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Hereditary benign telangiectasia: a case report

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Abstract

Hereditary benign telangiectasia is an autosomal dominant inherited dermatosis with typical presentation of telangiectasia of the skin and lips. The cause is still unknown. It is a primary telangiectasia that develops during childhood without systemic symptoms. Clinically round, oval, dendritic, or punctate telangiectasias are present, mostly asymptomatic, and they may cause only aesthetic problems. Because a similar clinical picture can be seen in several other skin diseases that may manifest not only with vascular lesions of the skin but also with systemic involvement and possible serious complications, we must be aware of all differential diagnostic possibilities. We present the case of a 37-year-old patient with hereditary benign telangiectasia to emphasize the importance of establishing the correct diagnosis and presenting proper information about the disease in a patient with telangiectasia of the skin.

Keywords: hereditary benign telangiectasia, autosomal dominant, asymptomatic, case report

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Introduction

Hereditary benign telangiectasia (HBT) is an inherited dermatosis that typically presents with telangiectasia, or dilation of blood vessels in the dermis on the skin and lips. It is an autosomal dominant disease that clinically manifests during childhood and does not affect any other organ (1). Typical round, oval, dendritic, or punctate telangiectasias are present, and they may be grouped or diffuse. Areas exposed to light, such as the face, the edge of the lips, the neck, and the upper part of the chest, are particularly affected (2). Skin changes are usually asymptomatic and can become lighter with age (3).

Case report

A 37-year-old woman came to the dermatology clinic due to asymptomatic red to livid spots on her skin, which first appeared on her face at age four and over the following years spread to her upper torso and right arm. At the age of eight, her mother was also treated at the dermatology clinic because of similar skin changes. At that time, extensive diagnostics were carried out, but no definitive diagnosis was made. In recent years, the patient has noticed a fading of skin changes, which she connects with less stress. Otherwise she is healthy and she is not receiving any regular therapy. In her family history, both her mother and her daughter have experienced similar changes.

During the examination, asymmetrically distributed livid to erythematous macules of various sizes were visible on the skin of the face, torso, and arms (Figs. 1–3).

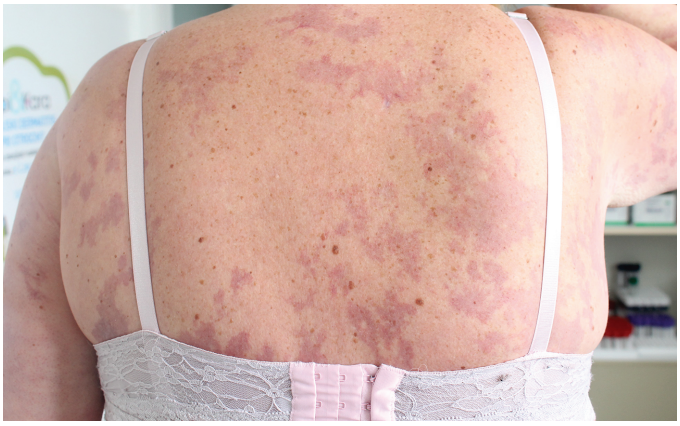

Figure 1 | Livid to erythematous macules on the patient's back.

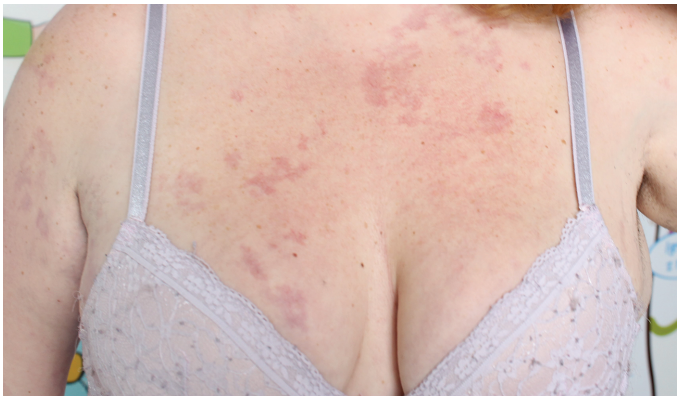

Figure 2 | Livid to erythematous macules on the patient's chest.

