JSC “Astana Medical University”
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Osler-Weber-Rendu Disease

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Hereditary hemorrhagic telangiectasia (HHT) is also known as Osler–Weber–Rendu disease. It is an autosomal dominant disorder characterized by multiple mucocutaneous telangiectasias.

Etiology

There are 2 main types of HHT that are both caused by heterozygous mutations.

HHT1

involves a mutation in endoglin (ENG). With this type, patients, especially women, are at a higher risk of getting pulmonary and cerebral AVMs.

HHT2

involves a mutation in activin A receptor-like type 1 (ACVRL1), also known as ALK1. Patients with HHT2 have a higher risk of getting liver AVMs.

Symptoms

Characteristic manifestations of the disease are "stars" from the vessels that protrude on the mucous membranes and the surface of the skin. It is telangiectasia that allows the doctor to suspect the presence of the patient's hereditary disease and confirm it.

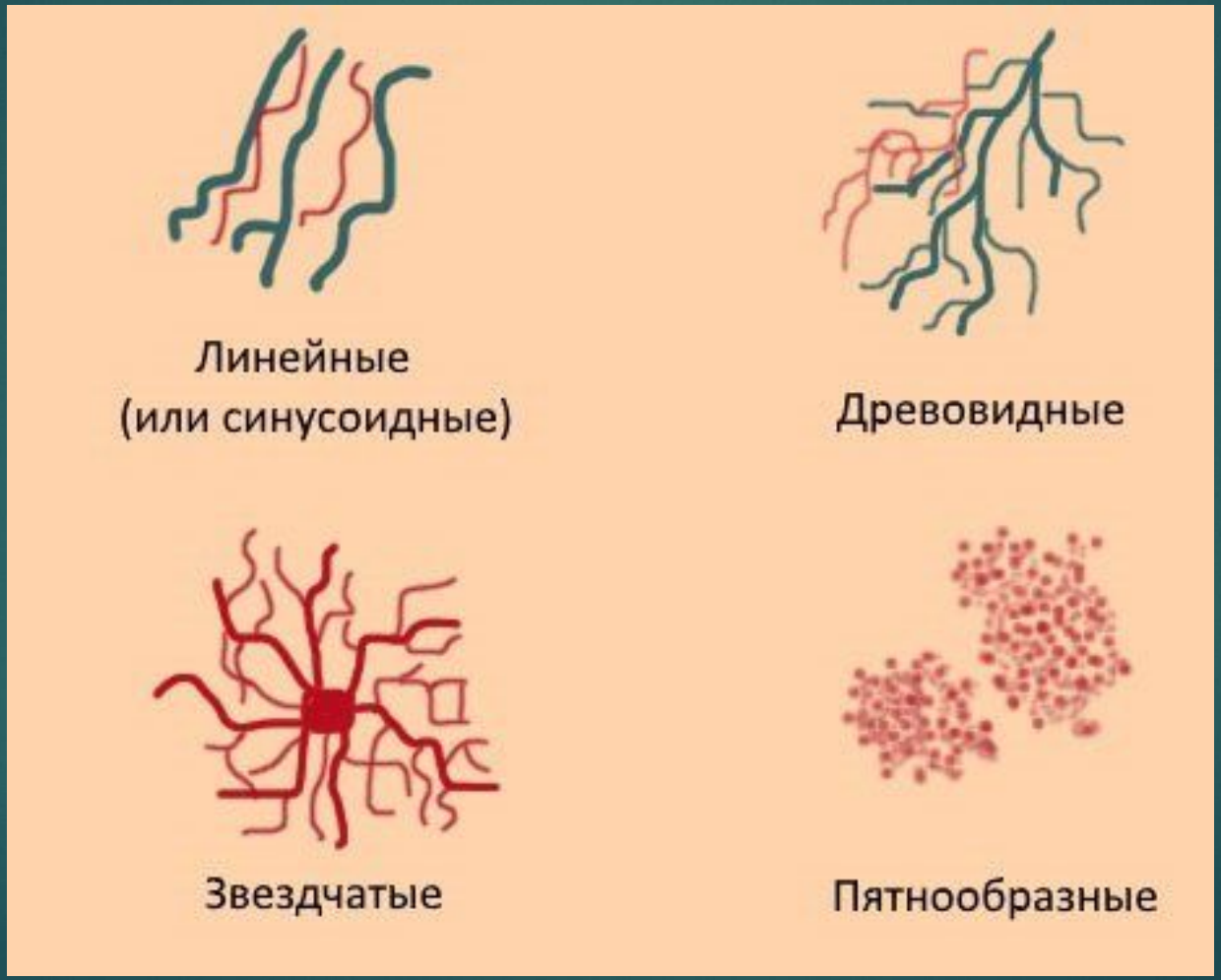
Initially, the rash is manifested by simple reddening in the form of specks. Gradually, the defect turns into a scarlet bundle. Most often, telangiectasias appear:

- In the nasolabial triangle;
- On the head;
- Fingers of the hands;
- Mucous membranes of the nose;
- Pharynx, trachea, esophagus.

