CASE REPORT

Metastatic Follicular Carcinoma Thyroid Masquerading as a Primary Jaw Tumor

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Abstract Metastatic tumours of the oral cavity are rare constituting approximately one percent of all oral malignancies. These tumors are clinically significant as their appearance may be the first indication of an undiscovered malignancy at a distant primary site or the first evidence of dissemination from a known primary tumor. Thyroid cancer metastasizing to the jaw bones is a rare occurrence and very few cases have been described in literature. We present an additional case which in fact masqueraded as a primary jaw tumor. Metastasis to jaw bones is generally associated with poor prognosis with a majority of the patients dying within 6 months of diagnosis. Thyroid cancers however seem to be an exception to this, resectable solitary jaw bone metastasis from differentiated thyroid cancers is associated with a much better prognosis and therefore should be considered for metastatectomy.

Keywords Metastatic follicular carcinoma thyroid · Jaw tumors · Prognosis

Introduction

Metastatic tumours of the oral cavity are rare, constituting approximately one percent of all oral malignancies [1, 2]. Breast, lung and kidney are the primary origin of metastasis in about 50–60 % of the cases. Thyroid cancer metastases to the oral cavity is a very infrequent occurrence and cases described in the literature are a very few isolated case reports [2–5]. We report an interesting case of oral cavity metastasis from a primary thyroid malignancy, which masqueraded as a primary jaw tumor.

Case Report

A 52-year-old man without any comorbid illness presented to our center with complaints of a rapidly increasing painful swelling of the left lower jaw of 5 months duration. He also complained of loosening of teeth and a subsequent ulceration of the jaw swelling.

Clinical examination revealed a large well circumscribed swelling in left lower jaw of about 15 × 10 cm extending from angle of mouth anteriorly up to the level of the zygoma superiorly (Fig. 1). Intra-oral examination revealed an ulcero-proliferative growth involving the left lower alveolus with bicortical expansion of left hemi-mandible and loosening of teeth and occasional bleeding. There was no significant palpable neck adenopathy. Clinical examination further revealed a firm and enlarged left lobe of thyroid.

A CT scan of the head and neck showed an expansile lytic lesion involving the left hemi-mandible. There was evidence of intense enhancement with extensive neovascularity (Fig. 2a, b). The left lobe of the thyroid measured 4 × 3 cm, showed non homogenous ill-defined areas and

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Fig. 1 Clinical photograph at presentation **Fig. 2** a, b Axial CT scan of the head and neck showing an expansile lytic lesion involving the left hemi-mandible. There was evidence of intense enhancement with extensive neovascularity. Also seen is the

left lobe of the thyroid measuring 3×3.5 cm and showing non homogenous ill-defined areas

an FNAC from the same showed follicular epithelial cells with colloid and with occasional nuclear grooving suggesting a follicular neoplasm.

The clinical diagnosis was that of a primary odontogenic jaw tumor coexistent with a follicular neoplasm of the thyroid, however, a wedge biopsy of ulcer of lower gingivum surprisingly suggested a diagnosis of metastatic follicular carcinoma of the thyroid (immuno-positive to TTF-1 and CD 56) (Fig. 3a–d).

A decision was taken to surgically resect the metastatic tumor in the lower jaw along with a total thyroidectomy. The patient underwent a segmental resection of the left lower hemi-mandible (Fig. 4a, b) along with a reconstruction with pectoralis major muscle flap along with a total thyroidectomy. The postoperative histopathology revealed a 4×3 cm tumor in the entire left lobe of thyroid and three nodules in right lobe of 0.3–1.5 cm suggestive of follicular carcinoma thyroid with capsular infiltration and vascular invasion and 14×10 cm lesion in left hemi-mandible suggestive of metastatic follicular carcinoma thyroid.

The post-operative Iodine-131 scan showed 0.6 % uptake in thyroid region with whole body scan showing no evidence of functioning metastasis. The patient was taken

up for Radioactive Iodine-131 ablation (200 milli-curies) and is presently disease free and on regular follow up with thyroxin suppression for the past 14 months (Fig. 5a, b).

Discussion

The actual incidence of metastatic tumors to the jaw bones is possibly unknown. This is due to the fact that the jaw bones are seldom involved in skeletal surveys for metastasis or examined in autopsies. Jaw metastases are found to be less common than other skeletal metastases such as the vertebrae, ribs, pelvis and the skull as the amount of red marrow and vessels in the jaw bones tends to decrease with age [6]. Most metastasis involving the jaw bones are reported to occur in the mandible, mainly in the molar and premolar areas and this is believed to be due to the greater presence of hematopoietic tissue in the mandible than in other bones of the facial skeleton [7].

A majority of the metastatic jaw tumors have been reported to occur between the 5th and the 7th decades of life [8]. Published reports seem to suggest a gender variation in the origin of the primaries, the common primary sites of origin of

Fig. 3 **a** From thyroid showing features of follicular carcinoma thyroid. **b** From the lower jaw (mandible) showing features of metastatic follicular carcinoma thyroid. **c** TTF 1 immunopositivity from the thyroid gland. **d** TTF 1 immunopositivity from the metastatic jaw tumor

Fig. 4 **a, b** Post operative specimen following the jaw tumor metastatectomy

jaw metastasis being breast, ovary and thyroid in the female patients and lung, prostate, and kidney among the male patients. In the younger age group (first two decades) metastasis has been found to originate from adrenal neuroblastomas, medulloblastomas and osteogenic sarcomas [9].

The clinical presentation of metastatic lesions to the jaw bones can be deceiving, often leading to an initial misdiagnosis [3]. Jaw bone metastasis can present with varying

symptoms including painful swelling, loosening of teeth, delay in healing after tooth extraction, pathologic fractures or paresthesias [1]. However, in about 29–33 % of the cases, the metastatic lesion might be the first indication of an undiscovered malignancy as was also seen in our patient [7].

A histological diagnosis is mandatory in diagnosing and differentiating primary intraoral malignancies from metastasis of unknown primary tumours. Radiographically,

Fig. 5 a, b Post operative clinical photograph after a 14 month follow up

the metastatic jaw tumors are often ill-defined, are osteolytic or radiolucent, although they may present as osteoblastic, radiopaque mixed lesions. In about 5 % of cases, pathological changes are not detected radiographically [8].

Follicular thyroid carcinomas have a greater propensity to the hematogenous route to the distant sites including lungs, bone, liver and brain. Bone metastases are usually seen in about 1–3 % of the well-differentiated thyroid carcinomas, occurring more often in follicular carcinomas and in patients more than 40 years of age [10]. Although a majority of the skeletal metastasis from thyroid cancers can be effectively managed by radioactive iodine ablations or external beam radiation, some authors do recommend surgery in the event of a solitary, accessible metastatic lesion [10]. The lack of large numbers of patients with jaw metastasis prevents accurate determination of the prognosis of follicular thyroid carcinomas after metastatectomy [10]. A few reports have none the less suggested that metastatectomy of a jaw tumor from a thyroid primary carries a much better prognosis when compared to the other primaries sites [9].

In conclusion, the clinical presentation of a metastatic lesion to the jaw bone can be challenging to a clinician and a consideration for metastatectomy should be made for a secondary jaw tumor from a thyroid primary, given its potential for a durable symptom and disease control and possibly a favorable long term outcome.

Conflict of interest None.

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