

A Case of Squamous Cell Carcinoma of the Oropharynx Invading Skull Base

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ABSTRACT: Squamous cell carcinoma is the most common type of neoplasia which affects the mucosa of the upper aero-digestive tract. We present the case of a male patient that at the clinical exam showed a tumor mass at the rhinopharynx. The CT examination showed a tumor mass developed from the upper portion of the oropharynx, from the soft palate. The tumor was invasive into the nasopharynx, and into the structures of skull base the skull base, and with bilateral lymphnodes metastasis. At histopathological examination, the fragments of tumor biopsy revealed the aspect of a moderately differentiated keratinised squamous cell carcinoma, with lymph node metastasis, and with invasion in the adjacent fibro-muscular tissue.

KEYWORDS: computed tomography, oropharyngeal squamous cell carcinoma, skull base

Introduction

Squamous cell carcinoma is the most common type of neoplasia which affects the mucosa of the upper aero-digestive tract, and accounts 89% of cancer types [1]. Oral cavity and oropharyngeal SCC predominate also, accounting for more than 90% [2].

Epidemiologically, the pharyngeal squamous cancer affects both sexes in almost equal proportions, with slight preference for males [3].

While the incidence of SCC in most of segments of the head and neck have reduced or remained static, the incidence of oropharyngeal SCC has increased [4,5].

The development of SCC has been associated with tobacco smoking [2,6], statistics considering that smoking more than 20 years doubles the risk of developing this type of neoplasia [3]. Prolonged exposure to dust and chemicals, such as polycyclic aromatic hydrocarbons, are also considered as major risk factors [7].

Enlargement of a cervical lymph node, as the first presenting feature of neoplasia, is not uncommon, particularly with certain "silent" sites, such as nasopharynx and superior oropharynx [8].

Imaging examination is important for diagnosis, and to identify accurately the extent, and relationships with adjacent structures of the tumor mass, and to detect the presence of enlarged lymph nodes [8].

Case report

We present the case of a male patient, age 57 years, which in August 2016 was presented to hospital for intense headache, for which he received antibiotic treatment. At that point was observed an asymmetry in nasopharynx mucosa and lymphnodes enlargement. After 3 months, in November 2016, a biopsy was performed from the site of asymmetry of the nasopharynx, and from a neck lymph node, which were both negative for cancer.

At the last admission, at the Colțea Clinical Hospital, in January 2017, the clinical exam showed a tumor mass at the rhinopharynx, deficiency of the nerves V and VIII, serous chronic otitis on the right side, and bilateral laterocervical lymph nodes, which were fixed, and rigid.

A computed tomography examination has been performed, first native, with two phases post contrast. The equipment used was Siemens Emotion Duo. The acquisition was performed in spiral mode, with contiguous 3mm-thick section, followed by MPR reconstruction in sagittal and coronal plans. The contrast agent was administered intravenously with the concentration of 370mg/ml, and the flow used was 2.5ml/sec.

The CT examination showed a tumor mass developed from the upper portion of the oropharynx. The tumor mass had dimensions of 6.3/5/5.5cm, with irregular contours, with heterogeneous structure on native and postcontrast CT scan.

At oropharynx was identified nearly circumferential thickening of the wall up to

1.2cm extending from the left upper portion of the soft palate (Fig. 1).



Fig. 1. Neck CT (A: native exam, B: arterial phase, C: venous phase) which revealed nearly circumferential thickening of the oropharynx wall developed from the soft palate

Superior, the mass extended to the nasopharynx, until pituitary lodge, involving also the sphenoid sinus. It was in direct contact with cavernous sinuses, caused partial lysis of sphenoid bone body, and of an important part of left sphenoid greater wing, including pterygoid plate; it has infiltrated the medial and lateral pterygoid muscles and caused minimal erosions

to the right greater wing of the sphenoid. Also, the tumor mass determined bilaterally relatively symmetrical lysis of the temporal bone, and to the anterior wall of the foramen magnum on a distance of 2.8cm (Fig. 2). It extended to the vicinity of the brainstem, vertebral arteries and basilar artery.