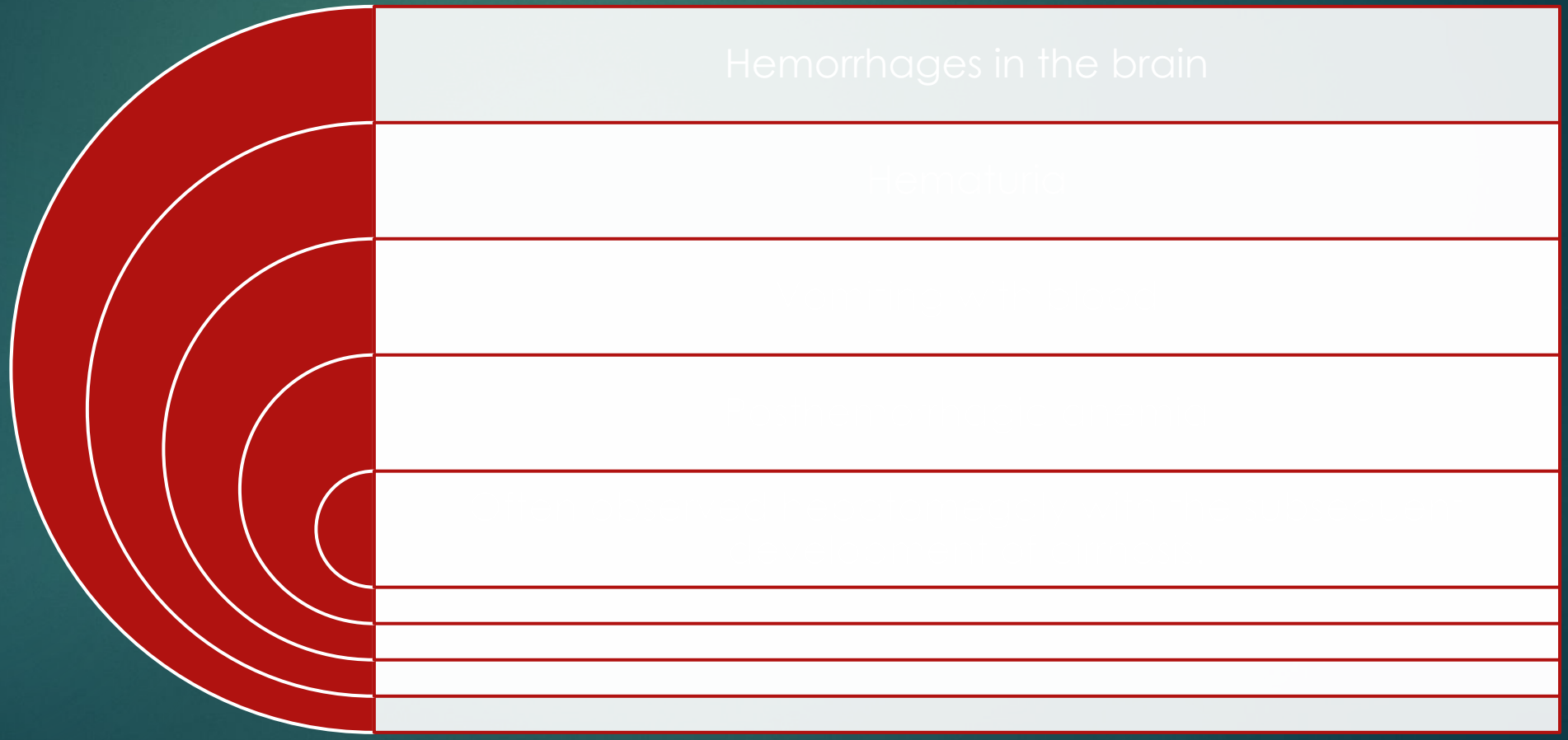
Because of progressive anemia, the patient becomes limp, dyspnea, rapid fatigue, pallor or cyanosis of the skin.

