Endocrine diseases. Skin pathology.

Mavlikeev M.O.

Diseases of the pituitary gland

- Among the pathologies of the pituitary gland are:
  - Tumors of the pituitary gland,
  - Cushing's disease,
  - Acromegaly and gigantism,
  - Hyperprolactinaemia,
  - Diabetes insipidus,
  - Pangypopituitarism.

Tumors of the pituitary gland

- The most common tumor of the pituitary gland is adenoma.
- The following types are distinguished in size:
  - macroadenomas (more than 1 cm in diameter),
  - microadenomas (less than 1 cm in diameter).
- Microscopically distinguishable:
  - diffuse type - tumor cells grow in a solid array among a network of small vessels;
  - sinusoidal type - cells are located near numerous capillaries, sometimes form pseudo-sites or glandular-like structures.

Tumors of the pituitary gland

- Adenomas by type of tumor cells are divided into:
  - acidophilic,
  - basophilic,
  - chromophobic,
  - mixed.
- Depending on the hormones produced by tumor cells, the following adenomas of the pituitary gland are distinguished:
  - lactotrophic (prolactinoma),
  - somatotropic,
  - corticotropic,
  - gonadotropic,
  - thyreotropic,
  - bihormonal (prolactin-somatotropic),
  - polyhormonal.

Tumors of the pituitary gland

- Adenomas can be malignant and grow through the capsule of the organ.
- Tumors of the pituitary gland, including benign, in the case of a significant increase in size press on the cross of the optic nerves, causing at first narrowing the fields of vision, and then loss of vision (mass effect).

Lactotropic adenomas

- They are the most common type of hyperfunctional adenomas of the pituitary gland, accounting for about 30% of all clinically significant adenomas of the pituitary gland.
- Microscopically the large majority of lactotropic adenomas consist of weakly acidophilic or chromophobic cells (weakly granulated lactotropic adenoma).
- Occasionally, lactotropic adenomas are strongly acidophilic.
- In immunohistochemical studies in the secretory granules of the cytoplasm of cells, prolactin can be detected.

Lactotropic adenomas

- Lactotropic adenomas are often subjected to dystrophic calcification, variing from isolated psammal bodies to large calcifications that capture almost the entire volume of the tumor (the so-called "pituitary stone").
- Prolactin secretion by functioning adenomas is usually expressed (even microadenomas produce prolactin in an amount sufficient for the development of hyperprolactinemia), and the concentration of prolactin in the serum usually correlates with the size of the adenoma.

Hyperprolactinemia

- Hyperprolactinemia is a symptomatic complex associated with increased production of prolactin and is manifested by galactorrhea, amenorrhea, decreased libido and infertility.
- Types of hyperprolactinaemia:
  - Physiological hyperprolactinemia:
    - pregnancy,
    - lactation,
    - in newborns,
    - during puberty.
  - Pathological hyperprolactinemia:
    - Primary - primary lesion of the hypothalamo-hypophyseal system;
    - Secondary - manifestation or complication of other diseases.

Morphology of hyperprolactinemia

- Mammary glands:
  - Hyperplasia and hypertrophy of glandular structures with apocrine secretion (onset and peak of the disease),
  - Lipomatosis (in the final of the disease),
  - Gynecomastia with apocrine secretion (in men).
- Ovaries:
  - Immature or cystically-altered follicles,
  - Sclerosis of the stroma.
- Testicles:
  - Leidig cells degeneration and atrophy,
  - Various variants of the spermatogenesis block.

Somatotropic adenomas

- Tumors producing STH are the second most frequent type of functioning adenomas of the pituitary gland.
- Hormonal adenomas can reach very large sizes by the time the diagnosis is made, since the increase in the secretion of STH and the associated symptoms may be negligible.
- Histologically, adenomas consisting only of STH-producing cells are divided into two types: abundantly granular and slightly granular.

Somatotropic adenomas

- Abundant granular adenomas consist of monomorphic acidophilic cells with a pronounced cytoplasmic immune response with antibodies to the STH, as well as a perinuclear cytoplasmic immune response with antibodies to cytokeratins.
- Weakly granular variants consist of chromophobic cells with pronounced nuclear and cytological polymorphism, as well as a focal weak immune response with antibodies to the STH.
- In connection with the emergence of new highly specific antibodies, bihormonal prolactino-somatotrophic adenomas are increasingly being diagnosed.
- Most bihormonal adenomas morphologically resemble abundantly granulated somatotropic adenomas.

Acromegaly and Gigantism

- Gigantism - a proportional increase in height and limbs due to increased secretion of growth hormone in childhood and in adolescents with incomplete physiological growth (over 190 cm in girls and 200 cm in young men).
- Acromegaly - an increase in the body's terminal areas in adults.
- Etiology:
  - Growth pituitary adenoma,
  - Hyperplasia of pituitary somatotropes,
  - Hypersecretion of somatoliberin,
  - STH-producing tumor of extrahypophysial localization (pancreas, lungs, ovaries).

Morphology of acromegaly and gigantism

- Growth of cartilage and bones with tissue reconstruction.
- Dystrophy and inflammation of bone and cartilaginous tissue.
- Growth of the stroma of the parenchymal organs.
- Fibrosis of the walls of blood vessels.

Corticotropic adenomas

- At the time of diagnosis, corticotropic adenomas are usually microadenomas.
- These tumors are most often basophilic, severely granular and occasionally chromophobic weakly granulated.
- Tumor cells of both types adenomas are stained with the PAS-reaction, because they contain carbohydrates in the composition of proopiomelanocortin, the precursor of ACTH.
- Excessive production of ACTH by a corticotropic adenoma results in hypersecretion of the adrenal cortisol and development of hypercorticism (Cushing's disease).

Cushing's disease

- An independent disease associated with the primary lesion of the pituitary system and manifested by primary (endogenous) hypercorticism.
- Causes of central primary (endogenous) hypercorticism:
  - Endogenous disorders of hypothalamic-pituitary interactions,
  - Basophilic cell adenoma of the pituitary gland,
  - Hyperplastic processes in the pituitary.
- These reasons cause hypertensive ACTH, which leads to hyperplasia of the adrenal cortex and hyperproduction of GC and other hormones, as well as disruption of the feedback of GC-ACTH.

Gonadotropic adenomas

- Gonadotropic adenomas of the pituitary gland are difficult to diagnose because they secrete hormones (FSH, LH) in small amounts and unstable, and the products of their secretion usually do not cause clinically significant syndromes (dysfunctional adenomas).
- It is most commonly found in middle-aged men and women, when tumors reach large sizes and cause neurological symptoms, in particular vision loss, diplopia, headaches or apoplexy of the pituitary gland.

