

Morphological Characteristics of Tumors of the Outer Ear

G. U. Lutfullaev, N. I. Safarova, Khamraev F. Kh, Rakhimov F. F, Yakheev I. T
Samarkand State Medical University

ABSTRACT

The article is devoted to the morphological picture of tumors of the outer ear. It was found that benign tumors predominate in the structure of tumors of the outer ear, which are most often found at the age of 30 years and are localized in the cartilaginous part of the external auditory canal and external ear. The main part consisted of keloids, glomus angiomas and lipomas. An important role in the diagnosis of tumors at the present stage is played by morphological methods, in particular, histological examination. It is noted that their timely use will contribute to effective prevention of benign tumors of the external ear.

KEYWORDS: *tumors of the outer ear, keloid, glomus angioma, lipoma, diagnosis, morphological picture.*

Relevance. Currently, the number of patients with ear tumors over the past 15-20 years has been gradually and steadily increasing. Such localization of neoplasms, in comparison with other initial localizations within the ENT organs, has not been fully studied, despite the fact that over the past decades, interest in ear neoplasms, mainly from otorhinolaryngologists, has increased (Antoniv V.F., 2018; Vernent J.L. et al., 2013) [2, 12].

Speaking of ENT oncology, they mean exclusively malignant tumors, forgetting about benign neoplasms, which are almost 10 times more common than malignant ones. Many of the benign tumors clinically behave like malignant ones, having destructive growths and a tendency to frequent relapses [1, 3, 9].

At the same time, over the past 15–20 years, there has been a noticeable increase in the incidence of neoplasms in this area, which lead to the development of complications, even hearing loss [4,7]. Statistical data on neoplasms of this localization relate mainly to malignant tumors. Benign tumors are much more common, they are more diverse both in localization and histological structure, but less or almost not studied, with the exception of only a few of them [5,8,11].

To a lesser extent than benign tumors, tumor-like formations, precancerous conditions and processes have been studied. Regarding the auricle, these processes and conditions are to some extent similar to those in skin lesions. Such formations include cysts, fistulas, post-traumatic cysts and scars after mechanical, chemical and thermal injuries, non-congenital and acquired senile hyperkeratosis, obliterating nertosis, chronic nodular chondrodermatitis, atheroma, histocytosis (eosinophilic granuloma), cutaneous horn [6,10].

Therefore, the timely detection of tumor-like formations and benign tumors of the outer ear and their no less early removal should be regarded as the preservation or restoration of the functional state of the ear, and as an effective fight against the possibility of a malignant tumor, which determined the relevance of the problem we are studying.

The purpose of the study is to study the morphological structure of tumors of the outer ear.

Material and research methods. As a material, biopsies taken from patients who were hospitalized in the ENT department of the base of the clinic of the Samarkand State Medical University in the

<https://cejsr.academicjournal.io>

period from 2019 to 2022 were studied. In particular, the case histories of 12 (57%) patients (archival material) were studied, and 9 (43%) patients were examined and treated with our direct participation. For many years, the ENT department of the clinic of the Samarkand State Medical University has been a well-known center for the treatment of tumors of the ENT organs, especially ear tumors.

We used mainly traditional research methods in otiatry (otoscopy, radiography, computed tomography and histological examination), while examining patients with benign ear tumors, microscopy and computed tomography were also used. Microscopic examination was performed after routine otoscopy and careful history taking.

Results of the study and their discussion. The data obtained indicate that benign tumors are more common, slightly less patients with tumors of the parotid gland. Since benign tumors of the external ear and parotid glands, despite the fact that they occur 6-10 times more often than malignant ones, and in terms of clinical course, the difficulties of diagnosis and treatment are not inferior to malignant ones, we decided to focus our attention on the study of tumor-like formations and benign tumors.

The distribution of patients depending on the type of neoplasm is presented in Table No. 1.

Table No. 1

Neoplasm	Number of patients	%
Keloid	5	23,8
Atheroma	3	14,2
Adenoma of the parotid gland	1	4,7
Cyst	1	4,7
Squamous papilloma	1	4,7
Lipoma	3	14,20
Hemangioma	4	19,0
Osteoma	3	14,02
Total:	21	100%

As can be seen from the table, among our patients with keloid - 5 (23.8%), with hemangioma - 4 (19.0%), with atheroma - 3 (14.2%), with lipoma - 3 (14.2%) and with stroma - 3 (14.2%), the smallest number of tumors is occupied by a cyst - 1 (4.7%), with adenoma - 1 (4.7%) and a polyp - 1 (4.7%).