Constant blood loss leads to a slow depletion of the hematopoietic system, pulmonary heart failure and other pathologies.

Types of telangiectasias

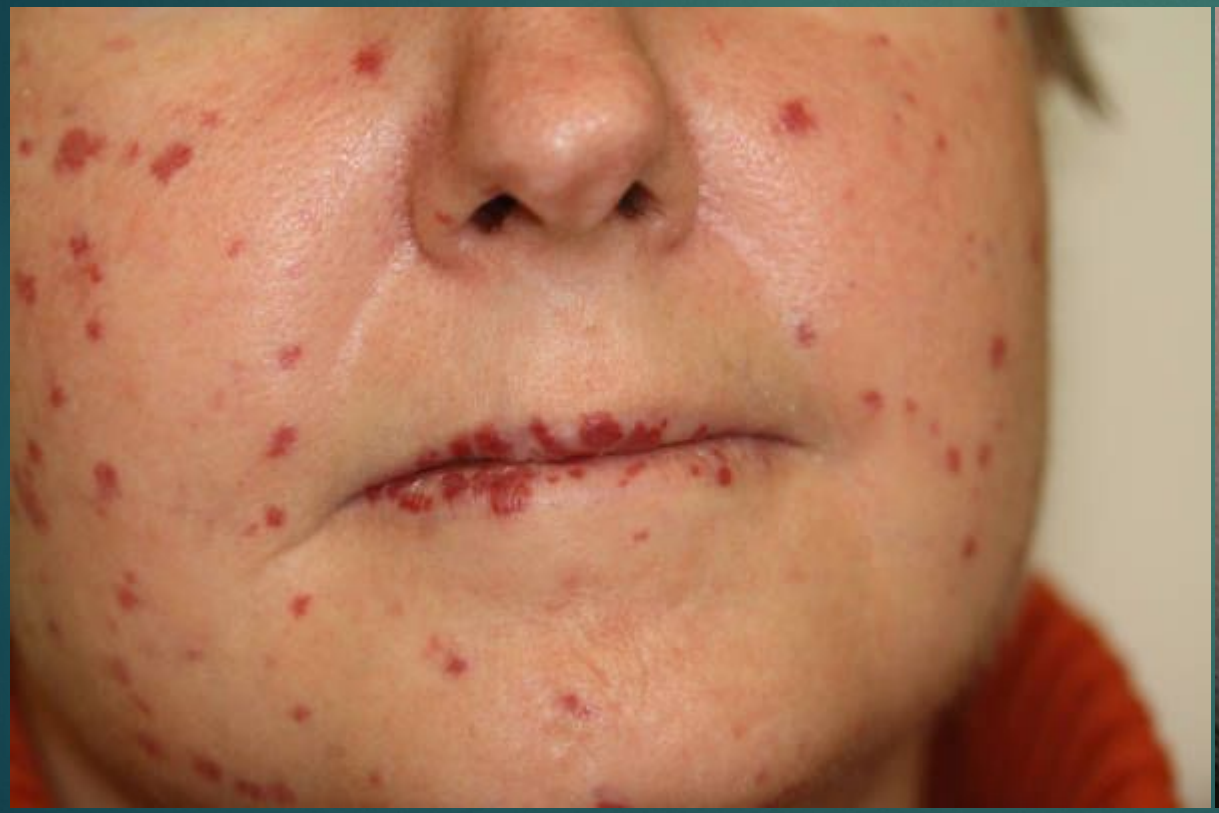


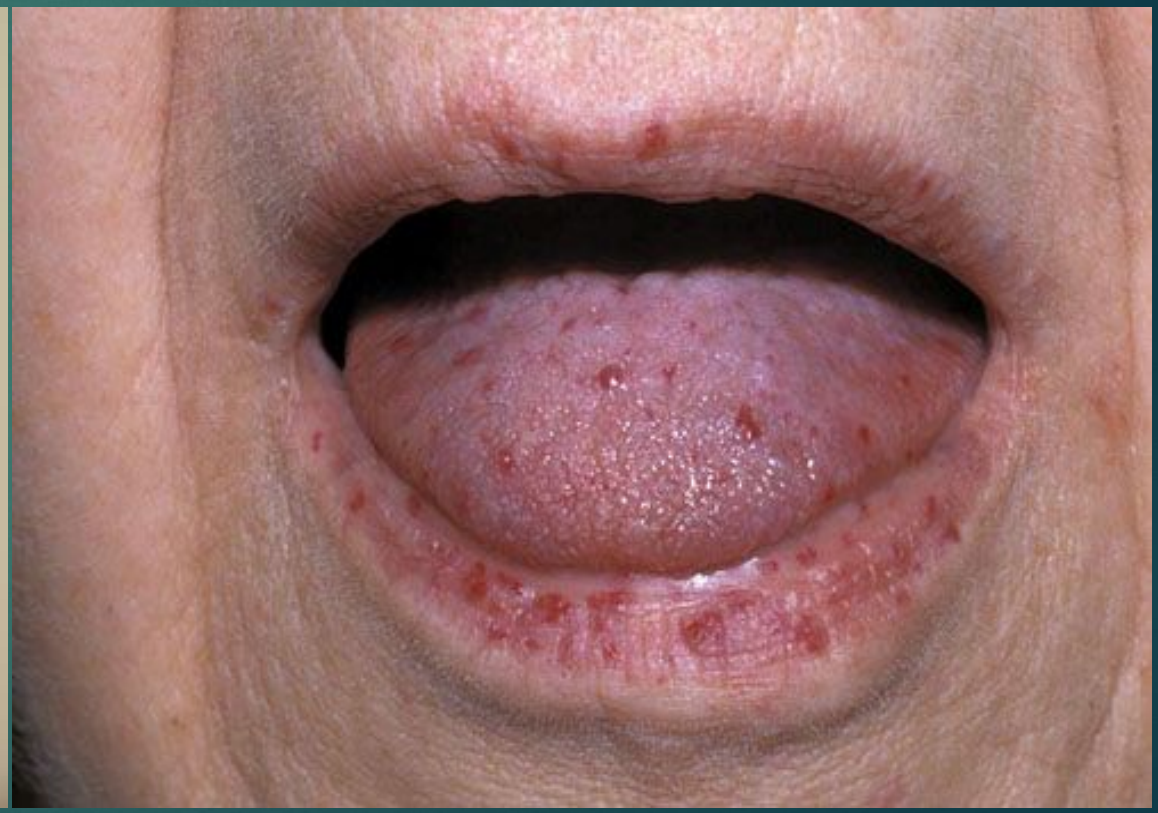