Gonadotropic adenomas

- Paradoxically, LH secretion is especially disturbed, which reduces physical activity and libido in men (due to a decrease in testosterone levels) and causes amenorrhea in premenopausal women.
- Thus, gonadotropic adenomas of the pituitary gland are accompanied by secondary hypofunction of the sexual glands (hypogonadism).
- Tumor cells are usually immunopositive for the common α-subunit of gonadotropin and specific β-subunits of FSH and LH.
- FSH secretion is most prevalent.

Thyrotropic adenomas

- Thyotropic (producing TTG) adenomas are infrequent formations (about 1% of all adenomas of the pituitary gland).
- Thyotropic adenomas rarely cause hyperthyroidism.

Diabetes insipidus

- Non-diabetes mellitus (DI) is a syndrome associated with absolute or relative deficiency of antidiuretic hormone (ADH, vasopressin).
- Etiology:
  - Genetic defects in synthesis, secretion and reception of ADH.
  - Traumas, infections, tumors.
  - Diseases of the kidneys, obstruction of the urinary tract.
  - Organic disorders of the center of thirst, mental disorders (dipsogenic DI).
  - Unidentified cause (idiopathic DI).
- Pathogenesis is associated with a decrease in the secretion of ADH, which leads to a decrease in the reabsorption of water in the kidneys, polyuria and polydipsia, and a violation of the reception of ADH in the kidneys.

Morphology of diabetes insipidus

- Neurohypophysis:
  - Dystrophy, necrosis, atrophy, autoimmune inflammation.
  - Tumors.
- Kidneys:
  - Degeneration (protein, fatty) of tubular epithelium,
  - Inflammation of various nature,
  - Atrophy of the epithelium of the tubules and collecting tubules.

Pangypopituitarism

- Pangipopituitarism is a syndrome associated with a decrease in the synthesis and secretion of all pituitary hormones.
- Etiology:
  - Non-secreting adenomas of the pituitary gland,
  - Post-natal necrosis of the pituitary gland (Shikhen's syndrome),
  - Syndrome of the empty Turkish seat,
  - Neuroinfections,
  - Hemorrhages in the pituitary gland.

Morphology of panhypopituitarism

- Pituitary gland:
  - Ischemic dystrophy and infarction,
  - Toxic and metabolic necrosis,
  - Tumors of various structures,
  - Inflammation of different morphologies,
  - Hemorrhages,
  - Fibrosis.
- Peripheral organs and tissues:
  - Cachexia (brown atrophy of the myocardium, liver, muscles),
  - Atrophy of the gonads, thyroid, adrenals, glands of the digestive tract,
  - Polyneuritis and neurodystrophy,
  - Osteolysis.

Diseases of the pancreas

- Diseases of the endocrine part of the pancreas are:
  - Diabetes mellitus,
  - Tumors from the cells of the islets of Langerhans.

Diabetes mellitus

- Diabetes mellitus (DM) is a disease caused by absolute or relative insufficiency of insulin, which leads to disruption of all kinds of metabolism, especially carbohydrate and fat.

Classification of DM

- Primary (idiopathic) diabetes:
  - DM type 1 (old name: insulin-dependent),
  - DM type 2 (old name: non-insulin-dependent).
- Secondary diabetes:
  - in various pancreatic diseases (idiopathic hemochromatosis (bronze diabetes), pancreatitis, pancreatic cancer),
  - in endocrine diseases (acromegaly, Cushing's syndrome/disease, pheochromocytoma, glucoganome),
  - in infections (cytomegalovirus, Coxsackie virus B, congenital rubella),
  - in pregnancy (gestational DM).

Characteristics of DM type 1

- It usually develops up to 30 years (juvenile diabetes).
- Occurs much less frequently than DM type 2 .
- The mechanism of damage to β-cells is associated with autoantibodies with the development of immune inflammation in the islets of Langerhans - insulitis (autoimmune disease).
- In the development of the disease, genetic predisposition and a viral infection that triggers an autoimmune process are important.
- The disease is caused by absolute insulin deficiency.
- Without the introduction of insulin, hyperglycemia, polyuria, ketoacidosis and coma develop, leading to death (increased lipid metabolism with the production of ketone bodies).

Characteristics of DM type 2

- It occurs much more often than DM type 1.
- Usually develops in middle age.
- Development is associated with either an increase in cell resistance to insulin due to a decrease in the number of receptors to insulin, or a violation of the transformation of proinsulin into insulin, a violation of intracellular transport proteins (relative insulin deficiency).
- The concentration of insulin in the plasma is normal, often increased.
- Hyperglycemia is usually corrected by diet and antidiabetic drugs, the introduction of insulin is not required.
- Ketoacidosis is not typical.

Morphology of DM

- The morphology of diabetes mellitus consists of changes in the pancreas and other organs as a result of metabolic disturbances.
- Diabetic angiopathy is the most important of these changes.

Pancreas in DM

- Macroscopic picture:
  - Pancreas is reduced,
  - Dense.
  - On a cut: strands of whitish connective tissue.
  - Growth of fatty tissue - lipomatosis (DM type 2).
- Microscopic picture with DM type 1 :
  - Rare small islets of Langerhans with sclerosis and lymphocytic infiltration (insulitis).
  - The number of β-cells is reduced, their degranulation is noted.
  - Diffuse sclerosis.

Pancreas in DM

- Microscopic picture of DM type 2 :
  - Sclerosis, hyalinosis and amyloidosis of the islets of Langerhans (deposition of amylin - islet amyloid polypeptide).
  - β-cells are small, degranulated.
  - Preserved islands can be hypertrophied.
  - Lipomatosis.
  - Diffuse sclerosis, especially pronounced around the ducts (periductal sclerosis).

Diabetic angiopathy

- Diabetic angiopathy is represented by:
- Diabetic macroangiopathy:
  - Diabetic macroangiopathy has the morphology of atherosclerosis, arising in vessels of the elastic and musculo-elastic types.
  - Atherosclerotic complications with diabetes mellitus occur at a much younger age.
- Diabetic microangiopathy:
  - Occurs in arterioles and capillaries due to plasma impregnation and is represented by hyalinosis.
  - It has a generalized character: it is found in the kidneys, retina, skin, skeletal muscles, pancreas, brain, peripheral nervous system, etc.

Diabetic nephropathy

- Diabetic nephropathy is a composite concept that includes pathogenesis-related renal lesions: diabetic glomerulosclerosis, kidney infections (pyelonephritis, necrotic papillitis), vascular (angiosclerosis), neurogenic (atony of the urinary tract, postrenal ARF), and medicated (interstitial nephritis, ARF).
- However, often the term "diabetic nephropathy" refers only to specific renal damage in diabetes - diabetic glomerulosclerosis, clinically manifested by Kimmelstyle-Wilson syndrome.

