Case report

THYROID METASTASIS OF A SQUAMOUS CELL CARCINOMA OF THE TONGUE - A RARE CASE REPORT

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ABSTRACT

Introduction: We present a patient with carcinoma of the tongue with a lymph node and thyroid metastases. The squamous cell cancer of the tongue's 5-year survival rate has not been improved in the last three decades. Most common sites of metastases are the locoregional lymph nodes, followed by distant pulmonary, liver, bone and skin metastases. Only ten cases of metastases to the thyroid gland are reported in the literature.

Case report: A 79-year old man presented to the University Hospital in Varna, Bulgaria. Two months before admission, he noticed swelling of the tongue and progressive weight loss. The inspection of the oral cavity revealed a lesion on the left margin of the tongue. A biopsy was performed with a histological result of differentiated squamous cell carcinoma of the tongue. A computed tomography scan of the head and neck region discovered a lesion in the right thyroid lobe. 18-fluoro-2-deoxy-glucose-positron emission tomography imaging showed a metabolically active tumor of the tongue with hyper-metabolic metastatic cervical lymph nodes and a zone with abnormally elevated fixation of 18F-FDG in the central part of the soft palate. The described thyroid nodule did not have an increased tracer uptake. It was cytologically assessed after fine-needle aspiration biopsy (FNAB) as a metastasis from squamous cell carcinoma of the tongue.

Conclusions: Distant metastases from tongue cancer to the thyroid gland are extremely rare and mostly occur in the advanced stages of malignancy.

Keywords: tongue, metastasis, thyroid gland,

INTRODUCTION

Oral squamous cell carcinoma (OSCC) is the sixth most common cancer in the world [1]. A spread of 10-20 per 100 000 people is calculated by European statistics [2]. Between 25% and 40% of all cases of the oral cavity, tumors are diagnosed as squamous cell carcinoma of the tongue (SCCT) [3].

Risk factors for head and neck squamous cell carcinoma (HNSCC) carcinogenesis are tobacco, alcohol, the human papilloma virus (HPV), Epstein-Barr virus (EBV), herpes simplex virus (HSV), immunosuppression, polymorphism of interleukin 6 (IL6), tumor necrosis factor (TNF) [4] and inherited syndromes, e.g. Fanconi anemia, aplastic anemia [5].

The poor 5-year survival of the HNSCC has not been improved in the past three decades despite medical therapy advances. SCCT such as the other HNSCC most often metastasize by the lymphatic route. Osaki et al. reported an incidence of hematogenous distant metastasis of 4.1% [6]. The most common sites are the lungs (65%), bones (25%), liver (24%) and skin (14%) [7].

Fewer than 450 cases of metastasis to the thyroid gland of all kind of origin are reported in the literature with only ten from HNSCC. We found just two case reports of squamous cell carcinoma of the tongue- the first is described by the oncology team of Thomas and coauthors [8] and the second- from Tsuyoshi and coauthors [9]. Others report an average survival of 30 months for patients who underwent thyroid resection because of metastases there and even worse for those who were not operated - 12 months [10].

CASE REPORT

A 79-year old man presented to The University Hospital "St. Marina" in Varna, Bulgaria. An information leaflet was offered and a written informed consent was ob-

tained from the patient. Two months before admission, he noticed swelling in the tongue, followed by difficulty swallowing of liquid-paste foods and progressive weight reduction.

His medical history showed arterial hypertension, aortic stenosis, Parkinson's disease and a stroke two years ago with concomitant medications for these conditions and no past history of smoking.

On clinical examination, he was in a poor general condition with height 175 cm, weight 73 kg, BMI 24. The oral cavity inspection detected a poorly demarcated lesion on the left margin of the tongue with ulceroproliferative areas and a size of 4.0 x 2.1 x 1.5 cm, which is shown in Figure 1. No enlarged lymph nodes were detected. The thyroid gland was slightly enlarged on palpation mainly due to enlargement of the right lobe. Breathing sounded vesicular with single wheezes in the right pulmonary base. On heart auscultation there was a rhythmic heartbeat and pansystolic murmur all over the precordium with punctum maximum at the aortic auscultatory zone, radiating to the carotid arteries. There were not any abnormalities during an abdominal examination. Static tremor of the extremities was noticed.

Fig. 1. Photography of the poorly demarcated lesion on the left margin of the tongue

First, an excision biopsy of the tongue lesion was performed with a histological result of highly to moderately differentiated squamous cell carcinoma of the tongue. Figure 2 presents the focal superficial keratinisation with a formation of keratin pearls, and the stratified squamous epithelium of the tongue was with acanthosis and pseudoepitheliomatous hyperplasia. A computed tomography (CT) scan of the head and neck region and X-ray of the chest were performed to stage the disease. The CT detected a hypodense lesion with a heterogeneous structure in the right lobe of the thyroid gland. An X-ray of the chest was performed with pneumofibrosis, basal emphysema, atherosclerosis of the aorta and suspected metastasis in the first right rib.

