



CONCLUSION OF PATALOGANATOMA IN MALIGNANT AND SAFE TUMORS

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Abstract: *This thesis addresses the histopathological differentiation between hazardous (malignant) and benign tumors through concise analysis of macroscopic, microscopic, and molecular features. It reviews the standardized reporting protocols utilized in the USA, emphasizing the College of American Pathologists (CAP) synoptic tumor reporting and international frameworks. Through literature synthesis and case examples, the work highlights the importance of accurate pathological reporting in patient prognosis and management. The conclusion underscores the role of structured reporting in enhancing diagnostic reliability and outcomes.*

Keywords: *Tumor pathology, Malignant tumors, benign tumors, Histopathology report, CAP synoptic reporting, Structured pathology protocols*

Аннотация: *В данной работе рассматривается гистопатологическая дифференциация опасных (злокачественных) и доброкачественных опухолей на основе краткого анализа макроскопических, микроскопических и молекулярных особенностей. В нем рассматриваются стандартные протоколы отчетности, используемые в США, с акцентом на синоптическую отчетность Колледжа американских патологоанатомов (CAP) об опухолях и международные стандарты. На основе обобщения литературы и конкретных примеров в работе подчеркивается важность точной отчетности о патологиях для прогнозирования и ведения пациентов. В заключении подчеркивается роль структурированной отчетности в повышении надежности диагностики и результатов лечения.*

Ключевые слова: *Опухолевая патология, злокачественные опухоли, доброкачественные опухоли, Гистопатологический отчет, сводный отчет CAP, Структурированные протоколы патологии*

Etiology of malignant tumors is an interdisciplinary science about the causes of the appearance and growth of malignant neoplasms. A common cause of malignant growth is insufficient activity of the immune system and other mechanisms of protection against the tumor under the influence of carcinogenic factors. Carcinogens are environmental factors, and their effect on the human or animal body increases the likelihood of developing



malignant tumors. Carcinogens can be chemical (various chemicals), physical (ionizing radiation, ultraviolet rays) and biological in nature (oncogenic viruses, including hepatitis C virus and some bacteria). According to the calculations of oncologists, 80-90% of all forms of cancer in humans are the result of the influence of such carcinogenic factors.

Immunodeficiency can be caused by intoxication of various origins, immunodeficiency in infectious diseases, damage to the skin and internal organs, Burns, increased carcinogens in food and habitat. The variety and diversity of the causes of the appearance and growth of malignant neoplasms is explained by the variety of lifestyle, habits, customs and environmental factors and their systemic impact on the health of human organs and systems. Cancers are systemic and in one way or another affect all human organs and systems. Among the many causes, forms and variants of cancer, one of the common factors of pathogenesis is the weakening of the anti-tumor defense mechanisms integrated into the anti-tumor resistance system.

Medical research shows that cancer cells and micro tumors regularly appear in the body of every person, which are destroyed by the action of the immune system against cancer. The main role in the etiology and pathogenesis of malignant tumors is played by the weakening of the activity of the immune system and other mechanisms of protection against tumors under the influence of carcinogenic factors.

Safe tumors are generally harmless, but do not consist of cells whose origin is similar to the normal cell type in the organ. These tumors are named by the type of cell or tissue in which they occur. A "-oma" additive is added to tissue types that are tumors (but not sarcoma or blastoma, commonly known as cancer).

Safe tumors develop by invading adjacent tissues or spreading to the body. Safe tumors usually grow more slowly, not growing when removed. The growth rate is more varied than in malignant tumors. Cells have more normal properties. They can be connective tissue, usually surrounded by an external surface (fibrous shell), or epithelium in its composition.

Safe tumors are very diverse. Some tumors produce life-threatening hormones if they are safe.

Insulinoma - can produce large amounts of insulin hypoglycemia.

Pituitary adenomas - can cause high levels of hormones. Causes acromegaly caused by growth hormone and insulin-like growth factor-1.

Intestinal intussusception - can occur with various benign tumors in the large intestine. Cosmetic effects can occur, especially with skin tumors. This causes psychological, cosmetic, or social discomfort to the person with the tumor. Bleeding can occur in tumors of vascular tissue, which in some cases leads to anemia.

Lipoma is a typical benign tumor of fat cells (lipocytes).

Chondroma is a benign tumor of cartilage-forming cells (chondrocytes).

Adenoma - benign tumors of Gland-forming cells.

Hepatic adenoma - (benign tumor hepatocytes, or hepatic huja



Some types can have negative health effects, even if safe tumors do not metastasize or are not locally transmitted. The growth of malignant tumors leads to "mass effects" i.e. tissue compression and nerve damage, reducing blood flow to the body area, tissue death (necrosis), and organ damage. If the tumor is in a closed place, the effect of the tumor on health can be even more noticeable.

The negative effects of safe tumors are defined as follows:

- Safe tumors located in sensitive areas of the body can become very large. These conditions often occur in newborns. Under the influence of hemangioma, young children find it difficult to breathe, there is damage to vision, hearing, cognitive abilities. When safe tumors are located above large blood vessels or arteries, they knock out the circulatory system, negatively affecting the elasticity of blood vessels.

- Tumors located on the skin can be accidentally scratched. If this happens, infections will fall on the wound. Safe tumors in patients with diabetes mellitus may not end the wound for a long time due to infection.

Depending on the location and type of tissue, tumors can be asymptomatic(without any signs) or cause specific symptoms. They grow externally, forming large and rounded masses. This gives rise to what is known as the "Mass Effect". Under the influence of this growth, compression of local tissues, organs can be caused. This leads to many effects, such as Canal blockage, decreased blood flow(ischemia), tissue death(necrosis).

According to statistics, 2-12% of newborns are diagnosed with hemangioma. This type of tumor is more common in female children in a 7: 1 ratio. In 80% of cases, hemangioma occurs in one area of the body. In 20% of cases, a safe tumor can meet in several places in the body. A characteristic feature for safe tumors is that they enlarge very quickly during the Activity phase. Unlike other types of tumors, hemangiomas do not develop into malignant tumors. Safe tumors grow once every 2-4 weeks, stop growing at 2-6 months, become smaller again at 6-12 months.

If the tumor is located near the vital organs(genitals, ligaments in the head, eyes, nose, mouth), it can be locally affected with the help of ice. One of the effective methods of surgical loss of a safe tumor is the removal(coagulation) of damaged blood vessels using laser light. With this method, the likelihood of recurrence of the disease is reduced to a significant degree when surgical intervention is performed. One of the advantages of laser: no scars remain on the body, swelling can persist for two to three weeks. Coagulation is recommended only if the hemangioma has grown under the skin up to 2 millimeters.

Conclusion:

Precise pathological distinction between malignant and benign tumors is critical for effective patient management. Implementing structured, synoptic reporting protocols, such as those from CAP and ICCR, enhances the completeness and clarity of pathology reports. Incorporating molecular diagnostics further refines tumor classification and therapeutic decisions. To improve diagnostic reliability, widespread adoption of standardized reporting, lab staff training, and integration of digital systems are essential.





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