Diabetic glomerulosclerosis

- Macroscopic pattern:
  - Kidneys reduced in size,
  - Dense consistency,
  - Fine-grained.
- Microscopic picture:
  - Nodular (nodular) form:
    - Focal clusters of eosinophilic hyaline masses in the mesangium of the glomeruli ("fibrin caps").
  - Diffuse form (65 - 75%):
    - Diffuse thickening of the basal membranes of the glomerular capillaries,
    - Expansion of mesangium, identified by the PAS-reaction.

Diabetic retinopathy

- Approximately 50 - 75% of patients with diabetes suffer from diabetic retinopathy (DRP).
- DRP ranks 1st in the world among the causes of visual acuity reduction and blindness.
- Classification and morphology:
  - Non-proliferative DRP: Microaneurysms, retinal edema, retinal hemorrhage.
  - Pre-proliferative DRP : Venous anomalies, infarctions in the layer of nerve fibers, lipid deposits.
  - Proliferative DRP: Neovascularization of the optic nerve disk, vitreous hemorrhage, retinal detachment.

Other manifestations of diabetes mellitus

- Liver:
  - Fatty hepatosis,
  - In the nuclei of hepatocytes - vacuolization (clusters of glycogen).
- Kidneys:
  - Glycogen infiltration of the epithelium of the renal tubules (Henle loops).
- Skin:
  - Xanthelases (focal clusters of xantom cells),
  - Lipoid necrobiosis.
- Gallbladder:
  - Calculous cholecystitis.

Complications of diabetes mellitus

- Diabetic coma.
- Trophic ulcers and gangrene of the lower extremities ("diabetic foot") due to angio- and neuropathy.
- CRF (with progression of diabetic glomerulosclerosis).
- Blindness.
- Infectious complications:
  - Purulent pyoderma, furunculosis,
  - Purulent pyelonephritis,
  - Bronchopneumonia,
  - Candidiasis,
  - Tuberculosis.

Causes of death with diabetes mellitus

- Heart failure (myocardial infarction),
- CRF,
- Sepsis

Tumors of the pancreas

- Hormonal-active pancreatic tumors by histogenesis are divided into:
  - Orthoendocrine: develop from the α-, β-, δ- and PP-cells of the islets and secrete the corresponding hormones (glucagon, insulin, somatostatin, pancreatic peptide).
  - Paraendocrine: come from the argyrophilic cells of the epithelial lining of the gland ducts related to the APUD system and release hormones not specific to islet cells (gastrin, ACTH, VIP, etc.)
  - Polyendocrine: tumors whose cells simultaneously produce several hormones.

Glucagonoma

- It arises from the α-cells of the islets of Langerhans.
- Causes hyperglucagonemia.
- leads to the formation of Mullison's syndrome: dermatitis, diabetes mellitus, anemia, weight loss.
- The tumor is usually single, can reach 10 cm in diameter, is localized most often in the tail and body of the gland.
- Has a structure of solid or trabecular adenoma, often - adenocarcinoma.
- In EM: in the cells of the same type of large rounded dense secretory granules.
- Most glucagonoms are malignant (68%).
- May be an integral part of the Type I MEN syndrome.

Insulinoma

- The most frequent endocrine gland tumor.
- Occurs from β-cells.
- Is hypoglycemia with Whipple's triad: coma attacks, hyperinsulinemia, severe neuropsychiatric disorders.
- The tumor is usually single, it can be multiple, with a diameter of no more than 0.5 - 2 cm, is localized usually in the body and tail of the organ.
- Has a structure of trabecular or solid adenoma.
- In EM: secretory granules with a ring-shaped light rim and dark core.
- Malignant insulinomas are rare.

Gastrinoma

- It is the second most frequent endocrine tumor of the pancreas.
- Develops from G-cells.
- It leads to hypergastrinemia, which causes hyperplasia of parietal cells, hyperacidity of gastric juice.
- It manifests as Zollinger-Ellison syndrome: multiple recurrent gastric and duodenal ulcers with severe pain, frequent complications.
- The tumor is usually multiple, localized in the body, head and tail of the organ, not more than 4 cm in diameter.
- Has the structure of the parenchymal adenoma.
- In EM: a lot of secretory granules with a dense core and a narrow light rim.

Diseases of the thyroid gland

- Among diseases of the thyroid gland the greatest value is:
  - Goitre (thyromegaly),
  - Thyroiditis,
  - Cancer of the thyroid gland.

Goitre (thyromegaly)

- An enlargement of the thyroid gland, which is based on hyperplasia.
- Causes of goiter:
  - Genetic defects of metabolism (synthesis, secretion, transport, reception) of thyroid hormones (fermentopathy).
  - Deficiency of iodine in food (especially in water).
  - Autoimmune mechanisms.
  - Physiological causes (in puberty and during pregnancy).
  - Unknown reason.

Thyroid function in goiter

- Euthyroid, non-toxic, simple goiter: The gland function does not change.
- Hyperthyroid, toxic goiter: Increased function of the gland.
- Hypothyroid goiter: Reduced function of the gland.
  - In adults it is accompanied by the development of myxedema (stroma of organs, fatty tissue, cartilage become mucoid, translucent, their cells take a process form - mucosal tissue).
  - Children are accompanied by the development of cretinism (mental retardation, impaired glycoprotein metabolism, lag in physical development).

Classification of goiter

- In macroscopic form:
  - Nodular, or multinodular goiter (nodular hyperplasia),
  - Diffuse goiter (diffuse hyperplasia),
  - Mixed goiter.
- According to the microscopic structure:
  - Colloid goiter:
    - Macrophollicular,
    - Microfollicular,
    - Macromicrofollicular,
    - Proliferating.
  - Parenchymal goiter.

Colloid goiter

- Microscopically, colloid goiter is represented by follicles containing a large amount of a thick, dark-colored colloid.
- Thyroid cells are atrophied.
- If the follicles are large, goiter is called macrofollicular, if the follicles are small - microfollicular.
- In macro-microfollicular goiter, follicles of different sizes are simultaneously found.

Parenchymal goiter

- Parenchymal goiter microscopically represents proliferation of the epithelium of follicles in the form of solid structures containing small follicle-like formations.
- The colloid content is sharply reduced.

Forms of goiter

- The most common forms of goiter:
  - Congenital goiter,
  - Endemic goiter,
  - Sporadic goiter,
  - Diffuse toxic goiter (Graves' disease).