Fig. 2. Neck CT (A: native exam, B: arterial phase, C: venous phase) which identified pituitary lodge, involving also the sphenoid sinus, with lysis of sphenoid bone body, including the pterygoid plates, and the anterior cortex of foramen magnum

There were found also bilateral jugular adenopathies, some with necrosis inside, with

maximum dimensions of 2.7cm on the right side, and 3.2cm on left side (Fig. 3).



Fig. 3. Neck CT (A: native exam, B: arterial phase, C: venous phase) which showed bilateral adenopathies with necrosis

After CT examination, a tumor biopsy was taken from the soft palate, and also from a lymph node from the left side of the neck.

At histopathological examination, the fragments of tumor biopsy revealed the aspect of keratosis squamous cell carcinoma moderately differentiated, invasive.

At histopathological examination, the fragments of tumor biopsy revealed a pattern of a moderately differentiated keratinized squamous cell carcinoma, with lymph node extension. The result of the histopathological examination of the adenopathy confirmed the squamous cell carcinoma metastasis, exceeding the capsule, and with invasion in the adjacent fibro-muscular tissue.

After biopsy the patient's condition was good and he was directed to the department of radiotherapy in order to perform the appropriate treatment.

Discussion

Squamous cell carcinoma, though a rare neoplasm, is frequent in otolaryngology, affecting the sinus, nasopharynx, oropharynx, and hypopharynx areas [3].

For malignant tumors such as SCC, rapid growth may occur even though there are no previous clinical signs [9]. For this reason, clinical examination must be completed by imaging examination [10].

Computed tomography is usually the first imaging modality used for the evaluation and staging of tumors of the oropharynx because it can delineate the size and extent of the primary tumor [11], evaluates areas not easily accessible clinically, such as the parapharyngeal and retropharyngeal areas [12], reveals if there are bone involvement and metastatic lymph nodes [11].

Since CT allows more precise staging than is possible clinically [12], after imaging, the staging of the tumor or node is upgraded in at least 30% of cases [8].

Wangmo Tshering Vogel et al [11] stated that oropharyngeal SCC is usually poorly differentiated cancer, and locally advanced at the time of clinical presentation.

In other studies [13,14] was shown that SCC of the oropharynx is most often moderately differentiated.

In a study performed by Bratu et al [3] the squamous cell carcinoma cases with localization at the oropharyngeal were poorly differentiated cancers in 18.18% of cases and the rest were intermediate differentiated.

In our case, the oropharyngeal cancer, developed from the soft palate, was a keratosis squamous cell carcinoma moderately differentiated, invasive.

Soft palate tumors present as soft tissue swelling and can be difficult to assess radiologically unless they are large. They can spread laterally, anteriorly or superiorly [11].

Brennan [15] stated that nasopharyngeal carcinoma, can extend postero-superiorly to the base of the skull or the palate, nasal cavity or oropharynx. Also, Ngan et al [16] presented a case of a patient in which the CT scan showed intracranial invasion by nasopharyngeal carcinoma through the base of the skull and extensive cerebral edema surrounding the invading tumor.

In our patient, the tumor developed from the left side of oropharyngeal part of the soft palate, and extended into the nasopharynx, and the base of the skull with partial lysis of sphenoid bone body, an important part of left sphenoid greater wing, including pterygoid plate, bilaterally lysis of the temporal bone, and to the anterior wall of the foramen magnum.

Bone erosion is an unusual finding in oropharyngeal cancers and is present only in advanced soft palate carcinoma invading the hard palate [8], and most often the invasion being in the maxilla [17].

Skull base invasion is a result of the superior extension of nasopharyngeal carcinoma and is quite commonly found in about one-third of the patients with NPC [18].

The lymph nodes in the upper jugular and the retropharyngeal nodes are most commonly involved by oropharyngeal cancers [11]. Nodal metastases to both sides of the neck are common because of rich lymphatics [11,19], and are found in 60% of tumors at presentation [19].

Consistent with these, there were found in the patient studied, bilateral jugular lymph nodes metastasis, some with necrosis.

Conflict of interests

The authors have no conflict of interests.

Acknowledgments

All authors of this research paper have directly participated in the planning, execution, or analysis of this study, and also all authors of this paper have read and approved the final version submitted.

The authors state that there was written consent of the patient concerning the publication of the article.

Abbreviations

CT (computed tomography)
SCC (squamous cell carcinoma)
MPR (multiplanar reconstruction)
NPC (nasopharyngeal carcinoma)

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