Experiences

The practice of oropharynx cancer: A case report and literature review

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Abstract

Oropharynx cancer has a markedly high prevalence in eastern countries. This cancer leads to complexity and persistence of dysfunction in breathing, speech, swallowing and chewing, accompanied by long-lasting and often permanent disability. In order to achieve a cure and preserve the function, we have actively performed surgical reconstruction following multidisciplinary treatment for oropharynx cancer at our institution. This is a clinical case of a 53-year-old male patient identified as having stage III squamous cell carcinoma of the right lateral tongue. Given the large size of the tongue tumor, neoadjuvant chemotherapy was particularly useful prior to surgery and radiotherapy. In addition, in cases of advanced tongue tumor, primary surgery followed by adjuvant chemotherapy is recommended for a better disease control and survival. We used an infrahyoid myocutaneous island flap for reconstruction of tongue defects after cancer resection. The infrahyoid island flap, harvested from the infrahyoid muscles, is based on the superior thyroid vessels. This thin and pliable flap provided a skin island of about 7 cm from the central part of the anterior neck in our patient. This flap was reliable and achieved primary closure of the tongue defect. The donor site was closed primarily without difficulties. The present report includes a review of the etiology, diagnosis, and contemporary methods of treating oropharyngeal cancer.

Keywords: Oropharynx cancer, squamous cell carcinoma, tongue cancer, tongue hemiresection, tongue reconstruction, infrahyoid flap.

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Introduction

Oral cancer includes cancers of the tongue (43.1%), tonsil (23.4%), lip (9.1%) and floor of the mouth (7.8%), as well as the gingivae, palate and unspecified regions of the oral cavity. While most patients with oral cancer are elderly (mostly 70–79 years old), the disease is becoming increasingly common in patients under 50 years old (16.2%). Oropharynx cancer is more common in men than in women. Squamous cell carcinoma accounts for 94.8% of oral cancer cases. Other histological types of oral cancer include cancer of the salivary gland, melanoma and sarcoma.

One major problem for many scientists and physicians has been the identification of carcinogenic agents or risk factors for developing oropharyngeal cancer5. A number of researchers have proven epidemiologically and histologically that oral leukoplakia carries a risk of malignant transformation. Among men with leukoplakia, the risk of malignant transformation was 4.8 times higher than among the general population5,3. Leukoplakia typically occurs in the cheek mucosa, and 13% of patients with oral leukoplakia demonstrated malignant transformation within 2 years of diagnosis5. While the main risk factors for the oropharyngeal cancer are smoking and alcohol consumption, serological and epidemiological studies are providing growing evidence of the etiological role of viruses in the development of head and neck malignant neoplasms5,6.

The tumor stage of oropharynx cancer must be precisely assessed in order to develop an appropriate treatment approach7. Chemotherapy is mainly used in combination with radiotherapy to enhance the effectiveness of radiotherapy (chemoradiotherapy). The use of neoadjuvant chemoradiotherapy (a combination of drugs such as 5-fluorouracil, cisplatin and docetaxel) prior to surgery is indicated for oropharynx cancer, particularly in large tumors of the tongue base.

However, for advanced oropharynx tumours, primary surgery followed by adjuvant chemoradiotherapy is recommended for a better disease control and survival. In
addition, contemporary plastic surgery can allow for extensive organ resection of the oropharynx with simultaneous restoration of the function and subsequent chemoradiotherapy.

Selective neck dissection is a useful staging procedure. Indeed, such dissection removing the level I to IV lymph nodes has become the therapeutic standard in patients with N0 and low-volume node-positive neck findings when treating oropharyngeal cancer surgically. The key advantages of selective neck dissection are low morbidity, minimization of the side effects and a better quality of life.

Recurrence of the primary tumor is most likely to occur in the first two years following treatment of oropharyngeal cancer. Farquhar et al. showed that the early recurrence of oral tongue squamous cell carcinoma was significantly more likely within three years of primary treatment, possibly due to the higher rates of perineural or lymphovascular invasion in younger than in older patients.