Congenital goiter

- It is associated with genetic defects in the metabolism of thyroid hormones.
- It is accompanied by hypothyroidism.
- Macroscopic picture: Nodular or diffuse (less often) hyperplasia.
- Microscopic picture:
  - Solid-trabecular structure (parenchymal goiter),
  - Microfollicular structure (colloid goiter)

Endemic goiter

- Develops in residents of certain geographical areas (for example, the Volga region).
- Associated with lack of iodine in drinking water.
- Deficiency of iodine leads to a decrease in the synthesis of thyroid hormones, an increase in the synthesis of TSH and the development of hyperplasia.
- Significant amounts of colloid accumulate inside stretched follicles, leading to atrophy of the epithelium.
- Insufficient function of the epithelium is compensated by an increase in the mass of the gland.
- Function is euthyroid, sometimes - hypothyroidism.

Endemic goiter

- The macroscopic picture:
  - The gland is enlarged in size and weight,
  - The consistency is dense,
  - The surface is nodular (nodular hyperplasia),
  - On a cut: cavities of various sizes filled with a brown-yellow colloid.
- Microscopic picture:
  - Follicles of a rounded shape, many are cystically stretched,
  - Filled with oxyphilic thick colloid (with a PAS-reaction is colored in crimson color),
  - The epithelium in the follicles and cysts is flattened.

Sporadic goiter

- The reason is unknown.
- Occurs outside the relationship with endemic areas, but by morphological manifestations and functional status is identical to endemic goiter.
- The gland function is usually not changed.
- Macroscopic pattern: Nodular goiter
- Microscopic picture:
  - Macrophollicular structure,
  - Macromicrofollicular structure.

Diffuse toxic goiter

- The most common cause of hyperthyroidism (thyrotoxicosis).
- Women are more often sick at the age of 20 - 50 years.
- An autoimmune disease associated with the appearance of thyroid-stimulating immunoglobulin and immunoglobulin growth of the thyroid gland - IgG autoantibodies reacting with follicular epithelium receptors to TSH, which leads to an increase in the synthesis of thyroid hormones and epithelial proliferation and enlargement of the gland

Clinical picture of hyperthyroidism

- Diffusive enlargement of the thyroid gland,
- Tachycardia,
- Nervousness,
- Decreased body weight,
- Sweating,
- Exophthalmus (due to edema of retrobulbar fiber).

Diffuse toxic goiter

- Macroscopic picture:
  - Significant (in 2-4 times) diffuse symmetrical enlargement of the gland (diffuse hyperplasia).
  - Tissue is juicy, homogeneous, gray-red.
- Microscopic picture:
  - Follicles of various sizes of irregular "star" shape.
  - The epithelium is high, proliferating, forming papillae (“Sanderson pads").
  - Follicle resorption is expressed in the follicles (vacuolated, pale secret)
  - In the stroma, lymphocytic infiltration up to the formation of lymphoid follicles.

Diffuse toxic goiter

- In connection with thyrotoxicosis, a thyrotoxic heart develops, characterized by:
  - Hypertrophy of the myocardium,
  - Serous edema,
  - Lymphoid infiltration of the stroma,
  - Edema of cardiomyocytes,
  - Diffuse interstitial sclerosis (at the end of the process).
- In the liver occurs:
  - Serous edema,
  - Thyrotoxic liver fibrosis (rarely).

Causes of death in diffuse toxic goiter

- Heart failure.
- Depletion.
- Acute adrenal insufficiency (during the goiter removal operation).

Thyroiditis

- Thyroiditis is a historically formed common name for a number of inflammatory diseases of the thyroid gland of various origins

Classification of thyroiditis

- On the etiology:
  - Infectious:
    - Nonspecific (bacteria, viruses, fungi),
    - Specific (tuberculosis).
  - Autoimmune:
    - Thyroiditis Hashimoto.
  - Caused by physical factors:
    - Radiation,
    - injuries.
  - Unknown etiology:
    - Thyroiditis de Kervena,
    - Strum (thyroiditis) Riedel.

Classification of thyroiditis

- According to the clinical course:
- Acute thyroiditis: Purulent thyroiditis.
- Subacute thyroiditis: de Quervain's thyroiditis.
- Chronic thyroiditis: Thyroiditis Hashimoto, Strum (thyroiditis) Riedel.

Acute thyroiditis

- Infectious nature, more often caused by staphylococci and streptococci, less often - gram-negative flora.
- Occurs in young and senile age.
- Microscopic picture:
  - Infiltration of thyroid tissue with polymorphonuclear leukocytes,
  - Dystrophic and necrotic changes.

de Quervain's thyroiditis

- Synonyms: subacute thyroiditis, granulomatous giant cell thyroiditis.
- Women of middle age are more often ill.
- Etiology: presumably infectious mumps and Coxsackie viruses.
- Granulomatous inflammation develops, which is associated with the outflow of colloid from the damaged follicles of the thyroid gland.

de Quervain's thyroiditis

- Macroscopic picture:
  - The gland is slightly enlarged in size,
  - The affected areas are dense, with a fuzzy border,
  - Not adherent to surrounding tissues.
- Microscopic picture:
  - Granulomatosis with giant cells of foreign bodies, in the cytoplasm of which a colloid can be detected.
  - Spreading of colloid from damaged follicles.
  - Follicular epithelium dystrophic.

Hashimoto's Thyroiditis

- Synonyms: Hashimoto's disease, lymphomatous struma, autoimmune thyroiditis.
- Refers to chronic thyroiditis.
- One of the most common causes of hypothyroidism.
- More common in women.
- An autoimmune disease caused by several antithyroid autoantibodies to thyroglobulin and microsomes of the follicular epithelium.
- It can be combined with other autoimmune diseases (DM type 1, Sjogren's disease, etc.).
- It is characterized by a slow development with a gradual increase in the thyroid gland and a prolonged euthyroid period.

Hashimoto's Thyroiditis

- Macroscopic pattern:
  - The gland is enlarged, uneven in both lobes,
  - Uneven surface, dense consistency,
  - In the section: underlined lobulation.
- Microscopic picture:
  - Diffuse thick lympho-plasmocyte infiltration with the formation of lymphoid follicles with germinal centers, replacing the parenchyma of the gland.
  - Preserved follicles are small, atrophic, with little or no colloid in them.
  - Oxyphilic metaplasia of the follicular epithelium: epithelial cells with eosinophilic cytoplasm of granular species (Gurtle cells).

Riedel's thyroiditis

- Synonyms: fibroid thyroiditis.
- Observed rarely.
- Etiology and pathogenesis are unknown.
- Currently considered as part of a systemic fibrosis disease (combined fibrosis processes in the retroperitoneal space, orbit and mediastinum).
- It is accompanied by hypothyroidism.

Riedel's thyroiditis

- Macroscopic picture:
  - Thyroid gland of wooden density ("iron goiter"),
  - Spliced with surrounding tissues.
  - It is possible to squeeze the mediastinal organs.
- Microscopic picture:
  - Replacing the gland tissue with a fibrous tissue.

