# LIFE-THREATENING HEMORRHAGE FROM POSTOPERATIVE NECK WOUND- A CASE REPORT

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## Abstract

Oral cavity carcinoma is a malignant disease that accounts for 30% of all head and neck carcinomas. It occurs about 4 times more often in men than in women. Predisposing factors include tobacco smoking, regular alcohol consumption, poor oral hygiene, chronic dental diseases, and HPV (Human Papillomavirus) infection. The rich blood supply to the head and neck is a cause for the frequent and early metastasis to regional lymph nodes in malignant diseases with primary localization in the structures of the oral cavity. In this report, we present a clinical case of a 51 year old man with carcinoma of the floor of the oral cavity with metastases to the submandibular lymph nodes - level IB, who underwent surgical treatment with adjuvant radiotherapy for the primary tumour and neck metastases at another medical institution. He was admitted to ENT Clinic-UMHAT Burgas urgently due to bleeding from an open postoperative wound measuring approximately 5 cm in diameter in the submandibular region. Multiple blood transfusions were performed due to low hemoglobin levels (52g/L). After stabilizing the patient, several surgical interventions were performed in stages to close the postoperative wound, initially covered with a deltopectoral flap. Subsequent surgical interventions included selective lymph node dissection and flap remodelling. After completing the surgical treatment, repeat radiotherapy was performed in the neck area with a volume of 60 Gy, followed by a control fluorodeoxyglucose-positron emission tomography (FDG-PET), which revealed an active lymph node from the upper jugular group suspicious for metastasis. A core biopsy of the lesion was performed, histologically confirming the diagnosis. An operative intervention was undertaken to remove the jugular lymph nodes and cover the surgical wound with a supraclavicular flap.

***Keywords:*** *oral cavity carcinoma, cervical lymph nodes, core biopsy, deltopectoral flap*

## Introduction

Oral cavity cancer (OCC) is categorized under head and neck cancer and holds the sixteenth position in malignancy worldwide (1). Oral squamous cell carcinoma (OSCC) accounts for over 90% of oral cancers (2). Worldwide, 405,000 new cases of oral cancer are anticipated each year, and the countries with the highest rates are Sri Lanka, India, Pakistan, Bangladesh, Hungary and France (3). The main etiological factors are tobacco and alcohol use (4). Other habits such as betel nut and tobacco chewing have been implicated in the Asian population. Tobacco contains many carcinogenic molecules, especially polycyclic hydrocarbons and nitrosamines. A directly proportional effect exists between the pack years of tobacco used and the risk of SCCOC (5). Although early diagnosis is relatively easy, presentation with advanced disease is not uncommon. The OSCC-originating cell is the oral keratinocyte (6). The more common premalignant lesions including leukoplakia, erythroplakia, oral lichen planus, and oral submucous fibrosis have varying potential for malignant transformation (7). The lips, gingiva, palate, and dorsum of the tongue are common sites of OSCC (8). Clinically, it appears as a broad exophytic mass with a verrucous, pebbled, or generally smooth surface texture and develops into a necrotic ulcer with uneven, elevated, and indurated edges. OSCC bleeds easily and becomes uncomfortable when it has an oral secondary infection. If extracapsular spread occurs into the nearby connective tissue, the afflicted lymph nodes, which are stiff and nontender, will become matted and fixed (9). Tumour, nodes, and metastases (TNM) staging correlates with survival rates.

The standard of care is primary surgical resection with or without postoperative adjuvant therapy. Improvements in surgical techniques combined with the routine use of postoperative radiation or chemoradiation therapy have resulted in improved survival statistics over the past decade

(10). The surgical procedure includes maxillectomy, mandibulectomy, glossectomy, radical neck dissection, and Mohs surgery. Chemoradiotherapy is used in inoperable cases (11).

**Matherials and methods**

We present a clinical case of a patient with carcinoma of the floor of the oral cavity. The patient is a 51-year-old male who was urgently admitted to the Department of Head and Neck Surgery at UMHAT Burgas with bleeding from an open postoperative wound in the submandibular region of the neck. Due to critically low hemoglobin levels (52g/L), surgical intervention was not possible. A compressive bandage was applied to stop the bleeding, and multiple blood transfusions were administered.