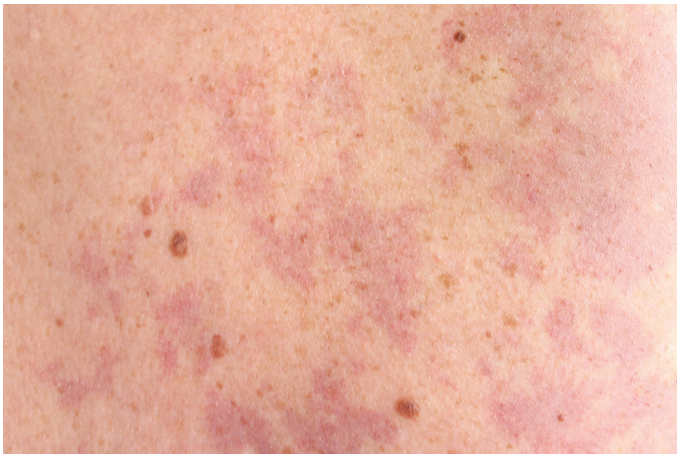

Figure 3 | Close-up view of the patient's rash: multiple erythematous macules.

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The patient had a biopsy of a change on her back, where a slightly telangiectatically dilated small blood vessel of the superficial plexus was visibly multiplied, without inflammation, which corresponds to the referral diagnosis of telangiectatic nevi (Fig. 4). For further diagnosis, the patient was referred to a geneticist, who examined her and gave the opinion that genetic testing was not necessary because this type of disease is a mosaic disorder, and possible genetic defects should be looked for in skin changes, which means a repeated biopsy of the skin: both affected and unaffected skin. Because this type of diagnosis was not absolutely necessary, we did not choose it. Self-monitoring of changes and appropriate skin protection are advised.

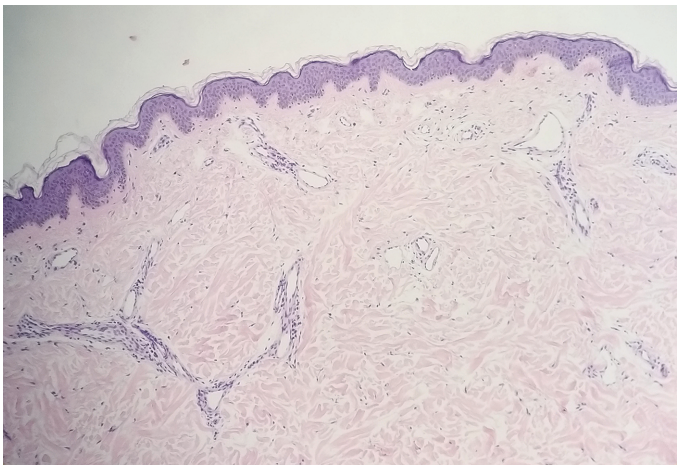

Figure 4 | Histopathological appearance of the patient's punch biopsy.

Discussion

Telangiectasias are irregular dilations of the final vessels of the subpapillary plexus in the superficial dermis (4). They can be seen in systemic diseases such as dermatomyositis, lupus erythematosus, scleroderma, or cirrhosis, or in pregnancy, but they can also be related to hereditary diseases such as HBT (3). HBT was first mentioned in 1971 (5) but its etiopathogenesis remains unknown. There is some speculation about the participation of angiogenic factors, or oversensitivity to estrogen or progesterone in the affected areas, but these hypotheses are still being investigated and have not been proven yet (6). On the other hand, Brancati et al. suggest that HBT and capillary malformations may both be part of the wide phenotypic spectrum of the same clinical entity and, according to their study, narrowing of the CMC1 locus is a significant step toward identification of the gene that is causing disease (3). HBT is typically observed in several family members, is inherited in an autosomal dominant manner, and is more common in women (7).

Characteristic skin changes usually occur in childhood, but cases of neonatal occurrence have also been described (6). The disease typically presents with round, oval, dendritic, or punctate telangiectasias arranged in groups or diffuse (6). Areas exposed to light (the face, neck, and upper part of chest) are particularly affected (5). Skin changes are asymptomatic and remain stable for a long time. The condition presents only aesthetic problems without affecting the patients' health (2). The appearance may change over time. Aging skin can mask telangiectasias. In the early stages, the changes are small and red, increasing and becoming lighter with age (6). Bleeding diathesis and systemic vascular lesions are absent, and HBT is not associated with systemic involvement (8).

