

Advanced Squamous Cell Carcinoma of the Tongue in an Elderly Patient: A Clinical and Histopathological Case Report

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Abstract: Squamous cell carcinoma of the tongue is a highly aggressive malignancy that frequently presents in advanced stages, especially in elderly patients. This report describes a case of an 81-year-old male with a large lesion of the tongue, focusing on the clinical presentation, anatomical considerations, diagnostic approach, histopathological analysis, and definitive surgical management. A detailed discussion examines the complexity of treating squamous cell carcinoma of the tongue, including its etiology, clinical behavior, treatment challenges, and the impact on geriatric patients. The case emphasizes the importance of multidisciplinary care and early diagnosis to optimize outcomes in such aggressive and extensive oral cancers.

Keywords: Squamous cell carcinoma; Tongue cancer; Oral malignancy; Oral lesion.

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1. Introduction

Squamous cell carcinoma (SCC) of the tongue is the most prevalent form of oral cancer and is characterized by its aggressive nature and significant impact on patient quality of life. This malignancy accounts for more than 90% of oral cancers and has a poor prognosis when diagnosed in advanced stages, especially in elderly populations [1]. The tongue, due to its rich vascularization and lymphatic drainage, is highly susceptible to the rapid spread of SCC to regional lymph nodes, complicating treatment outcomes. The anatomy of the tongue and its critical functional roles make it a unique site for malignancies. It is divided into two main regions: the oral tongue, which is responsible for speech and mastication, and the base of the tongue, which plays a significant role in swallowing. The tumor's location and extent often dictate the treatment strategy, as lesions involving both the oral tongue and adjacent areas, such as the floor of the mouth, present significant surgical and reconstructive challenges [2].

Tobacco and alcohol consumption remain the most well-documented risk factors for SCC of the tongue. However, other factors, such as chronic irritation, poor oral hygiene, genetic predisposition, and infection with high-risk human papillomavirus (HPV) strains, have been increasingly recognized. In elderly patients, comorbidities and reduced physiological reserves further complicate disease progression and treatment, often leading to late-stage diagnoses and poorer outcomes [2-4]. Diagnosing SCC of the tongue requires a

combination of clinical, radiological, and histological evaluations. A thorough understanding of the tongue's anatomy is crucial for precise staging and treatment planning. Imaging modalities, including computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET), are indispensable tools for determining tumor extent and identifying regional or distant metastases. Biopsies remain the gold standard for diagnosis, with histopathological analysis providing essential information about tumor differentiation, invasion patterns, and prognostic indicators [3,5].

This is a case report aiming to illustrate the challenges of treating large SCCs of the tongue in the elderly. The case highlights the anatomical, histological, and surgical considerations involved in managing such an advanced oral malignancy. A detailed discussion explores the challenges associated with treating extensive SCCs of the tongue, emphasizing the need for early diagnosis, multidisciplinary management, and individualized treatment strategies to improve patient outcomes.

2. Case Report

An 81-year-old male presented with a progressively enlarging ulcerative lesion on the right lateral border of the tongue that was noted 1 year before the initial consultation (Figures 1A and 1B). The patient reported increasing pain, dysphagia, and significant weight loss (10 kilos) over the past six months. Clinical examination revealed a large exophytic tumor measuring approximately 8 cm, extending to the ventral surface of the tongue and invading the floor of the mouth. Palpable bilateral submandibular lymph nodes were suggestive of regional metastasis.

Figure 1. A and B. Ulcerative lesion on the right lateral border of the tongue measuring approximately 8 cm, extending to the ventral surface of the tongue and invading the floor of the mouth.



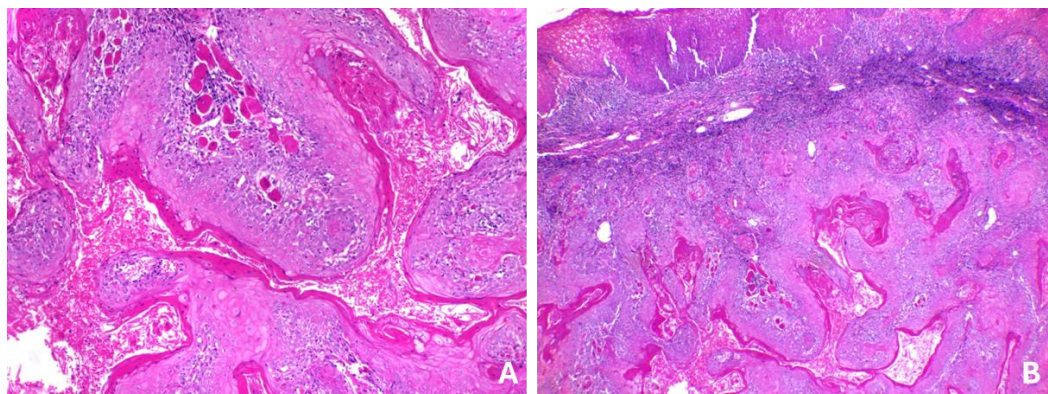
The anatomy of the tongue and its surrounding structures was crucial in assessing the tumor's extent. The tongue's oral portion comprises intrinsic and extrinsic muscles, allowing for precise movements essential for speech and mastication. The floor of the mouth, situated inferiorly, contains vital structures, including the sublingual and submandibular glands, the lingual nerve, and the mylohyoid muscle. Tumors invading this region often compromise multiple functions, complicating surgical resections.