The majority of 10 (47.6%) patients are found in the age group of 21-30 years, 4 (19%) patients are 11-20 years old, 3 (14%) patients are 50 years and older. The smallest number of patients were in the age group 0-10 two patients (9.5%) and 1 (4.7%) patient in the age group 41-50 years.

Glomus tumor is usually localized in the tympanic cavity, in the external auditory canal. Despite the fact that, according to morphological features, this tumor does not belong to malignant formations, when it spreads, it can pose a significant danger to neighboring vital organs. This danger is due to the pressure of the tumor on the surrounding tissues and their resorption as a result of the action of toxic substances that are released by its surface.

Glomus tumor of the ear is manifested by pulsating noise in one ear, progressive unilateral hearing loss. When germinating into the inner ear, vestibular crises appear. Objectively, there are signs of the presence of a vascular tumor in the tympanic cavity, which is visible through the tympanic membrane in the form of a reddish-pink or cyanotic formation.

The angioma-like type is distinguished by the predominant development of the vascular component of the tumor, which makes it look like a capillary angioma. There are relatively few glomus elements, they are found in rare small groups, sometimes separated by connective tissue layers,

<https://cejsr.academicjournal.io>

however, they are also located in close proximity to the endothelium of capillaries and sinusoids. This type is the most difficult to diagnose, since there are few glomus cells, and the general structure of the neoplasm mimics a vascular tumor (Fig. 1).

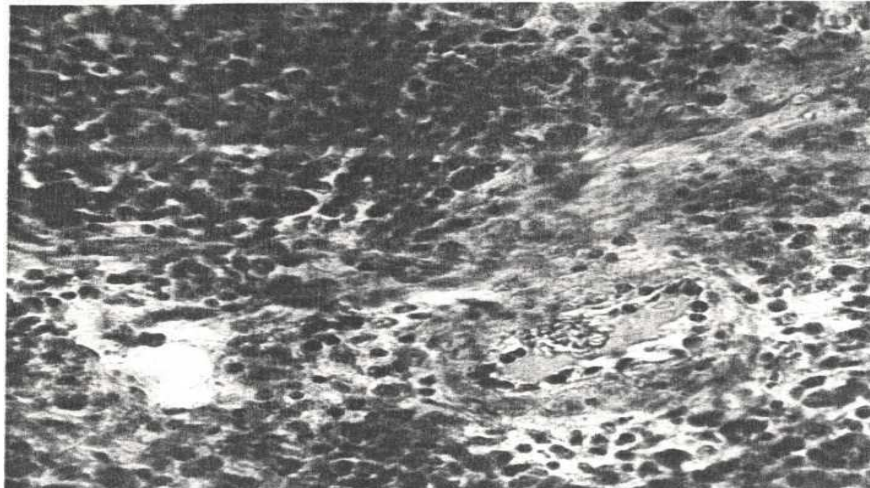


Figure. 1. Glomus angioma, consisting of slit-like vessels lined with endothelium and surrounded by clutches of epithelial cells. Stained by the Van Gieson method. 06.40, ok. 7. (Magnification up to 200 times).

Further development of the tumor leads to the destruction of the tympanic membrane and the exit of the tumor into the external auditory canal. Here, the tumor is defined as a red-cyanotic mass that bleeds easily when touched with a bellied probe.

Keloid - excessive formation of mature scar tissue at the site of injury with spread beyond the traumatic injury (distinguishes keloid from hypertrophic scar). Met more often in women, especially after injuries, burns, tattoos. The favorite localization of keloid is the earlobe (in connection with piercing). It occurs weeks and months after the healing of a traumatic injury. Keloid of the external ear is usually in the form of a small-nodular seal on the site of a smooth surface of the scar. The nodes go deep into the dermis and protrude above the skin surface in the form of dense reddish formations covered with non-displaceable skin with atrophic epithelium. Keloid often recurs. Under the microscope, a nodular proliferation of fibrous tissue is determined with the presence of thick hyalinized collagen fibers (Fig. 2), collected in bundles with a random weave, sometimes a concentric nodular configuration. On the periphery of the keloid, the formation of vessels and the proliferation of young fibroblasts are noted, providing an increase in its size. The central part of the keloid contains fewer fibroblasts. On the border with healthy tissue, lymphoplasmacytic infiltration is observed. Keloid should be differentiated from dense fibroma and hypertrophic scar.