The diagnosis is usually made based on a typical clinical picture, family history, and the absence of mucosal involvement or certain other diseases (most often hematological), in which similar changes in the skin may occur.

The typical clinical features of HBT, which help establish the correct diagnosis, are: 1) punctate, dendritic, round, or oval erythematous macules accompanied by telangiectasias; 2) changes appearing on the skin, whereas the mucosa is not affected; 3) no tendency to bleed (e.g., epistaxis or gastrointestinal bleeding) and unrelated to systemic diseases; 4) telangiectasias usually occur after birth and before puberty; 5) autosomal dominant inheritance; and 6) in histology, expansion of the venous plexus into the superficial dermis is characteristic (9).

The histology of HBT shows normal epidermis and dilated venules as well as capillaries and arterioles in the upper dermis (4). The clinical picture in patients with HBT can be misleading or similar to a wide variety of diseases, including serious diseases with associated complications that require treatment, and so it is necessary to carefully check the history of this patient and bear in mind other possible diseases that manifest with telangiectasia. In such cases, appropriate additional diagnostics should be performed to establish the correct diagnosis. Some elements of differential diagnosis are summarized in Table 1. In a patient with telangiectasia, capillary malformation–arteriovenous malformation (CM-AVM) syndrome, hereditary hemorrhagic telangiectasia (HHT), acquired port-wine stain, unilateral nevoid telangiectasia, generalized essential telangiectasia, spider angiomas, and telangiectasia macularis eruptiva perstans (TMEP) should be considered in differential diagnosis in addition to HBT.

CM-AVM syndrome is a rare genetic disease that affects blood vessels. In CM-AVM, capillaries are dilated and blood flow is increased in the surface of the skin. Dilated capillaries often appear as round, small, pink to red spots on the skin of the face and upper and lower extremities. There may also be abnormal connections between blood vessels, such as in AVM. Skin changes can occur very early, at birth, or develop later in childhood. More serious vascular abnormalities can also occur, affecting the skin, muscles, bones, spine, brain, and heart. This can cause serious problems, such as bleeding, epileptic seizures, migraines, and heart failure. Most people with AVM are asymptomatic and have no problems, and so sometimes AVM is found only after death, during autopsy (10).

HHT or Osler–Weber–Rendu syndrome is an autosomal dominant disease. Clinically, HHT is represented by telangiectasias manifesting as macules and papules, with a pinhead size up to a few millimeters, spotted, and sometimes with linear or spider-like changes (11). They are often found on the face, nasal and oral mucosa, lips, tongue, ears, arms, legs, and chest, but they can also be found in internal organs such as the lungs, liver, gastrointestinal tract, genitourinary tract, and elsewhere (12). Recurrent epistaxis is most typical for this condition and begins in early childhood or adolescence. Bleeding can also manifest itself in the form of hematuria or intestinal bleeding, and very rarely as skin bleeding. There is no causal treatment, and most patients are only treated with support. Vascular abnormalities can be treated surgically and by embolization, and nosebleeds by laser. With frequent bleeding, many patients need long-term treatment with iron supplements. Some patients need injections of parenteral iron supplements. Drugs that inhibit fibrinolysis, such as aminocaproic acid, may be effective (13).

Generalized essential telangiectasia is a rare condition that usually occurs in women age 40 to 50, but it can also occur in childhood. It occurs clinically as areas of telangiectasia that initially

appear on the legs and slowly spread to the trunk and arms. Numbness, tingling, a burning sensation in the extremities, and ocular manifestations such as conjunctival telangiectasia have also been reported (14). Bleeding on the skin and mucous membranes is not a typical feature of the disease, although it is mentioned by many authors (15). Generalized essential telangiectasias are very difficult to remove. Patients can use concealer cosmetics or self-tanning lotions to hide telangiectasias. There is usually no response to sclerotherapy. Recently, various promising vascular lasers (Nd-YAG) have been shown to treat generalized essential telangiectasia (16).

