

# **Expanded radical neck dissection in combined treatment of regional metastases in head and neck cancer patients.**

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## **Summary.**

Presence of neck metastases with extranodal spreading is the most unfavorable prognostic factor in head and neck cancer patients. The usage of expanded radical neck dissection was analyzed in 29 head and neck cancer patients. Short-term and long-term results of treatment show effectiveness of that exaggerated operations using postoperative defects plastic reconstruction methods.

**Key words:** head and neck cancer, expanded radical neck dissection.

## **Introduction.**

The presence of metastases in cervical lymph nodes is extremely important prognostic factor in head and neck cancer patients. The survival rate of patients with regional metastases is reduced on 50% and tumor process refers to the III-IV stages ( 1 , 2). For decades, the standard treatment of these patients had a radical neck dissection, which included the removal of all groups of cervical lymph nodes with sternocleidomastoid muscle, internal jugular vein and accessory nerve.

Classical radical neck dissection has been described G. Crile in 1906 (3). H. Martin laid out in details the technique of radical neck dissection in 1951 (4). In 1963, O. Soares proposed functional dissection, which was conducted by removing certain groups of lymph nodes, preserving vital structures of the neck. Further development of the author's ideas were reflected in the works of E. Bocca, A. Ballentyne, R. Byers ( 5, 6). Since 1980 functional neck dissection was widely used in practice. This contributed to a better understanding of the biology and regularities of metastasis (7, 8, 9 , 10).

In particular category of patients, usually with N2- 3 cervical metastases is the need for an extended dissection. It involves the removal of additional structures

such as skin, subcutaneous tissue, hypoglossal nerve, vagus nerve, digastric muscle carotid artery. Shaha A. research has shown that despite the prevalence of metastatic process of the extended radical neck dissection achieves local control in 70% of operated patients (11, 12).

In recent decades neck dissections were standardized and identified four main types: radical neck dissection, extended radical neck dissection, modified radical neck dissection, selective neck dissection (13). This article will discuss the issue devoted to the extended radical neck dissection. We believe that every surgeon engaged in the treatment of head and neck tumors should know the indications, operative technique of radical neck dissection extended and its prognostic significance.

### **Materials and methods.**

The results of combined treatment using extended radical neck dissection of 29 patients with head and neck malignant tumors are presented. Patients were treated in the National Cancer Institute and Municipal institution “Cherkasy Oncology Center” in 2007-2013. Among the operated patients there were 21 male and 8 female patients aged from 34 to 68 years.

Often primary tumors were located in the region of the tongue (8 patients), oropharynx and hypopharynx (7 patients), floor of the mouth (6 patients), parotid gland ( 3 patients ), and nasopharynx ( 1 patient ). 3 patients had regional metastases of melanoma of the scalp after previously removal of primary tumor in the other hospitals.

All cancer patients have received combined treatment that included in 20 patients chemotherapy and radiation therapy to the primary tumor and regional metastases. 6 patients received only radiotherapy. PF chemotherapy regimen included cisplatin 100 mg/m<sup>2</sup> at 1st day and 5-fluorouracil 1000 mg/m<sup>2</sup> from the 1st to the 5<sup>th</sup> day.

Preoperative distant gamma radiotherapy was performed by small fractionation on a primary tumor and regional metastases focal one-time dose of 2 Gy, 10 Gy per week to a total focal dose of 60-65 Gy. Almost all patients with metastasis in

cervical lymph nodes were defined as inoperable at their local medicinal institutions.

## **Results**

In all 29 patients performance of extended radical neck dissection accompanied by the formation of large volume defects of the soft tissues, neck skin and surrounding anatomical structures that were expanded by tumors (parotid gland, scalene muscle, auricle, etc.). Skin-muscle flap that included the pectoralis major muscle ( Fig. 1–4), the trapezius muscle (Fig. 5-7), and delta-pektoral flap (Fig. 8-10) were used for the reconstruction of postoperative defects. Resection of common and internal carotid artery with vascular allograft replacement of the defect was performed in one patient with extended radical neck dissection (Fig. 11).