Thyroid cancer

- The following histological types of cancer (adenocarcinomas) of the thyroid gland are distinguished:
  - Papillary carcinoma (70-85%),
  - Follicular carcinoma (5-15%),
  - Medullary carcinoma (5%),
  - Anaplastic (undifferentiated) carcinoma (1-5 %).

Papillary carcinoma

- The most common type of thyroid cancer.
- About 50% of patients with papillary adenocarcinoma are younger than 40 years, the rest - over 60 years.
- Women are often sick.
- Small tumors, the so-called sclerosing, or occult, carcinomas, resemble tiny scars.
- Large tumors have painful, well-defined edges, some of them partially encapsulated.

Papillary carcinoma

- Its histological features are the true papillae (papillae) formed by a connective tissue trunk containing a blood vessel and lined with a layer of tumor cells, which have a very peculiar appearance: hypochromic (matt-glassy, optically transparent) nuclei enlarged in size, with pitted contours; Cells closely adjoin each other, chaotically overlapping and forming heaps of cells.
- Cyst formation is characteristic.
- Sometimes severe fibrosis and calcification develop.
- About 40% of papillary carcinomas contain lamellar calcareous round structures, the so-called psammom bodies.

Papillary carcinoma

- Many papillary carcinomas have signs of follicular differentiation. In these cases, the tumor is often called mixed papillary and follicular carcinoma.
- The prevalence of lymphogenous metastases depends on the number of tumor foci in the thyroid tissue. It is believed that at the time of diagnosis, 50% of patients already have metastases in the cervical lymph nodes.
- Papillary carcinomas are characterized by exceptionally slow growth.
- About 95% of patients experience a ten-year period.

Follicular carcinoma

- Most often sick adult women.
- The tumor grows in the form of a nodule.
- Hematogenous metastases in the brain, bones and lungs are characteristic.
- Some follicular carcinomas are virtually indistinguishable from follicular adenomas.
- Microscopically, some tumors have a solid appearance with fragments of follicles, others are represented by follicles, which are practically impossible to distinguish from those in normal thyroid tissue.
- The prognosis depends on the prevalence of metastases.

Medullary carcinoma

- It occurs from parafollicular cells (C-cells).
- Medullary carcinoma can be both a family and a sporadic disease.
- In family forms, medullary carcinoma is a component of multiple endocrine neoplasia, and can be multifocal and bilateral.
- The tumor develops from the lateral two-thirds of the thyroid gland, where the highest concentration of C-cells is observed.
- Most often occurs in patients older than 40 years.
- Parafollicular cells normally secrete calcitonin, so serum calcitonin is a diagnostic and prognostic sign.

Medullary carcinoma

- The tumor is represented by a grayish-white or yellow-brown neoplasm well-delimited from the surrounding tissues.
- Tumor cells are arranged in the form of clusters separated by a stroma containing amyloid.
- Medullary carcinoma metastasizes both lymphogenous and hematogenous pathways.
- The prognosis is not as favorable as with papillary and follicular carcinomas, but better than with anaplastic carcinoma: a 5-year period is experienced by about 50% of patients.

Anaplastic carcinoma

- It is a rapidly growing and one of the most malignant human tumors.
- Developed exclusively in persons over 60 years of age.
- More than 50% of patients have a history of a long history of goiter, adenoma, papillary or follicular carcinoma.
- A tumor is a rapidly growing formation that can squeeze the trachea, cause ulceration of the skin, germinate into the adjacent areas of the thyroid and other structures of the neck.
- Tumor cells of large, often giant sizes, polymorphism is characteristic of them.
- The prognosis is extremely unfavorable, the death of patients occurs in 1 to 2 months.

Diseases of the adrenal glands

- Among adrenal diseases it is customary to allocate:
- Cortical diseases:
  - Cushing's syndrome,
  - Conn's syndrome,
  - Adrenal insufficiency,
  - Adrenogenital syndrome.
  - Tumors of the adrenal cortex.
- Diseases of the medulla:
  - Pheochromocytoma.

Hyperfunction of the adrenal cortex

- Since there are three main types of corticosteroids produced by the adrenal cortex, there are three syndromes of hyperfunction of the adrenal cortex:
  - hypercorticism, or Cushing's syndrome, characterized by an excess of cortisol;
  - hyperaldosteronism (excessive secretion of aldosterone);
  - adrenogenital syndrome caused by excessive synthesis of androgens.
- The clinical signs of these syndromes are partly overlapping due to the similarity of the functions of certain adrenal hormones.

Cushing's Syndrome

- Cushing's syndrome is hypercorticism due to the hyperproduction of GC by the adrenal gland cortex due to glucosteroma or ACTH-secreting tumors of various organs (bronchi, thymus, liver, but not the pituitary).
- Cushing's syndrome is characterized by bilateral hyperplasia of the adrenal cortex.
- Women are often sick.

Cushing's Syndrome

- There are two options:
- ACTH-dependent Cushing's syndrome:
  - administration of large doses of ACTH (iatrogenic Cushing's syndrome),
  - ectopic corticotropic syndrome (eg, ACTH-secreting small cell lung carcinoma).
- ACTH-independent Cushing syndrome:
  - treatment with high doses of GCS preparations (iatrogenic Cushing's syndrome),
  - adrenocortical tumors (adenomas, less often adenocarcinomas),
  - nodular hyperplasia of the adrenal cortex.

Clinical picture of Cushing's Syndrome

- Clinically, both variants proceed as a similar pituitary disease:
  - obesity in the upper type (moonlike face),
  - blush on the cheeks (matronism),
  - appearance of striae on the skin,
  - arterial hypertension,
  - steroid diabetes,
  - hirsutism,
  - osteoporosis,
  - amenorrhea ,
  - erectile dysfunction.

Morphology of Cushing's syndrome

- Adrenal glands:
  - Adenoma of the cortical zone of the cortex (from light, dark and different cells),
  - Cancer of the cortical zone of the cortex,
  - Hyperplasia of the bark cortex.
- Other organs and tissues:
  - Atrophy and lipomatosis of the thyroid gland,
  - Hyperplasia of the islets of Langerhans,
  - Fatty degeneration of the liver,
  - Atherosclerosis,
  - Atrophy of the gonads.

Conn's syndrome

- Primary hyperaldosteronism (Conn's syndrome) is a syndrome that occurs when the adrenal gland is affected and is characterized by hypersecretion of aldosterone.
- Aldosterone causes sodium and water retention, increased CBV, arterial hypertension, inhibits the secretion of renin.
- There are violations of kidney function with the development of chronic pyelonephritis, muscle weakness, less often - paresis and paralysis.