To confirm the diagnosis, an incisional biopsy was performed on the lesion's indurated area. Histopathological and immunohistochemistry analysis revealed a well-differentiated SCC with evident keratin pearls and intercellular bridges infiltrating neighboring

anatomical structures and delimiting pseudocystic spaces representing degenerative changes in the deepest part, suggesting aggressive behavior (Figures 2A and 2B). Imaging studies, including CT and MRI, demonstrated tumor invasion into the floor of the mouth and unilateral cervical lymphadenopathy. Surgical intervention was planned as the primary treatment modality. The patient underwent a partial glossectomy with en bloc resection of the floor of the mouth with partial neck dissection without flap reconstruction. The surgery aimed to achieve negative margins while preserving critical functions such as swallowing and speech.

Postoperative histological analysis confirmed the completeness of the resection confirming the initial diagnosis of SCC. The patient recovered without major complications and was referred to oncology for radiotherapy to minimize the risk of recurrence and has been followed by a multidisciplinary team. Now patient is completing 1 year of follow-up with no recurrence and under stricted follow-up. Supportive therapies such as speech therapy, nutritional follow-up, and oral physiotherapy have been performed weekly, providing extremely important contributions to the patient's quality of life.

Figure 2. A and B. Histopathological findings on H&E stain. The microscopical analysis showed a well-differentiated squamous cell carcinoma, infiltrating neighboring anatomical structures and delimiting pseudocystic spaces in the deepest part (x4). At higher magnification, notice the pseudocystic cavity delimited by tumor projections, lined by pleomorphic cells, involving bundles of striated skeletal muscle (x10).



3. Discussion

SCC of the tongue is a particularly aggressive malignancy with a significant impact on patients' physical and psychological well-being. The lateral border of the tongue, as seen in this case, is a common site for SCC due to its frequent exposure to carcinogens and its high lymphatic density. The lesion's large size and invasion into the floor of the mouth reflect a late-stage presentation, underscoring the importance of early detection in improving outcomes. The diagnosis of SCC relies heavily on histopathological evaluation. The findings in this case, including keratinization, perineural invasion, and lymphovascular involvement, are indicative of aggressive behavior and poor prognosis. These features highlight the need for careful preoperative planning and aggressive postoperative management [5-7].

Surgical treatment remains the cornerstone of management for advanced SCC of the tongue. The aim of surgery is to achieve complete tumor resection with negative margins while preserving critical functions such as speech and swallowing. However, in cases involving large tumors, as described here, achieving these goals can be challenging. Reconstruction with free flaps, such as the radial forearm flap, plays a vital role in restoring both functionality and aesthetics [4,7,8].

Adjuvant radiotherapy is often necessary in advanced cases to address high-risk features, including close margins and perineural invasion. While effective in reducing local recurrence, radiotherapy can pose additional challenges in elderly patients, who may

have limited tolerance for aggressive treatments [8]. This underscores the need for individualized treatment approaches that balance oncological control with quality-of-life considerations. The prognosis for SCC of the tongue depends on several factors, including tumor stage, lymph node involvement, and histological features [3,9]. Unfortunately, late-stage presentations, as seen in this case, are associated with reduced survival rates. This emphasizes the importance of public health initiatives aimed at promoting early detection and reducing risk factors, such as tobacco and alcohol use.

The management of SCC of the tongue requires a multidisciplinary approach, involving surgeons, oncologists, radiologists, and speech therapists. In elderly patients, additional considerations, such as comorbidities and functional status, must be considered to ensure optimal care. The integration of palliative care is also essential in addressing pain and improving overall patient comfort [7,10]. This case highlights the challenges associated with managing large SCCs of the tongue in elderly patients. The aggressive nature of the disease, combined with the anatomical and functional complexities of the tongue, underscores the need for comprehensive and individualized treatment strategies. Advances in surgical techniques and reconstructive methods offer hope for improving outcomes, but early diagnosis remains critical in reducing the burden of this devastating disease.

4. Conclusion

This case of a large SCC of the tongue in an 81-year-old patient illustrates the aggressive nature of advanced oral cancers and the challenges associated with their management. The findings emphasize the importance of early diagnosis, meticulous surgical planning, and multidisciplinary care in achieving optimal outcomes. Despite advancements in treatment, the prognosis for large SCCs of the tongue remains poor, particularly in elderly populations. Continued research and public health efforts are essential to improve early detection, reduce risk factors, and enhance the quality of life for patients with advanced oral cancers.

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Conflicts of Interest: The authors declare no conflicts of interest.

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