

## EFFICIENCY OF MALIGNANT EPITHELIAL SKIN TUMORS TREATMENT METHODS

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**Abstract.** The article analyzes the data of 307 patients, who have solitary, primary-multiple synchronous or metachronous tumors. It considers the advantages and disadvantages of the main methods of treatment of malignant epithelial skin tumors, in particular, short-range X-ray, electro-excision, cryotherapy and scalpel excision. The authors compare treatment methods and propose modern recommendations for choosing treatment tactics based on risk groups. The short-range X-ray method is found to be the least effective compared to the other methods of treatment of malignant epithelial skin tumors.

**Keywords:** skin tumors, squamous cell carcinoma, basal, short-distance x-ray, electro-excision, cryotherapy.

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### Introduction

The presence of sternal keratosis on the skin is one of the main risk factors for basal cell and squamous cell carcinomas, which constitute a growing health problem in modern white populations (Frost, 2000).

Today, skin cancer is a major problem in Ukraine. In the structure of cancer population, primary malignant epithelial skin tumors occupy the first place (10.3%) (Spizhenko et al., 2017). This is the most common form of malignant tumors (Perez et al., 1987). According to statistics, the frequency of non-melanoma skin tumors among the population grows annually by 3-8% (Oshivalova et al., 2017). However, the exact number of patients cannot be established due to the lack of a cancer registry in most countries (Karia et al., 2013; Trakatelli et al., 2007).

More often, malignant skin tumors occur in the southern regions of Ukraine. Less commonly they are found in the country's western regions. In Ukraine, the mortality rate during the year from the onset of the skin cancer is relatively low (3.3%), and the coverage of treatment is much higher than in other localizations - (87.5%) (Bolyk et al., 2012).

The frequency of both non-melanoma skin cancer and its predecessors continues to grow. Therefore, adequate training in oncology is important not only for the correct diagnosis, but also for the choice of appropriate therapeutic treatment. Despite the controversy, most authors believe that actinic keratosis is not a precursor to squamous cell carcinoma, but rather an initial stage of the disease and as the one that needs to be treated (*Barrera et al., 2007*).

The main risk factors for skin cancer are hyper-insolation, ultraviolet and ionizing radiation, occupational risks (permanent injury, the impact of oil products, coal, arsenic, organic and inorganic chemical products). Significant place in the skin cancer etiology is occupied by the factors of environmental pollution (polycyclic hydrocarbons, benzopyrene, coal tar resins, etc.) and factors of the internal environment (violation of immunity, involutive processes, violation of endocrine activity) (*Bolyk et al., 2012*).

A significant proportion of non-melanoma skin cancer that is already invasive during a clinical picture requires surgical treatment for complete and safe eradication. However, early treatment can now safely be provided for some superficial, precancerous or cancerous lesions without the need to resort to aggressive treatments (*Barrera et al., 2007*).

In this disease, all existing methods of treatment are used; most often as independent, less often – in the form of combined treatment. Long-term results of the treatment of patients vary considerably. The main method of treatment remains surgical; in addition, methods such as: near-focus X-ray radiation, laser and cryodestruction are used (*Gantsev et al., 2012*). A modern and highly-effective method is photodynamic therapy. Systemic chemotherapy maintains its importance, as well as the new direction – the application of Hedgehog-signaling inhibitors (*Shliakhtunov et al., 2014*).

Standard therapy for various types of melanoma is wide excision. The vertical level of excision depends on the thickness of the tumor. For the treatment of invasive melanoma, wide excision with fields of 3-5 cm was recommended (*Felton et al., 2016; Khayat et al., 2003*). However, in several studies, no significant differences were found in the overall expression or frequency of local relapse in patients who received narrow-cut excision and in patients receiving broad-band excision. Balch et al. estimated the fields at 2 and 4 cm for melanoma 1 to 4mm thick and did not find any significant differences in the overall survival of patients or local relapse (*Balch et al., 1993*).

Given the complexity of the diagnosis, clinical manifestation, the expressed dependence of the results of the treatment of malignant skin tumors from the stage of the disease, it is vital to regulate the methods of their treatment; it is especially important to adhere to the principle of oncological alertness, as well as to ensure close contact between clinicians (dermatologist, oncologist) and pathomorphologists (*Gantsev et al., 2012*).

The purpose of our study was to study the effectiveness of some independent methods of treating epithelial skin tumors, depending on their localization, stage and morphological structure.

### **Material and methods of research**

The area of patient care was Drohobych district, Drohobych, Stebnyk, Truskavets and Boryslav, as well as patients from the areas surrounding Drohobych districts.

In order to solve the task by means of blinded experiment, we studied the remote results of treatment of epithelial skin tumors in 307 patients, of which 254 (82.7%) were identified as solitary tumors, and 53 (17.3%) were primary-multiple synchronous or

metachronous. By gender, there were 128 men (41.6%) and 179 women (58.4%). The average age of patients is 63 years. The term of observation of patients was 5 years.

When choosing a method of treatment we proceeded primarily from the prevalence, tumor localization, taking into account its morphological structure, as well as the expected cosmetic and functional effect.

