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Bone Metastases from Squamous-Cell Carcinoma of the Larynx: A Case Raport.

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Abstract: *Squamous cell carcinoma accounts for over 95% of malignant tumors of the larynx. The main route of spread is through the lymphatic system to the cervical lymph nodes. Remote metastatic spread of laryngeal carcinomas is rare and most often occurs to the lungs. Their presence indicates a poor prognosis. Distant bone metastases from squamous cell carcinoma of the larynx are very rare and poorly described. We report the observation of a 61-year-old patient with squamous cell carcinoma of the larynx with several secondary bone localizations.*

Keywords: squamous-cell carcinoma, larynx, metastases, Bone.

INTRODUCTION

Laryngeal cancers represent 3.5% of the malignant tumors diagnosed annually in the world and account for 1% of cancer deaths. Several histological types can be encountered, but squamous cell carcinoma represents 90%. Alcohol smoking plays an important role in the genesis of this cancer.

Squamous cell carcinoma of the larynx tends to have local spread with a low incidence of distant metastases. Bone metastases from laryngeal carcinoma are rare. Prognosis and treatment options vary depending on the anatomic site and degree of spread.

OBSERVATION

The patient was 61 years old and had smoked chronically for 30 years, having weaned himself off smoking 6 years ago. He presented to the ENT consultation with chronic dysphonia that had been evolving for 6 months, with dyspnea on exertion and weight loss without signs of dysphagia. On examination, the patient reported left shoulder pain. The examination of the face found a swelling in front of the horizontal branch of the mandible on the left, hard, fixed in relation to the deep plane, without inflammatory signs in front of it [Fig.1]. Clinical examination of the cervix did not show any palpable adenopathy. Nasofibroscopy showed a tumor of the left hemilarynx with fixation of the homolateral vocal cord.

Fig. 1*. left mandibular swelling in a patient with squamous cell carcinoma of the larynx in connection with bone metastasis.*

The patient underwent a radiological workup with a cervical CT scan which showed a left laryngeal glotto-sus glottic tumor process with lysis of thyroid cartilage without cervical adenopathy and visualization of a suspicious lytic image of the left mandibular horizontal branch [Fig.2 and 3].

Fig.2. Cervical CT scan in axial section: Left laryngeal glotto-sus glottic tumor with infiltration of the homolateral thyroid cartilage.

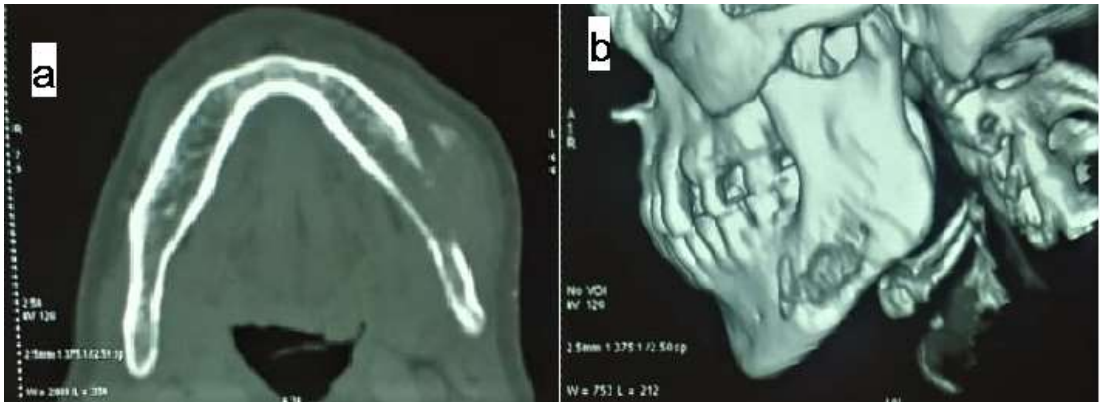

Fig. 3. Facial CT-scan: Left osteolytic lesion of the horizontal mandibular ramus in relation to a metastasis of a squamous cell carcinoma of the larynx (a. axial section; b. 3D reconstruction).

A direct laryngoscopy was performed which showed an ulcerating tumor of the left vocal cord extending to the anterior and posterior commissure with infiltration of the supraglottic stage taking the homolateral ventricular band. Several biopsies were taken of the larynx and the mandibular mass. On awakening, the patient presented dyspnea with desaturation, hence the decision to complete the surgical procedure with a tracheotomy.

The histological study of the biopsies showed an identical tumor proliferation (laryngeal and mandibular) made of polyhedral rounded cell tracts with a voluminous hyperchromatic nucleus with a clearly visible nucleolus. An immunohistochemical complement was requested objective of the tumor cells expressing CK 5/6 in favor of a poorly differentiated infiltrating squamous cell carcinoma of laryngeal origin.