<https://cejsr.academicjournal.io>

Figure. 2. Keloid. Sclerosis of the connective tissue is pronounced, collagen fibers are thick, necrotic, fuchsinophilic and lie close to each other. Stained with hemotoxylin and eosin. (Magnification up to 200 times) 06.40, approx. 7.

The morphological structure of tumors of the outer ear is diverse. Basically, basal cell and squamous cells predominate, glandular is less common. The frequency of observations of basal-cellular in the external auditory canal is 2-3 times less than that of squamous. The squamous cell tumor with varying degrees of keratinization predominates.

The site of the tumor of the external auditory canal can be any of its walls. The predominant development of the process in the area of the cartilaginous section of the external auditory canal on the lower and rear walls was revealed. The tumor can develop on the scars. The timing of its manifestation is different and can be from 3 to 70 years.

The localization of metastases depends on the anatomical and topographic features of the ear, on the direction of the lymphatic flow along the developed network of lymphatic vessels. Metastases are most often found in the behind-the-ear and submandibular lymph nodes. With the progression of the tumor process, metastases are determined in the deep cervical lymph nodes. Bilateral metastases are practically not observed.

Neoplasms of the outer ear within a short period of time spread to the middle ear, mastoid process, parotid salivary gland, temporomandibular joint, skull bones.

It is extremely difficult to establish the correct diagnosis of a tumor of the external auditory canal. Most of the patients were admitted to the hospital with stage III-IV tumor process. By the time of morphological verification of the diagnosis, in more than 60% of patients the tumor extends beyond the ear.

Microscopically lined with keratinized stratified squamous epithelium. The stroma is well expressed, consists of blood, lymphatic vessels, and loose connective tissue (Fig. 3). Squamous papilloma occurs on the auricle at the entrance to the external auditory canal. Sometimes it is multiple and combined with papillomas of neighboring areas, which serves as an indication of the viral nature of the disease. The histological structure of squamous papilloma is identical to that of a similar skin lesion.

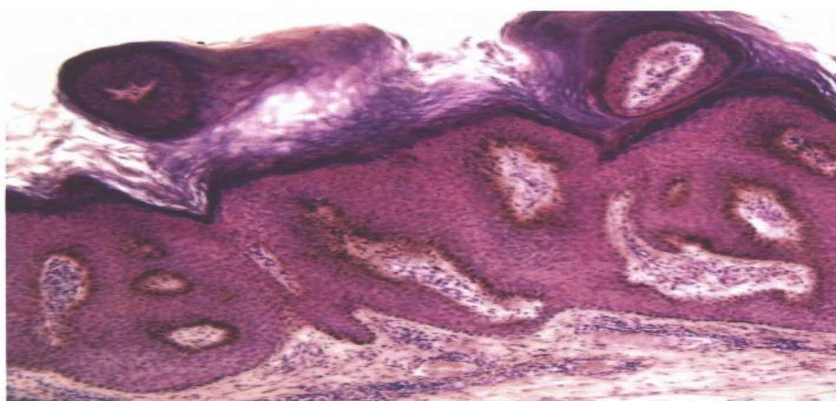


Fig.3. Squamous papilloma. Hemotoxylin-eosin staining method. (Magnification up to 200 times) 06.40, approx. 7.

Lipoma is a benign connective tissue tumor; develops in the layer of subcutaneous connective loose tissue and can penetrate deep between the muscles and vascular bundles to the periosteum. Tumors

<https://cejsr.academicjournal.io>

of soft consistency, completely painless and easily mobile. Grows slowly. Lipoma is more common in places poor in adipose tissue.

Macroscopically, a lipoma is a soft yellow nodule, usually of a lobular structure, in which ordinary fat is separated by fibrous layers and sometimes has a thin capsule on the outside. Superficial (skin) lipoma is multiple. Deep-type lipoma, represented by ordinary adipose tissue (Figure 4), in which multilocular cells occur between unilocular adipocytes. Lipocytes stain positive for neutral lipids. Along with "pure" lipomas, there are also those that, in addition to fat, contain various mesenchymal components that are developed to one degree or another, often positive. They are typified as mesenchymomas or fibrolipomas, spindle cell lipomas, angiolipomas, myelolipomas, angiomyolipomas, chondroa and osteolipomas. It has also been found that lipomas grow not due to excessive deposition of fats in adipocytes, but due to blockage of fat breakdown pathways.