We have recently been performing ablative surgery with infrathyroid myocutaneous flap reconstruction, as described below. The first report of the use of infrathyroid pedicled flap for reconstruction came from Clairmont and Conley in 1977. They reported the transposition of the infrathyroid muscles to reconstruct anterior mouth floor defects. In their report, it was recommended that the superior thyroid artery and ansa hypoglossi innervation be preserved in order to ensure the viability of this flap. In 1986, Wang et al. reported the results of 112 head and neck reconstruction cases using the infrathyroid myocutaneous flap. The flap was mainly transposed to reconstruct intraoral defects, with the superior thyroid vessels being used for the blood supply. The authors noticed how this easy and quick reconstructive method was particularly useful in weak, elderly patients. We mainly perform reconstruction using the infrathyroid myocutaneous island flap while preserving the branch from the superior thyroid artery. The method is reliable, easy to harvest simultaneously with neck dissection and oncologically safe and carries negligible donor site morbidity.

Case report

The patient was a 53-year-old male who was admitted in 2017 due to painful persistent right lateral tongue ulceration and speckled lesions. The patient was histologically diagnosed as having T3N0M0 squamous cell carcinoma of the right lateral tongue. According to the histological diagnosis, staging and extent of the tumor, the patient initially underwent neoadjuvant chemoradiotherapy. Subsequently, the patient received surgery with hemiglossectomy and ipsilateral selective neck dissection. Six months later, recurrence of the primary tumor measuring 1.5 cm was found. The patient was treated with a combination of chemotherapy and oncological surgery. Surgical management of the patient included extensive hemiglossectomy; resection of the floor of the mouth and the rim of the mandible, leaving a preserved lower border; and defect reconstruction using the infrathyroid island flap located below the hyoid bone and nourished by a branch of the superior thyroid artery (Fig. 1, 2, 3). Postoperative findings showed reconstruction of the lateral oral cavity (Fig. 4). We successfully used the infrathyroid flap with no signs of necrosis. This flap ensured good pliability.
Fig. 2 Resection of the floor of the mouth

Fig. 3 Defect reconstruction using the infrahyoid flap

a. The flap is ready to reconstruct a mandible alveolar ridge
b. The hole (white arrow) through which flap passes
c. The flap augment on lateral tongue and lateral floor of the mouth defect.
Discussion

We show clinical data of case series in our institute. The complex treatment of patients with locally advanced oral and pharyngeal cancer is performed at the Head and Neck Tumor Department of the Tashkent regional branch of the Republican Scientific and Practical Medical Center of Oncology and Radiology. From 2012 to 2018, we treated 510 patients who were 35–72 years of age with oral and pharyngeal squamous cell carcinoma. A total of 270 patients underwent surgery, and 110 of those patients received extensive surgical operations with a defect requiring plastic surgical reconstruction. All patients had a diagnosis of stage T3 or T4 (according to UICC/AJCC TNM classification 8th).

At the first stage of complex treatment, patients were treated by neoadjuvant chemotherapy with cisplatin and 5-FU (PF) or taxol, cisplatin and 5-FU (TPF), followed by telegamma therapy at 40 Gy. After the assessment of the combined therapy effectiveness, extensive surgical resection and reconstruction were performed. The patients were divided into two groups depending on the defect type. The first group consisted of 86 (78.2%) patients, with extensive defects of the skin or oropharynx mucosa, while the second group included 24 (21.8%) patients with through-and-through defects. In all 110 cases, simultaneous reconstructive surgery was performed using a complex skin flap and pedicled myocutaneous vascularized flaps. The following types of flaps were used for extensive defect reconstruction: nasolabial flap (46 cases), forehead and parietal flap (8 cases), sternocleidomastoid myocutaneous flap (14 cases), infrahyoid myocutaneous flap (5 cases) and myocutaneous pectoralis major flap (37 cases).

Conclusion

The significant prevalence of oropharyngeal cancer as well as the complexity and persistence of the associated dysfunction in breathing, speech, swallowing and chewing, accompanied by long-lasting and often permanent disability, have highlighted rehabilitation and preservation of the quality of life of patients as important medical and social problems.

Competing interests:
The authors declare that they have no competing interests.

Compliance with ethical standards:
The study was conducted in accordance with the ethical standards of the respective committees on human experimentation (institutional and national) and with the Helsinki Declaration of 1964 and later versions. The study was approved by the Institutional Review Board of Tashkent regional branch of the Republican Scientific and Practical Medical Center of Oncology and Radiology. We obtained the informed consent from the presented patient in this article.

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