Fig. 2. Histology: the stratified squamous epithelium of the tongue was with acanthosis and pseudoepitheliomatous hyperplasia, focal superficial keratinisation was present. Tumor consisted of sheets of large polygonal cells containing keratin, a formation of keratin pearls was present.

Thyroid function was assessed with FT4 and FT3 within the reference range and a slightly elevated thyroid-stimulating hormone (TSH 6.23 IU/mL). Levothyroxine treatment of subclinical hypothyroidism was not initiated because of the advanced age of the patient.

Thyroid ultrasound revealed an enlarged right thyroid lobe with a solid encapsulated hypoechoic nodule with an intranodular macrocalcificate, shown in Figure 3 (Figure 3). The nodule measures 22x18x15mm in size with peripheral vascularization on Doppler US. The surrounding thyroid parenchyma was slightly inhomogeneous.

Fig. 3. Thyroid ultrasound

A fine-needle aspiration biopsy (FNAB) of the thyroid nodule was performed. The cytological assessment revealed blood and blood elements, fibrovascular frag-

ments, concentrated colloid, macrophages, groups of tumor cells with squamous cell differentiation and anuclear squamous cells consistent with metastasis from squamous cell carcinoma of the tongue to the thyroid (Figure 4).

Fig. 4. The cytological result

We continued with further imaging studies like an abdominal ultrasound with no abnormalities detected. Fluorine 18-fluoro-2-deoxy-glucose-positron emission tomography (18F-FDG-PET) scans showed metabolically active tumor of the tongue with hypermetabolic metastatic cervical lymph nodes and a zone with abnormally elevated fixation of 18F-FDG in the central part of the soft palate. The described thyroid nodule did not have increased tracer uptake.

Fig. 5. PET-CT of the whole body

After being discussed in a multidisciplinary tumor board meeting, the patient was staged as T3N1M1. At this stage, surgical therapy was not indicated, and the patient

was referred for concurrent chemoradiation (CCRT). He completed 70 Gy (divided in 35 fractions) using intensity modulated radiation therapy along with Cisplatin for days 1, 22 and 43. However, his condition deteriorated, and after 6 months, he was admitted in the intensive unit for palliative care. On clinical examination, he was somnolent, with oral cavity ulcerations, laboratory findings of bacterial inflammation. Despite the treatment with antibiotics, the patient finally deceased.

DISCUSSION

Approximately 3.6% of all cancer deaths are caused by oropharyngeal cancer [11]. The highest incidence and prevalence of this cancer is reported among some populations in the Indian subcontinent, chewing tobacco, areca nut and betel quid [12]. The epidemiology of oropharyngeal cancer has changed over the past several years with an increasing incidence among alcohol and tobacco non-users, young women and subjects under 45 years of age. Most reports publish increasing frequency ranging from 0.4% to 3.3% per year [13].

Because of its origin, oral cancer arises exceptionally on the background of premalignant dysplasia of oral epithelium. However, de novo tumor formation is also possible. Lateral borders and the anterior two-thirds of the tongue are the most commonly affected areas.

In our patient, the primary lesion was also found in the lateral tongue border. He was staged as T3N1M1 due to the presence of metastatic cervical lymph nodes, a thyroid metastasis and possible bone metastasis in the first right rib. A locoregional spread to the soft palate could be discussed because of the abnormally elevated fixation of 18F-FDG described. Nevertheless, this would not affect the choice of treatment because of the advanced stage of the disease.

Although not so common, haematogenic metastases worsen the survival of a patient with HNCC [7]. A previous study described a rate of distant metastases in cases of tongue cancer to be 4.1% [5]. In this case, we report a patient with extremely rare haematogenic spread to the thyroid gland. To our knowledge, there are just two similar cases described.

Oral surgery (partial glossectomy) or radiotherapy are the first-line treatments of choice for early-stage tongue cancer. When the disease is advanced, wide excision and reconstructive surgery are required, where possible. Otherwise, chemoradiotherapy is one of the therapy options intending to preserve the organ in such patients. McDowell et al. found that an alternative to surgery in patients with tongue cancer staged as T4 may be chemoradiotherapy. They investigated disease progression and functional outcomes in patients with T4 SCCT and did not find a significant difference in the five-year survival rate between patients treated with surgery and those with chemoradiotherapy [14]. Stenson et al. reported that the need for total glossectomy in such patients might be avoided by systemic chemoradiotherapy [15].

A study performed by Jones et al. suggests that radiotherapy and surgery could control this disease with similar effect. There are no treatment options for SCCT that is locally advanced (T3-4) at the presentation that

can offer better survival results over palliation [16]. In our case, the combination of radiation therapy along with Cisplatin was the treatment of choice due to the advanced age and multiple comorbidities of the patient.

Another option for the treatment of advanced tongue cancer is the superselective intra-arterial chemoradiotherapy infusion [17, 18, 19, 20]. Tumor-feeding artery catheterization could improve therapeutic results.

CONCLUSION

Metastases to the thyroid gland are extremely rare, especially those originating from tongue cancer. For patients with oral SCC presented with a metastatic spread at the time of diagnosis, the prognosis is poor with short life expectancy.

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