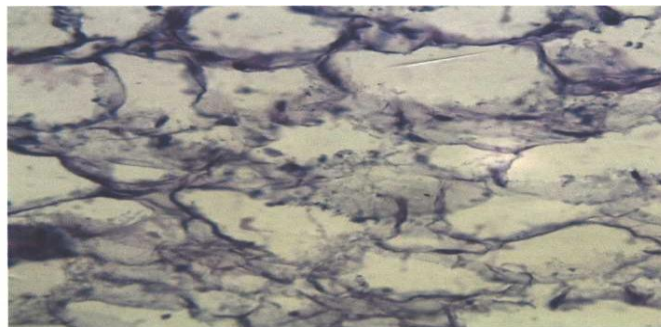


Figure 4. Lipoma, composed of adipose tissue, irregular in shape and unequal in size. Stained with hematoxylin-eosin method. (Magnification up to 400 times) 06.40, approx. 7.

Conclusion. Thus, in the structure of tumors of the external ear, benign ear tumors predominate, which most often occur under the age of 30 years and are localized in the cartilaginous section of the external auditory canal and external ear. Most of them were keloids, glomus angiomas and lipomas. An important role in the diagnosis of tumors at the present stage, along with instrumental methods, is played by morphological methods, in particular, histological examination. Their timely use will contribute to the effective prevention of benign tumors of the outer ear.

Literature.

1. Azizyan R.I. Clinic, diagnosis and treatment of benign tumors of the external ear. Abstract of the dissertation of the candidate of medical sciences. M, - 2008. - 24 p.
2. Antoniv V.F. Clinic and treatment of benign tumors and tumor-like formations of the ear. // Bulletin of otorhinolaryngology. - 2018. - No. 2.- p.47-57.
3. Diab H.M., Bykova V.P., Davudov H.Sh. other. Clinical and morphological characteristics of jugulotympanal paragangliomas // Clinical and experimental morphology. - 2019. - Volume 8. - No. 3. - P.35-40.
4. Levina M.A. Etiopathogenetic aspects of sensorineural hearing loss. Bulletin of Otorhinolaryngology. - 2015. - No. 80 (6). - P.77-81.
5. Lutfullaev U.L., Prokopiv I.M. Clinical classification of vascular tumors of the ENT - organs. // Proceedings of the scientific conference RNOLO - Irkutsk. - M., 2010. - p.34-36.
6. Paltsev M.A., Anichkov N.M. Atlas of pathology of human tumors. Moscow: Medicine, 2005. - P.128-132.
7. Parfenov V. A., Antonenko L. M. Sensorineural hearing loss in neurological practice // Neurology, neuropsychiatry, psychosomatics. -2017. - No. 9 (2). - P.10-14.

<https://cejsr.academicjournal.io>

8. Bergstedt H.F., Lind M.C. Temporal bone scintigraphy diagnostic potential in malignancies of the ear // *Akta Otolaringol.* - 2018 . - Vol. 98. - № 5-6. - P. 465-473.
9. Gerosa M., Visca A., Rizzo P., Foroni R., Nicolato A., Bricolo A. Glomusjugulare tumors: The option of gamma knife radiosurgery. *Neurosurgery.* – 2006. – №59. - P.561–9.
10. Sanna M., Piazza P., Shin S., Flanagan S., Mancini F. Glomusjugulare tumors: Microsurgery of skull base paragangliomas. *Thieme.* - 2013. – 700 p.
11. Stacey E., Mills M.D., Edward B., Stelo M.B.. Tumors of the Upper Aerodigestive Tract and Ear. *AFIP Atlas of Tumor Pathology, Fourth Series, Band 17.* – 2012. - P.544–6.
12. Vernent J.L., Darrouzet V., Portmalm D., Bebear J.P. Benign adenoma of the middle ear // *Rev. Laryngol. Oto . Rhino .* - 2013. - Vol-114. -№ 5. - P. 345- 348..