin sections showed expression of estrogen receptors exclusively on perivascular cells, most likely pericytes (Figure 2B). During pregnancy, the lesions

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Increased in number and size, although skin involvement remained localized to the original sites. A full-term, healthy infant was delivered, and four weeks later, skin lesions began to fade with telangiectasias completely resolved 4 months later (Figure 3).

Discussion

UNTS is a rare vascular dermatosis characterized by linearly arranged telangiectasias in a unilateral, dermatomal or blaschkoid pattern. UNTS can be congenital or acquired. The rarer congenital form have affected mostly males whereas the more common acquired variety shows a large female preponderance (4).

There is controversy in regard to the existence of a somatic mutation during embryogenesis in the congenital form or, in the acquired form, the elevation of estrogen levels or vasoactive substances that may be revealing an hidden mosaicism (4, 7, 8). UNTS is primarily located unilaterally in the C3-T1 dermatomes, and thus affects the face, neck, shoulder-arm region and upper thorax. In the majority of cases, young female patients are affected (4).

It has been suggested that UNTS is an estrogen-sensitive nevoid anomaly. Circumstantial evidence suggests a strong association with hyperestrogenic state, as it has been found to manifest or exacerbate during puberty, pregnancy, chronic liver disease, including hepatitis B and C infections, portal hypertension, metastatic carcinoid syndrome, alcoholism, or the use of oral contraceptives (6, 9-11). Nevertheless, cases of UNTS occurring in the presence of normal serum estrogen levels have been reported (10, 12-15). Cases have also been described in association with Becker melanosis, chemotherapy and hyperthyroidism. However, some cases have no association with a known pathology (1, 2). Other mechanisms proposed include hemodynamic disturbances, neural alterations, role of angiogenic factors, and aberrations in perivascular supportive connective tissue (4, 16-18).

Increased concentration of adrenergic receptors in lesional skin could contribute to capillary dilatation (3). Recently, Akman-Karakas et al. have suggested that UNTS might develop secondary to defective neurocutaneous development, thus indicating that these pa-
Patients should also be evaluated for accompanying neurological disorders (19). Finally, on the basis of the occurrence of cutaneous telangiectasias concomitant with telangiectasias in the retina and subglossal, buccal, and gastric mucosa it has been suggested that UNTS may be an incomplete manifestation of hereditary hemorrhagic telangiectasia (20). However, the absence of mucosal lesions and a negative family history in the majority of the reported cases, overrule this hypothesis. It remains unclear why telangiectasia occurs in strict unilateral distribution. This phenomenon might be explained with abnormal estrogens-sensitive cells that are congenitally distributed in dermatomal pattern, and stimulated by a humoral agent, probably estrogens for some authors (3), instead for someone authors UNTS may result from localized trigger factors in some patient, based on chromosomal mosaicism regardless of abnormal hormonal states (14). Endothelial cells express estrogen receptors. The influence that these receptors have on the growth and development of blood vessels is unknown (21). It was suggested that estrogens might stimulate an angiogenic factor that mediates ectatic formation of vessels (5). The estrogen could stimulate release of endothelium-derived vasodilatory substances (e.g. nitric oxide) or act directly on the vascular smooth muscle (5). Some authors suggested hypersensitivity of the estrogen and progesterone receptors located on the surface of the endothelial cells with consequent vasodilation (4). However, no consistent data have been described concerning estrogen and progesterone receptors, some report showing no difference in receptor expression between involved and uninvolved skin (6). We observed a female who presented UNTS localized in the supraclavicular dermatomal region. The lesions were present since puberty, but suddenly worsened during pregnancy, and completely resolved after delivery. Histological examination revealed ectatic blood vessels in the dermis, and immunohistochemistry showed the expression of estrogen receptors limited to perivascular cells of ectatic vessels, likely pericytes, suggesting that these cells could be the primary target of hormonal stimulation. Pericytes and vascular smooth muscle cells (vSMC) reside at the interface between the endothelium and the surrounding tissue and are as such ideally positioned to take an active part in the angiogenic process (22). Several functions of pericytes have been proposed: Pericytes project finger-like extensions that wrap around the capillary wall, allowing the cells to regulate capillary blood flow. They may sense the physiological needs of the tissue and the presence of angiogenic stimuli, sense the hemodynamic forces within the vessel, deposit or degrade extracellular matrix, act in control of endothelial proliferation and differentiation, and contact numerous endothelial cells and thus integrate the signals along the vessel length (23). Pericytes have an intermediate phenotype between vSMC and fibroblasts and seem to have the capacity to differentiate also in the latter direction. In wound healing and inflammatory processes it has been suggested that pericytes detach from the vessel wall and differentiate into a collagen type-I producing fibroblast-like cells (24). Acquired UNTS may resolves spontaneously, and thus no therapy is required. In persistent cases, treatment options include cosmetic camouflage and laser ablation with pulsed dye laser (1).

References

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