The patient had previously undergone a medical examination at another healthcare facility for an irregularly shaped mass with exophytic growth on the floor of the oral cavity (Fig. 1). A biopsy and histological verification confirmed a diagnosis of OSCC (Oral Squamous Cell Carcinoma) one year ago. The patient underwent excision of the tumour and partial tongue resection, followed by adjuvant radiotherapy targeting the primary tumour site and the submandibular group of cervical lymph node metastases. Three months after completing the treatment, a lesion appeared in the submandibular region (Fig. 2). A follow-up PET scan revealed metabolically active lymph nodes in cervical level IB. Another surgical intervention was performed at the same facility to remove the metastatic lymph nodes. Postoperatively, the wound became inflamed, leading to necrosis of the surrounding tissues (Fig. 3) and life-threatening bleeding from the neck at the site of the surgical intervention.

After stabilizing the patient, surgical treatment was undertaken to close the postoperative lesion, with the first step being the coverage of the area with a deltopectoral flap (Fig. 4). Once the postoperative wound healed and haemoglobin levels reached 132g/L, selective lymph node dissection of the submandibular group was performed, and the flap was remodelled (Fig. 5).

Thirty-five days after the surgical intervention, adjuvant radiotherapy was initiated in the neck area with a total dose of 60 Gy, followed by a follow-up PET scan, which revealed a metabolically active lymph node in the upper jugular group, suspicious for metastasis. A core biopsy of the lesion was performed, histologically confirming the spread of the carcinoma. A new surgical intervention was undertaken, during which the jugular lymph nodes were excised (Fig. 6). The postoperative wound was covered with a supraclavicular flap (Figs. 7 and 8).

**Results and discussion**

OSCC is a growing concern worldwide. There are number of prognostic factors that determine the survival of patients and affect treatment decisions. The basic prognostic factors are tumour size (T-stage), regional nodal involvement (N-stage) and the presence or absence of distant metastasis (M-stage). This TNM classification is still used today with various modifications. Several other biological, molecular and histopathologic parameters have also been identified during the last decades.

Cervical lymph node metastasis is the single most important prognostic factor in oral cancer: survival chances are reduced by 50% when compared to those with similar primary tumours without neck metastases (12, 13). For the assessment of the lymph nodes in the neck, both CT and MRI are used on a wide scale. FDG-PET enables the in vivo study of tissue metabolism. FDG is an analog of glucose and its uptake reflects the metabolism of the cell, which is increased in many tumours. Disadvantages of FDG-PET are variable physiologic uptake and the lack of anatomical detail. Another disadvantage is that FDG also accumulates in inflammatory cells, such as granulocytes and hampers the differentiation between tumour and inflammatory reactions (14,15). As mentioned before, the anatomical landmarks and details on PET imaging are less well depicted than with CT or

MRI. The fusion of the more functional data of PET images with the more anatomical information of CT in particular has significantly improved the interpretation of the PET images (16).

Sixty percent of patients with early stage oral cancer will present with a clinically negative neck. Approximately 20–30% will have microscopically evident nodal metastasis on histologic examination after elective neck dissection (END). The risk of nodal metastasis is related to tumour size, histologic grade, depth of invasion and perineural invasion.(17, 18). SCC of the oral tongue and the floor of the mouth are more likely to metastasize to the neck, and these patients should be offered END, even for early stage tumours, if they are thicker than about 4mm48. Several studies have suggested that tumour thickness greater than 4.0 mm significantly increases the risk for cervical metastases and, therefore, has a negative impact on survival (19). Currently, most surgical oncologists feel that tumour thickness of 4.0 mm or greater is associated with an increased risk for regional metastases and as a result recommend elective treatment of the clinically N0 neck even in the absence of other high-risk histopathological features. Recently, Patel et al. (20) have demonstrated that patients with thick tumours have a high risk of nodal metastases, supporting the liberal use of elective neck dissection in these patients, despite clinically negative necks. However, it is important to point out that these recommendations were established in retrospective studies, and in the context of elective neck dissection. The routine histopathologic evaluation of neck dissection specimens has been shown to be insufficient for accurate detection of micrometastases. The more sections taken from each lymph node, the more occult disease will be detected (21). In a recent paper by Goerkem et al. (22), concluded that any squamous cell carcinoma of the oral cavity should undergo elective neck treatment, preferably by sentinel lymph node biopsy (SLNB), irrespective of the measured tumour depth or tumour thickness. These results were subsequently confirmed by the studies of Bilde et al. (23) and Alkureishi et al. (24).