Morphology of Conn's syndrome

- Adrenal glands:
  - Clear cell adenoma of the adrenal cortex.
  - Diffuse or focal hyperplasia of cells resembling cells of the normal glomerular zone.
- Other organs:
  - Dystrophy of the tubular epithelium of the kidneys,
  - Arteriolo- and glomerulosclerosis, kidney hyalinosis,
  - Focal necrosis of the myocardium,
  - Focal necrosis in skeletal muscles.

Adrenogenital syndrome (AGS)

- Synonyms: congenital dysfunction of the adrenal cortex, congenital virilizing hyperplasia of the adrenal cortex.
- Adrenogenital disorders are a group of pathological processes associated with genetic defects of steroidogenesis enzymes leading to hyperplasia of the adrenal cortex.
- The following clinical forms are distinguished:
  - Viril,
  - Salt-wasting,
  - Hypertonic.

Viril form of AGS

- Viril form in girls:
  - Urogenital sinus,
  - Hypertrophy of the clitoris,
  - Atrophy of the uterus,
  - Atrophy or sclerocystosis of the ovaries.
- Viril form in boys:
  - Macropenis,
  - Atrophy of spermatogenic epithelium,
  - Hyperplasia of Leydig cells,
  - Leydigoma.

Salt-wasting form of AGS

- Clinically manifested by nausea, vomiting, dehydration of the body.
- In the kidneys, hyperplasia of the cells of the juxtamedullary apparatus and expansion of mesangium of the renal glomeruli are detected.
- This form is due to a deficiency of cortisol and aldosterone.

Hypertonic form of AGS

- Due to the excess of deoxycorticosterone.
- It is characterized by the symptoms of virilization of the body and the rise in blood pressure, which gradually ends with the morphological changes characteristic of hypertension:
  - Hyalinosis and arteriolar sclerosis,
  - Hypertrophy of the myocardium,
- With this form, the adrenal glands are enlarged, their mass can reach 60 - 80 g.
- Microscopically there is an increase in the cells of the reticular zone.

Insufficiency of the adrenal cortex

- Classification:
- By the mechanism of development:
  - Primary - primary adrenal lesion,
  - Secondary - secondary adrenal lesion in disorders in the hypothalamic-pituitary system,
  - Tertiary - relative deficiency of cortical hormones in the disturbances of their transport and reception.
- Clinical course:
  - Acute adrenocortical insufficiency,
  - Chronic adrenocortical insufficiency.

Acute insufficiency of the adrenal cortex

- Etiology:
  - Birth trauma,
  - Infectious-toxic shock (Waterhouse-Frideriksen syndrome),
  - Removal of one of the adrenals during atrophy, hypoplasia of another,
  - Acute intoxication (including alcoholic),
  - Extreme stress (heavy operations),
  - Acute hypothalamic-pituitary insufficiency,
  - Decompensation of chronic insufficiency of the adrenal cortex.

Acute insufficiency of the adrenal cortex

- Adrenal glands:
  - Necrosis,
  - Hemorrhages (especially with Waterhouse-Frideriksen syndrome),
  - Atrophy,
  - Hypo- and aplasia (rarely).
- Other organs:
  - Changes fit into the morphology of shock ("shock kidney", "shock lung", "shock liver").

Chronic insufficiency of the adrenal cortex

- Classification:
  - Primary (Addison's disease),
  - Secondary (adrenal damage due to disturbances in HPS and decrease in ACTH secretion).
- Etiology of primary chronic cortical insufficiency:
  - Autoimmune adrenal injury,
  - Primary adrenal tumors,
  - Cancer metastases (especially lung cancer),
  - Infectious processes (tuberculosis, syphilis, etc.).

Chronic insufficiency of the adrenal cortex

- Adrenal glands:
  - Autoimmune inflammation,
  - Atrophy of the parenchyma,
  - Sclerosis of the stroma,
  - Changes corresponding to the cause.
- Other organs:
  - Atrophy and dystrophy of the parenchyma and sclerosis of the stroma of various organs (heart, liver, kidneys, muscles),
  - Expansion of lumen and sclerosis of the walls of small and medium-sized vessels,
  - Autoimmune inflammation in the digestive tract, thyroid gland.

Tumors of the adrenal cortex

- Histologically, the following types of tumors of the adrenal cortex are distinguished:
  - Clear cell adenoma,
  - Dark cell adenoma,
  - Mixed cell adenoma,
  - Adrenocortical cancer.

Clear cell adenoma

- The clear cell adenoma of the adrenal gland (aldosterome) is often single, sometimes bilateral.
- As a rule, it occurs in people aged 30 - 40 years and more often in women.
- Macroscopically, the tumor is a node of light yellow color, of a soft consistency.
- Histologically, the tumor is constructed from large cells, polygonal, with a light cytoplasm (contains lipids), which more closely resemble cells of the fascicle rather than the glomerulus zone (normally secreting aldosterone).
- The predominant clinical sign is hyperaldosteronism syndrome (Conn’s syndrome).

Dark cell adenoma

- Dark-celled adenoma consists of small cells with an eosinophilic compact or granular cytoplasm containing different amounts of lipofuscin and siderophilic granules.
- Clinically, this variant of adenoma is more often manifested by androgenic (virilism) effect (androsteroma).

Mixed cell adenoma

- Mixed cell adenoma (corticosteroma) - consists of a different number of light and dark cells.
- Clinically manifested by Cushing's syndrome.

Adrenocortical cancer

- Macroscopically it is a node, often of large size, sometimes it can have a distinct capsule with infiltrating growth sites.
- Microscopically, some cancers are constructed from light cells, others are represented by both light and dark cells, which are grouped into small and large cells with marked cellular atypism.
- Typical are giant cells with one or more ugly nuclei.
- Metastatic adrenal glands are predominantly hematogenous to the lungs, prone to germination into the veins.
- Because the tumor is hormonally active, it is usually clinically accompanied by signs of virilization or other symptoms of hyperadrenalism.

Pheochromocytoma

- Pheochromocytoma of the adrenal glands is a benign tumor from the chromaffin tissue of adrenal medulla.
- Hormonal-active tumor, the cells of which secrete a large number of catecholamines, causing an increase in blood pressure.

Morphology of pheochromocytoma

- Microscopically isolated trabecular and alveolar tumor variants.
- Trabecular variant of the tumor is represented by trabeculae from large polygonal cells, the cytoplasm of which contains a large number of brownish-eosinophil granules.
- In the alveolar variant, the tumor consists of alveoli, constructed from large cells with vacuolated cytoplasm, in which granules of catecholamines are detected.

Syndromes of MEN

- Syndromes of multiple endocrine neoplasia (MEN) are a group of inherited diseases characterized by concomitant tumors of the endocrine system (apodoma).
- Type I – Vermeer's syndrome:
  - Solitary adenomas of the parathyroid glands,
  - Multiple tumors from the cells of the islets of Langerhans (more often gastrinomas),
  - Hyperplasia or adenomas of the pituitary gland (more often prolactinoma).
- Type II A – Sipple's syndrome:
  - Medullary thyroid cancer,
  - Pheochromocytoma,
  - Diffuse hyperplasia of parathyroid glands.