An extension workup was requested, made of CT TAP that shows a lytic image of the left scapula arriving the glenoid and the body of the third lumbar vertebra L3 [Fig.4 and 5]. A bone scan with MDP-Tc99m was done coming back in favor of pathological hyperfixations suspicious of secondary bone localizations at the level of the right mandible, the shoulders, the left humerus and the spine.

The patient was presented to the PCR staff with decision of additional chemotherapy.

Fig.4. Thoracic CT-scan: osteolytic process of the left scapula in relation to a metastasis of a squamous cell carcinoma of the larynx (a. axial sections; b. 3D reconstruction).

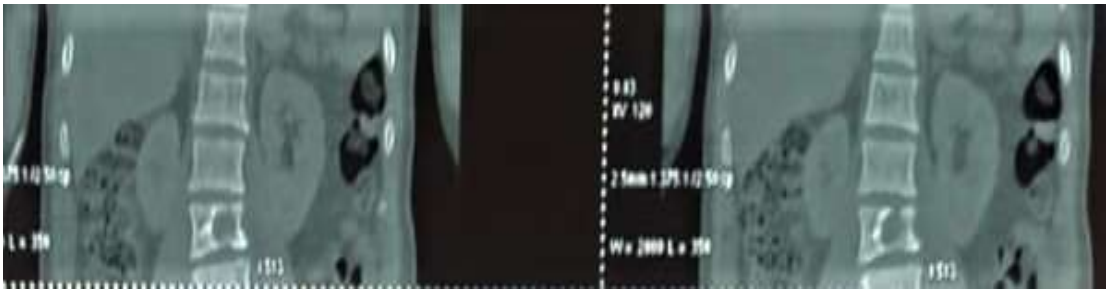

Fig.5. CT-scan Abdominopelvic in coronal reconstruction: Osteolytic lesion of the third lumbar vertebra L3 in relation to a secondary metastatic location.

DISCUSSION

Five cancers are responsible for more than 80% of bone metastases: breast, bronchopulmonary, prostate, thyroid and kidney cancers [1]. Metastases of laryngeal cancers are most often noted in a locoregional manner towards the cervical lymph nodes [2]. Hematogenous distant spread of squamous cell carcinoma is rare [3]. According to Merino et al. supraglottic cancer has distant metastatic spread in 15% of cases [4]. The study of W.YANG et al. shows that patients with subglottic laryngeal cancer had a longer average survival (12 months) than patients with glottic and supraglottic laryngeal cancer (8 months), because of the metastatic potential of glottic and supraglottic cancer [5].

The lungs are the most common site of distant metastasis of laryngeal carcinoma (45-85%). Less common sites are bone (10-31%) and liver (6-23%) [6]. Growth factors present in bone create an ideal environment for tumor cell growth [3]. The study of Probert and Thompson shows that the greater the local extent of a tumor, the greater its potential for metastasis [7].

Bone metastases may be painful and palpable on clinical examination or may be asymptomatic [2]. Bone window CT with slices in the 3 planes allows a detailed study of bone metastases by specifying their number in the explored field and their size [8]. MRI is a powerful modality for the detection of lesions, thanks to its potential to evaluate the bone marrow. Although whole-body MRI technology has been available for several years, its use is still limited by the acquisition time [9].

Bone scintigraphy with 99mTc-bisphosphonate is historically the reference technique for the detection of bone metastases [8]. It is a sensitive examination allowing early detection of bone lesions not visible on standard radiography, but it remains non-specific [10]. However, despite these limitations, bone scintigraphy remains the method of choice for the initial investigation of patients in whom bone metastases are clinically suspected [11].

The coupling of PET to CT (PET/CT) increases the sensitivity to detect metastases and the specificity of all parameters, by combining the metabolic data provided by PET with the anatomical study offered by CT [8]. It has a sensitivity of 96% and a specificity of 98.5% in the detection of head and neck cancers [3].

The limited number of cases of bone metastases from laryngeal carcinoma makes it difficult to determine the treatment of choice. Surgical treatment is not usually the first therapeutic option in these patients, but it may be useful in some cases to prevent or treat mechanical or neurological complications [12]. External radiation therapy is used for analgesic purposes or for spinal decompression [12]. Molecules targeting bone metabolism can help prevent or delay problems such as fractures [13].These are mainly bisphosphonates due to their ability to inhibit bone resorption and Denosumab which achieves almost complete inhibition of osteoclasts.

Interventional radiology offers patients with bone metastases analgesic, consolidative and even focal curative carcinological solutions [14].

Treatment should always be individualized. For patients with poor general condition and comorbidities who would not be able to tolerate chemo-radiotherapy treatment, comfort care and palliative measures should be offered to improve their quality of life [2].

The diagnosis of bone metastasis is synonymous with a disseminated disease process. The prognosis remains poor despite therapeutic advances [10].

CONCLUSION

Bone metastases of squamous cell carcinoma of the larynx are rare, must be suspected clinically in front of a pain or a swelling of osseous seat, and to seek by an assessment of extension adapted. Their prognosis remains poor.

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