Figure 1. View of wound after extended radical neck dissection with resection of the external carotid artery, neck skin and mucous back pharyngeal paries.

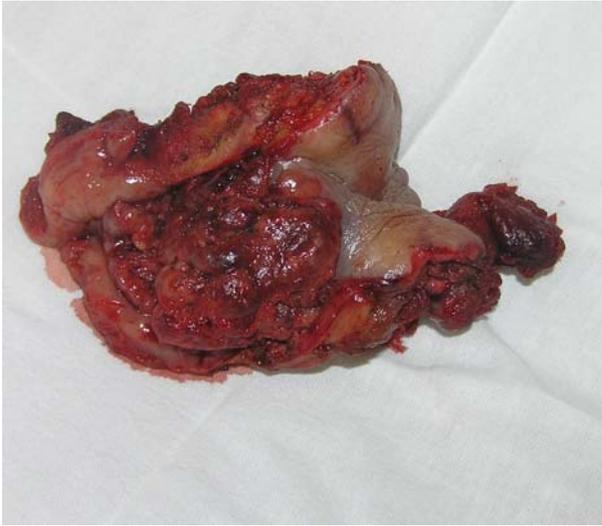


Figure 2. Macropreparations.



Figure 3. Skin and muscle pectoralis major muscle flap is elevated to a defect of the soft tissues of the neck and the back pharyngeal paries.



Figure 4. View of wound after soft tissue of the neck and the back pharyngeal paries defect replacement.



Figure 5. Nasopharyngeal cancer metastasis to the lymph nodes of the neck of the skin lesions . State after radiotherapy.



Figure 6. View of postoperative field after removal of the preparation.



Figure 7. View of postoperative field in 8 months after surgery.



Figure 8. Parotid gland cancer with metastases to neck lymph nodes.



Figure 9. View of wound after extended radical neck dissection with parotidectomy, resection of the auricle and skin.



Figure 10. View of postoperative field after plastics of the defect.

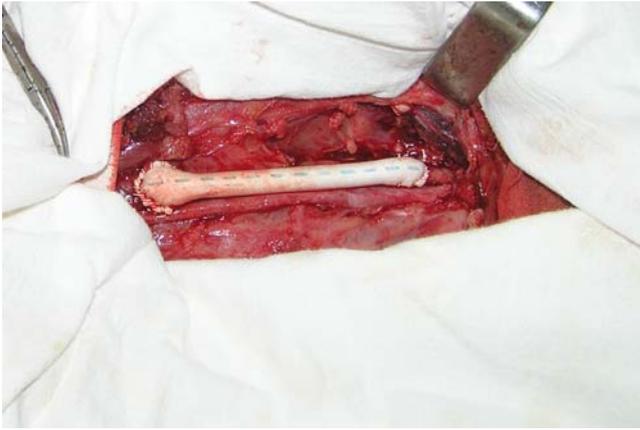


Figure 11. View wound after extended radical neck dissection with resection and common and internal carotid artery. Defect of carotid artery was replaced with vascular allograft.

In all 29 patients noted complete engraftment. Boundary flap necrosis was observed in two cases and dotty orostoma - in one patient. These complications have been eliminated by the time of discharge of patients from hospital. Long-term results showed that there was a recurrence in 9 ( 31.0 %) patients in different terms from 5 to 13 months after surgery. In one patient with temporal skin melanoma emerged a metastasis in the brain, led to death of the patient.

The obtained results justify the use of extended radical neck dissection in head and neck cancer patients with the extranodal spread of metastatic tumors.

### **Conclusion.**

Patients with malignant tumors of the head and neck extranodal spread of regional metastases and involvement in the process of skin, carotid artery, digastric muscle, scalene muscle require surgical treatment in specialized head and neck oncology departments, which perform complex surgery with primary plastic significant in terms of the reconstruction of postoperative defects.

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