Syndromes of MEN

- Type II B - Gorlin's syndrome:
  - Medullary thyroid cancer,
  - Pheochromocytoma,
  - Multiple neurinomas of the mucous membranes (especially in the digestive tract),
  - Pathology of the musculoskeletal system (arachnodactyly, kyphosis, etc.),
  - Neuropathy ("horse foot"), .
- Type III ("cross syndrome"):
  - Mixed forms.

Skin pathology

- Macroscopic changes in dermatological diseases are represented by various combinations of typical elements of damage to integumentary tissues.

Typical elements

- The following typical elements of damage to integumentary tissues (skin, mucous membranes) are distinguished:
- Primary - appear on apparently unchanged covers, divided into:
  - Exudative,
  - Productive.
- Secondary - arise by transforming primary elements.

Primary exudative elements

- Vesicle,
- Bulla,
- Pustule,
- Blister.

Vesicula

- Vesicula (synonym: vesicle) is a small cavity in the prickly layer with serous or hemorrhagic exudate.
- A large number of vesicles – eczema.

Bulla

- Bulla (synonym: bubble) - large (more than 1 cm) intra- or subepithelial cavity element with serous or hemorrhagic contents.

Pustula

- Pustula is a small cavitary element with purulent exudate.
- Pustules are called pustules in the skin and visible mucous membranes and apostems in internal organs.
- To denote a large number of pustules, the terms "pustulosis" and "apostematosis" are used.
- There are two special variants of pustules:
  - Fliktena is a flat pustule with a flabby cover and a corolla of hyperemia,
  - Ecthima is a deep pustule in the skin that forms ulcers after dissection, healing with a scar.

Blister

- Blister (Urtica, synonym: urticarium element) is a malignant formation due to an acute limited edema of the papillary layer of the skin or an intrinsic plate of the mucous membrane.
- Flat elevation of 0.2 to 2 cm in size.
- Typical urticar elements - with nettle skin burn (Latin urtica - nettle).

Primary productive elements

- Spot,
- Papula,
- Tubercle,
- Nodule.

Spot

- Spot (synonym: macula) is a focal color change of the cover that does not rise above the surface of a different shape.
- Types of spots:
  - inflammatory,
  - hemorrhagic,
  - pigmented,
  - artifitial.

Inflammatory spot

- Arise because of the fullness of the vessels under the influence of inflammatory mediators, have a red color.
- There are the following types:
  - roseola - shallow, 1.5 - 10 mm, with clear contours;
  - erythema - large, more than 10 mm;
  - erythroderma - hyperemia of the skin cover.

Hemorrhagic spot

- Hemorrhagic spots - hemorrhages.
- Spot hemorrhagic spots - petechiae or ecchymosis, with mechanical influence - suffusion (bruise).
- Merge petechiae - hemorrhagic purpura.

Pigmented spot

- Pigmented spots occur with:
  - focal hyperproduction of melanin,
  - intoxication with lead salts, bismuth, mercury.

Artifitial spot

- Artifitial spots - tattoos

Papula

- Papula (synonym: nodule) is a shallow, inferior element (3 - 4 mm), rising above the surface, of a different shape, of a different color.
- Fused papules form plaques

The tubercle

- The tubercle (Tuberculum) is an inferior formation, not necessarily uplifting, 0.5 to 0.7 cm in size.
- Examples are specific granulomas in tuberculosis and syphilis.

Nodus

- Nodus (synonym: nodus) - large amelioration, may be deep in the skin and underlying tissues, in internal organs.
- May be the result of tumor tissue proliferation.

Secondary typical elements

- Secondary spot,
- Erosion,
- Aphtha,
- Ulcer,
- Crust,
- Leachage,
- Scar,
- Squama,
- Fissura,
- Excoriation,
- Scratch

Secondary macula

- Secondary macula (Macula secundaria) - first of all, the centers of pigmentation and depigmentation.
- Pigmentation centers - lentigo.
- Foci of depigmentation - vitiligo.

Erosion

- Erosion (Erosio) is a superficial epithelial defect that heals without scarring.

Aphtha

- Aphtha - erosion or ulcer on the oral mucosa is of regular round or oval shape, 0.3-0.5 mm, with a rim of hyperemia and a bottom covered with fibrinous coating (white or yellow).

Ulcus

- Ulcus - a deep defect of the mucous membrane with underlying tissues, has a bottom and edges, heals with a scar

Crusta

- Crusta - dried up exudate of vesicles, pustules, cracks, ulcers.
- Color of crusts depends on the nature of the exudate (serous, purulent, hemorrhagic).

Lichenisation

- Lichenisation, or lichenification (Lichenisatio, lichenificatio) - focal thickening and compaction of integumentary tissues.
- As a rule, it occurs when the papules merge.
- Lichenization of the skin is clinically characterized by an increase in the pattern of rhombic fields.

Cicatrix

- Cicatrix - replacement of connective (scar) tissue defects.
- There are the following types of scars:
  - Atrophic,
  - Hypertrophic,
  - Keloid.

Atrophic cicatrix

- Occurs when a partial involution of coarse-fibrous tissue.
- The surface of the skin or mucous membrane is sagging.
- It is necessary to differentiate the concepts of atrophic scar and cicatricial atrophy.
- Cicatricial atrophy - tissue atrophy around the scar, especially the epidermis and appendages of the skin, the epithelium of the mucosa

Hypertrophic cicatrix

- Excessive formation of connective tissue without signs of her hyalinosis.
- A hypertrophic scar appears above the surface.

Keloid

- The keloid scar (keloid) externally resembles a hypertrophic scar, but is formed by a hyalineized fibrous connective tissue, which makes the consistency very dense.

Scale

- Scale (Squama) - a visible rejection of horny masses of the epidermis.
- The process of formation of scales is called “desquamation".
- Branny, small and large-plate desquamation are distinguishable.
- Color of squamae is brilliantly white, gray, brownish yellow

Fissura

- Fissura is a linear defect in the inflammatory altered skin or red border of the lips within the epithelium alone or with the inclusion of a propria of the mucous membrane.
- It looks like a wedge, the top of which is turned into the depths of tissues.

Excoriation

- Excoriation (Excoriatio, synonym: combs) - a kind of erosion of traumatic genesis (scratching of the skin or red lip rim on the background of itching).

Scratch

- Scratch is a surface defect caused by mechanical damage.
- Scratch is a kind of erosion.

Skin pathology

- Microscopic changes in dermatological diseases are:
  - Violations of keratinization,
  - Acanthosis,
  - Acantholysis,
  - Papillomatosis,
  - Spongiosis,
  - Exocytosis,
  - Vacuolization,
  - Lentigiosis.