Due to the occurrence of these localizations, there may be:



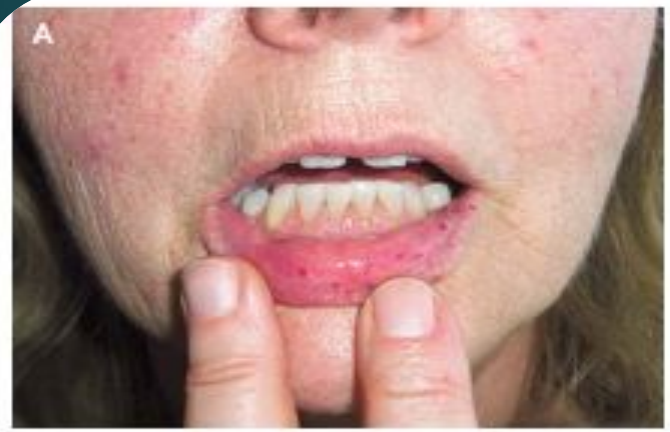
Here multiple ectasias of conjunctival vessels

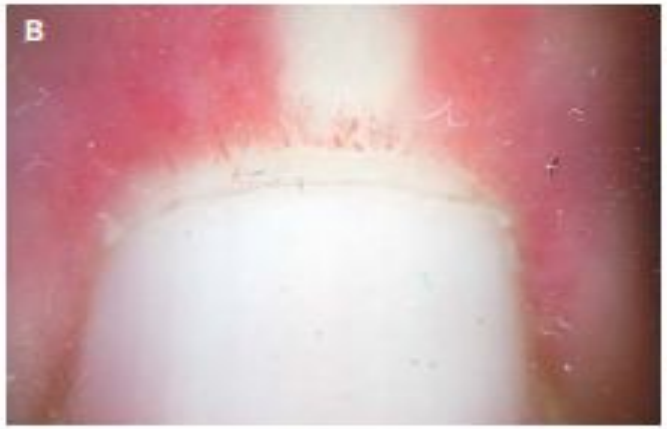
Appearing of teleangiectasias on the skin and mucous membrane