In a patient with a clinically negative neck, the risk of occult metastasis is mainly to levels I through III. For these reasons, a supraomohyoid neck dissection is usually adequate to stage the N0 neck. In patients with clinically or radiographically involved neck nodes, a therapeutic comprehensive neck dissection is indicated. It involves dissection of levels I to V. The need to sacrifice other structures such as the spinal accessory nerve, sternocleidomastoid muscle, or internal jugular vein depends on the location of the metastasis and its characteristics. The most common type of comprehensive neck dissection is the modified radical neck dissection, Type 1 (25). This clinical case further confirms the findings of the above-mentioned studies. The patient did not undergo a neck lymph node dissection, but only adjuvant radiotherapy in the area of the sentinel cervical lymph nodes. Three months later, a lesion appeared in the submandibular region, histologically verified as a metastatic lymph node. During the subsequent surgical intervention, only the lymph nodes invaded by the cancer were excised. After managing the life-threatening bleeding in our clinic, the patient underwent several staged surgical interventions. The first aimed to prevent further bleeding from the open postoperative wound by covering it with a deltopectoral flap. Within a short period, a selective neck dissection and flap remodelling were performed. After the patient's full recovery, a modified radical neck dissection Type 1 was undertaken, followed by closure of the surgical site with a supraclavicular flap.

However, the most significant prognosticator in oral cancer is the presence of lymph node metastases (26-29). Because the presence of extracapsular spread ECS has been identified as an indicator of poor prognosis, patients with ECS are commonly treated with adjuvant therapy, including radiotherapy and chemoradiotherapy. Yet, despite adjuvant therapy, one-third of patients will experience regional recurrence (27).

Restoration of form and function after ablative cancer surgery is the ultimate goal of treatment and is achieved by choosing the appropriate reconstructive procedure. Surgical defects after resection of early stage tumours can usually be reconstructed with primary closure. The ability reliably to reconstruct large surgical defects has contributed to improved oncologic outcomes in patients with

locally advanced cancers by enabling more complete resections (30). In this clinical case, due to the tissue changes resulting from radiotherapy, we determined that it would be appropriate to choose pedicled myocutaneous flaps as the pectoralis major flap and supraclavicular flap.

## Conclusion

Oral cavity cancers represent about one-third of head and neck malignant tumors. Tobacco remains the most common causative factor. The overwhelming majority of cancers involving the oral cavity are squamous cell carcinomas. Identification of oral cavity cancers is relatively simple given the ease of a clinical examination. CT and MRI are comparable in their ability to stage cancers of the oral cavity. MRI in particular is excellent for soft tissue evaluation and for a contrast study in patients with a contraindication to intravenous administration of iodine containing contrast. These cancers of the oral cavity may be treated with either radiation, surgery or combined therapy. There is a high incidence of cervical metastases in oral cavity cancer. For very early primary tumours in stage the N0 neck , supraomohyoid neck dissection is warranted to optimize regional control. In patients with involved neck nodes, the modified radical neck dissection, Type 1 is indicated. Surgical treatment of the neck is generally preferable to radiation as it offers pathologic information, has limited morbidity, avoids the lengthy treatment regimen and morbidity of radiation.

## Conflict of interests

The authors state no conflict of interest.

## Acknowledgements

No grants or financial support received.

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**Legends to figures:**

*Figure 1.*

*Figure 2.*

*Figure 3.*

*Figure 4*

*Figure 5*

*Figure 6*

*Figure 7*

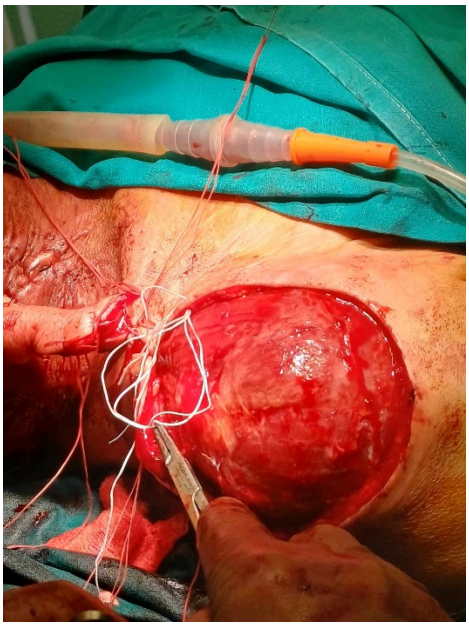

*Figure 8*