Violation of keratinization

- Presented by the following options:
  - hyperkeratosis - excessive thickening of the stratum corneum of the epidermis;
  - parakeratosis - a kind of keratinization, in which cells in the stratum corneum retain cells with nuclei, and the granular layer of the epidermis is absent;
  - dyskeratosis - pathological keratinization of individual cells of the spiny layer and individual cells below it.

Other changes

- Acanthosis - epidermal hyperplasia with lengthening of intergrowth outgrowths.
- Acantholysis - loss of intercellular bonds due to destruction of the connections between keratinocytes.
- Papillomatosis - a term designating either hyperplasia of the epidermis with the formation of exophytic papillae and acanthosis, or the presence of multiple papillomas

Other changes

- Exocytosis - in dermatology means infiltration of the epidermis by cells of an inflammatory infiltrate or elements of blood.
- Vacuolization - the formation of vacuoles in or adjacent to cells, mainly in the basal layer of the epidermis.
- Lentigiosis - linear proliferation of melanocytes within the basal layer of the epidermis.

Organ-specific skin tumors

- Tumors of the skin are numerous and arise both from the epidermis and from the appendages of the skin: sweat, sebaceous glands, glands of hair follicles.
- The most common are benign tumors.
- The most important of them are:
  - syringoadenoma,
  - hydratenoma,
  - trichoepielioma.

Organ-specific skin tumors

- Syringoadenoma. Benign tumor from the epithelium of ducts of sweat glands. Isolate papillary (the formation of papillae covered with a two-layered epithelium) and tubular (the formation of randomly arranged tubules lined with a two-layered epithelium) forms.
- Hydratenoma. Tumor from secretory epithelium of sweat glands with papillary outgrowth of epithelium.
- Trichoepithelioma. A tumor from the hair follicles or their embryonic elements. Characterized by incorrectly developed hair follicles and flat-epithelial cysts, filled with horny substance.

Precancerous skin conditions

- Actinic keratosis,
- Cutaneous horn,
- Bowen's disease,
- Erythroplasia of Queyrat

Actinic keratosis

- Photochemical skin lesions by solar radiation are especially common in people with fair skin.
- Skin lesions are less than 1 cm in diameter. Their color varies from reddish-brown to red or corpulent, and the consistency is very rough (like sandpaper).
- Open areas of skin are often affected.
- With actinic keratosis, cellular atypia is noted mainly in the lower layers of the epidermis. It can be associated with hyperplasia of the basal layer cells, or, conversely, with early atrophy, leading to a diffuse decrease in the thickness of the epidermis in the neoplasm.

Cutaneous horn

- Cutaneous horn (acrochordon, horny keratoma) is a squamous benign skin tumor in the form of a conical or linear dark formation consisting of dense horny masses.
- It often occurs in open areas of the body.
- Microscopically, at the base of the horny masses, acanthotic overgrowth of the epidermis is expressed, and in the underlying dermis there is a thick lymphohistiocytic infiltrate.

Bowen's disease

- Characterized by the fact that the changes are localized everywhere, more often on the skin of the genital organs, eyelids and trunk.
- It is regarded as intraepithelial (intraepidermal) squamous cell carcinoma (carcinoma in situ) and is clearly limited red scaly plaques, possibly their ulceration.
- Microscopically characterized by hyper- and parakeratosis, acanthosis, there are multinucleated giant cells, large ovoid cells (paedzhetes), atypical mitoses. Intercellular bridges persist. In the underlying dermis, a pronounced lymphohistiocyte infiltrate.
- With prolonged existence, invasive growth is possible with the development of malodifferentiated epidermoid cancer.

Erythroplasia of Queyrat

- It is considered as intraepithelial cancer.
- Microscopically characteristic thinning of the granular and horny layers of the epidermis, the presence of deeply penetrating into the tissue areas of acanthosis, represented by polymorphic cells with a small number of mitoses.
- Around the areas of acanthosis there is abundant lymphoplasmocytic infiltration against the background of a sharp expansion of the vessels.

Basal cell skin cancer

- Basal cell carcinoma (basiloma) is the most common skin tumor.
- Has a strong infiltrating growth, often recurs, but as a rule, does not give metastases, so it is more appropriate to refer it to a group of tumors with local-destroying growth.
- Basically, it appears in those places that are constantly exposed to sunlight (face and neck), it is multiple.
- The same frequency occurs in people of both sexes, mainly in old age.
- The incidence of basal cell carcinoma of the skin increases dramatically in those with reduced immunity (eg, after immunosuppressive therapy) and in the presence of defects in DNA repair

Basal cell skin cancer

- The neoplasm is represented by a plaque with a pearly hue, sometimes pigmented.
- The tumor can ulcerate with the formation of a large deep ulcer (ulcus rodens - an ulcer with superficial erosion).
- Microscopically characteristic polymorphic strands and complexes of small intensely colored cells resembling cells of the basal layer of the epidermis, along the periphery of the strand are prismatic, in the thickness of it - a polygonal shape.
- In typical cases, the phenomenon of "accumulation" is observed; The strings of tumor cells "slip" from the basal layers of the epithelium, like drops, penetrating the dermis.

Squamous skin cancer

- In the elderly, squamous cell carcinoma is the most common tumor among those that occur on exposed areas of the skin.
- This neoplasm is more common in men.
- In addition to solar radiation, factors predisposing to malignancy are:
  - industrial carcinogenic substances (contained in resins and oils);
  - chronic skin ulcers;
  - draining osteomyelitis with cutaneous fistula;
  - scars after burns;
  - skin absorption of arsenic compounds;
  - exposure to ionizing radiation.

Squamous skin cancer

- The commonly recognized exogenous cause of squamous cell carcinoma of the skin is the exposure of the ultraviolet portion of solar radiation to keratinocytes with damage to their DNA.
- Sunlight, apparently, also has a direct immunosuppressive effect on the skin, disrupts the normal control function of Langerhans antigen-presenting process cells.
- DNA sequences of certain viruses (eg HPV36 human papillomavirus) have recently been found in DNA extracted from potential squamous cell precursor cells.
- In this way, chronic viral infection can contribute to the onset of skin tumors.

Squamous skin cancer

- Histologically, squamous cell carcinoma is characterized by atypical polymorphic epithelium, with intercellular bridges retained.
- Excrete cancer with keratinization or without keratinization, spindle cell carcinoma, and a clear cell type of adenoid cancer (with structures resembling glands).
- Only about 5% of cases of invasive skin cancer are accompanied by metastases to regional lymph nodes.
- With progression, squamous cell carcinoma of the skin metastasizes with lymphogenous and hematogenous pathways.