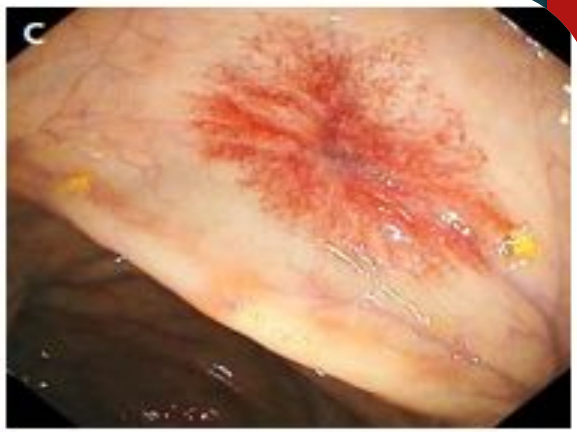




Example of HHT







A 58-YEAR-OLD WOMAN PRESENTED WITH A 6-WEEK HISTORY OF INTERmittent passage of bright red blood from the rectum, as well as progressive fatigue and dyspnea. Her medical history included recurrent episodes of spontaneous epistaxis since childhood, but she had never undergone a full evaluation. Physical examination revealed telangiectasias on the labial mucosa (Panel A) and nail folds (Panel B). In addition, her mother was reported to have frequent epistaxis and similar skin lesions. Laboratory test results showed severe iron-deficiency anemia (hemoglobin level, 8.1 g per deciliter; mean corpuscular volume, 72 fl), and lower gastrointestinal endoscopy revealed arteriovenous malformations and telangiectasias of the colon (Panel C). Radiologic evaluation revealed no pulmonary or cerebral vascular malformations. On the basis of these findings, a clinical diagnosis of hereditary hemorrhagic telangiectasia, or the Osler–Weber–Rendu syndrome, was made in accordance with the Curaçao criteria. Genetic testing was performed, and the results were positive for an endoglin gene mutation; this confirmed the molecular diagnosis in the patient and her mother.

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The **diagnosis** can be made depending on the presence of four criteria. If three or four are met, a patient has "definite HHT", while two gives "possible HHT":

- Spontaneous recurrent epistaxis
- Multiple telangiectasias in typical locations.
- Proven visceral AVM (lung, liver, brain, spine)
- First-degree family member with HHT

To confirm diagnosis the following laboratory tests are carried out:

- a general blood test - will show a decrease in hemoglobin (normal for men - 130 - 170, for women - 120 - 160);
- biochemical analysis of blood - most often reveals a deficiency of iron, which is a consequence of the constant loss of the element during bleeding;
- coagulation test - sometimes intravascular coagulation is detected;
- general analysis of urine - often red blood cells that get into the urine when bleeding from the mucous urinary tract.

For the detection of telangiectasias on the mucous internal organs, instrumental diagnostics are carried out.

The following methods are used:

- FEGDS (fibroesophagogastroduodenoscopy) - examines the esophagus, stomach and the initial parts of the small intestine.
- Colonoscopy is a study of the large intestine.
- Bronchoscopy - the detection of hemorrhages on the bronchial mucosa.
- Cystoscopy - endoscopic examination of the urinary tract.

Treatment

of HHT is symptomatic (it deals with the symptoms rather than the disease itself), as there is no therapy that stops the development of telangiectasias and AVMs directly. Furthermore, some treatments are applied to prevent the development of common complications.

- Restoration of normal blood composition in case of large blood loss.
- Elimination of "vascular asterisks"
- Surgical interventions for major vascular disorders.
- Stop and prevent bleeding.

The most effective method of stopping nasal bleeding is irrigation of the mucous membrane with a 5-8% solution of aminocaproic acid.

Also, after the actual stopping of blood, medicines containing lanolin, dexpanthenol and vitamin E are used topically. These substances help the vascular membrane to restore its integrity.

Treatment

To prevent vascular damage systemic hormone therapy with testosterone or estrogen is also used.

To increase the stability of the vessel wall, apply:

- Vikasol;
- Ascorbic acid.

Elimination of telangiectasia can be treated with liquid nitrogen or cauterization by current. There is also chemical destruction of formations with the help of acid and laser removal.

To surgical interventions resort to internal bleeding and aneurysms. Doctors conduct the removal of the affected area, overlapping small vessels that feed it.

Prevention

- The appeal of people suffering from telangiectasia, to consult a geneticist when planning a pregnancy.
- Sufficient and comprehensive nutrition.
- Hardening of the body.
- Compliance with the regime of the day.
- Avoidance of stressful situations.
- Refusal from smoking and alcohol.

Prevention of disease is aimed at improving the quality of life. There is no way to eliminate the genetic cause of the pathology, but following these recommendations one can avoid frequent bleeding and concomitant complications.

Sources

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