Acquired port-wine stain is a rare condition that occurs in early childhood. Acquired port-wine stain is often seen after local trauma. It can also appear in pregnancy or when taking oral contraceptives with additional estrogen. Acquired port-wine stain manifests as erythematous macules with small or no telangiectasias unilaterally on the surface of the face and neck (6).

Unilateral nevoid telangiectasia may be congenital or acquired in life periods with high estrogen levels (e.g., puberty and pregnancy). The changes occur in photoexposed areas of the skin, and the disease is limited to the skin and has no systemic involvement (6). The treatment is a cosmetic overlay. The use of a suitable laser is an alternative to aesthetic improvement (17).

Spider angiomas are common in children and adults, affecting 10 to 15% of the population. Solitary angiomas are benign, but they can also be markers for systemic diseases. They are usually found in patients with liver disease or pregnant women with spider nevus characteristics and radial capillary expansion (6).

TMEP is a form of cutaneous mastocytosis that is usually seen in the middle-aged population and is rarely found in childhood. Clinically, it manifests as erythematous or pigmented macules and papules with telangiectasias on the trunk, arms, and legs. Toluidine blue histopathology exposes a slightly increased number of mast cells located around dilated blood vessels (6). Treatment of TMEP is adjusted based on clinical symptoms and systemic involvement. There are no drugs to treat TMEP, and so it is very important to identify and avoid factors that promote mast cell breakdown (sunlight exposure, high temperatures, alcohol, and drugs). Pruritus and urticaria can be managed with H1 antagonists. Skin lesions and symptoms can be improved by psoralen plus ultraviolet light A, which inhibits histamine release from mast cells. However, there may be recurrence after treatment ends. Intense light pulsing with a wavelength of 585 nm was shown to be effective in two cases described in the literature, but recurrence occurred after 14 months of therapy. Ketotifen, doxepin, cromolyn sodium, local and systemic corticosteroids, leukotriene antagonists, interferon alpha, and electron beam radiation have also been reported as therapies (18).

HBT skin lesions are asymptomatic and usually only aesthetically disturbing. It is not possible to prevent their changes. Because the changes are benign, treatment is not necessary, and the changes may only be observed. If removal is desired, appropriate laser treatment is the treatment of choice (8).

Conclusions

HBT is an autosomal dominant skin disease with typical presentation of round, oval, dendritic, or punctate telangiectasias. It is more common in women, and areas exposed to light are mostly affected. Skin changes in HBT are asymptomatic and cause mostly aesthetic problems. However, when treating patients with telangiectasias, we must be aware of serious and potentially life-threatening diseases that can also be hidden behind the innocent clinical picture of telangiectasias. Because it is clinically difficult to distinguish between such diseases, it is very important to be familiar with all the differential diagnostic options, carefully examine the patient, take a good medical history, and possibly perform additional tests. Doing so ensures that we will treat patients correctly, make the proper diagnosis, explain the nature of the disease, and even refer them to other specialists that can explain possible complications of the disease and all treatment options.

Table 1 | **Differential diagnoses for telangiectasias.**

Disease	Gene/defect	Age of patients	Systemic involvement	Mucous membrane involvement	Need for referral
Hereditary benign telangiectasia	No	Rarely at birth, mostly in early childhood	No	No	No
Capillary malformation–arteriovenous malformation syndrome	*RASA1* gene at 5q13.3, encodes protein RAS21	At birth or later in childhood	Yes	Yes	Yes
Hereditary hemorrhagic telangiectasia	*ACVRL* *ENG* *GDF2* *SMAD*	Average at age 12	Yes	Yes	Yes
Generalized essential telangiectasia	No	Average at age 40–50	No	Yes	No
Acquired port-wine stain	No	After local trauma, pregnancy	No	No	No
Unilateral nevoid telangiectasia	No	Congenital, puberty, pregnancy, high estrogen levels	No	No	No
Spider angiomas	No	Pregnancy, middle age	Yes	No	Yes if liver/thyroid disease suspected
Telangiectasia macularis eruptiva perstans	No	Middle age	Yes	No	Yes
Unilateral nevoid telangiectasia	No	Congenital, puberty, pregnancy, high estrogen levels	No	No	No

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