Short-range X-ray was performed in patients with tumors of stages I and II, which were localized mainly in the area of the head and neck (total dose of irradiation 66 grays). This method of treatment was used most often. Electro-excision was performed in patients with tumors of stage I, which were localized mainly in the area of the head and neck. Cryotherapy (cryodestruction) was rarely used in the treatment of tumors of stage I, which were also localized mainly in the head and neck area, but due to the insufficient number of patients this treatment method was excluded from this research.

The excision of the tumor by scalpel, due to the possibility of formation of coarse colloidal scars, was performed mainly in patients with tumors of I and IIA stages, which were localized on the skin of the trunk and limbs. After extensive incisions (with skin tumors of IIA and IIIA stages), we used different variants of primary skin plastics if necessary.

### Results of the research and their discussion

To evaluate the effectiveness of each of the treatment methods used, we determined the frequency of stable recovery with the same prevalence, localization and morphological structure of the tumor.

In 81.5% of patients, the tumor was localized on the head and neck. Among the neoplasms of this localization, we distinguish commissural forms of facial tumors (7% of observations), when the tumor is localized in the area of the external or internal angle of the eye, the angle of the mouth, or in the area of the nasolabial fold. On the trunk and the limbs the tumor was localized in 18.5% of patients. In 80.5% of patients, I ( $T_1N_0M_0$ ) stage of cancer was established and verified, in 16.5% – IIA ( $T_2N_0M_0$ ) stage, in 3% – IIIA ( $T_3N_0M_0$ ) stage. We found different histological variants of basal cell carcinoma in 75% of patients, squamous cell carcinoma – in 25% of patients.

Long-term results of treatment of primary malignant epithelial skin tumors were evaluated by the number of observations of a sustained recovery (Table 1).

Table 1

#### Long-term results of treatment of primary malignant epithelial skin tumors

Treatment method	Number of observations	Number of observations of a sustained recovery	p, %	p <sub>1</sub> , %	p <sub>2</sub> , %
Short-distance radiotherapy	179	162	87	81	89
Electro-excision	148	143	96	92	97
Scalpel excision	43	41	98	94	99

Note: p is the probability of stable recovery;  
 p<sub>1</sub> is the lower permissible limit of p;  
 p<sub>2</sub> is the upper permissible limit of p.

Table 2

**Probability of a sustained recovery, depending on the localization of the tumor**

Treatment method	Localization of the tumor											
	Head and neck				Trunk and limbs				commissural forms of facial tumors			
	Number of patients	p, %	p <sub>1</sub> , %	p <sub>2</sub> , %	Number of patients	p, %	p <sub>1</sub> , %	p <sub>2</sub> , %	Number of patients	p, %	p <sub>1</sub> , %	p <sub>2</sub> , %
Scalpel excision	16	100	86	100	22	96	88	99	5	100	50	100
Electro-excision	102	97	95	99	17	100	80	100	24	95	80	99
Short-distance radio therapy	136	90	85	95	9	75	60	88	17	75	48	85

Note: p is the probability of stable recovery;  
 p<sub>1</sub> is the lower permissible limit of p;  
 p<sub>2</sub> is the upper permissible limit of p.

In tumors of stage I, sustained recovery was observed in 95.6% of the patients, relapse – in 4.4%. In tumors of IIA stage, sustained recovery was observed in 81.3% of the patients, relapse – in 17.2% of patients, relapse and metastasis – in 1.5% of patients. In tumors of the IIIA stage, sustained recovery was observed in 63.8%, relapse – 28.6%, metastasis – 4.3%, relapse and metastasis – in 3.3% of patients.

At basal cell carcinoma, sustained recovery was observed in 96.2% of the patients, relapse – in 3.8% of patients; in case of squamous cell carcinoma, a sustained recovery was observed in 90.7%, relapse – 7.4%, metastasis – 0.8%, relapse and metastasis – in 1.1% of the patients (Table 3).

Table 3

**Probability of a sustained recovery depending on the stage of cancer**

Treatment method	Stage of cancer											
	I				II				III			
	Number of patients	p, %	p <sub>1</sub> , %	p <sub>2</sub> , %	Number of patients	p, %	p <sub>1</sub> , %	p <sub>2</sub> , %	Number of patients	p, %	p <sub>1</sub> , %	p <sub>2</sub> , %
Scalpel excision	28	100	96	100	12	97	82	99	3	80	51	93
Electro-excision	148	97	93	99	-	-	-	-	-	-	-	-
Short-distance radio therapy	117	92	85	95	45	78	65	85	-	-	-	-

Note: p is the probability of stable recovery;  
 p<sub>1</sub> is the lower permissible limit of p;  
 p<sub>2</sub> is the upper permissible limit of p.

Thus, long-term results in the use of all of our treatment methods depended primarily on the prevalence of the tumor, then on its localization, degree of invasion and morphological structure.

## Conclusions

1. Surgical methods of treatment (electro-excision, scissor excision, cryodestruction) of primary malignant epithelial skin tumors irrespective of the stage, location and morphological structure of the tumor are most effective in comparison with external beam radiation therapy.

2. The choice of a specific method of treatment should be strictly individual, taking into account the localization, the prevalence of the malignant process, as well as the expected cosmetic and functional effects.

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