Anaplastic Thyroid Carcinoma or Thyroid Metastasis from Cholangiocarcinoma? A Case Report

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Abstract

Anaplastic thyroid carcinoma presents as an extremely locally invasive neck mass while metastases in the thyroid are most commonly described as small, indolent, solitary nodules usually originating from kidney, breast, lungs and skin tumors. We report the case of a 74-year old male patient illustrating the difficulties of differential diagnosis between an anaplastic thyroid carcinoma and a thyroid metastasis of a peripheral cholangiocarcinoma in a cirrhotic patient diagnosed and operated for a locally advanced thyroid tumor. The history, clinical and imagistical features strongly pleaded for the diagnosis of anaplastic thyroid carcinoma presumably with liver metastases, also supported by the rapid recurrence following total thyroidectomy. Immunohistochemical tests showed a malignant carcinomatous proliferation with anaplastic prophyll. Positive immunochemical staining for cytokeratin AE1/AE3, CK7 and negative CK20, AFP, CD15, CD30, CD5, TTF1 and thyroglobulin directed the possible diagnosis toward a secondary thyroid tumor from a peripheral cholangiocarcinoma. Immunohistochemical tests showed a malignant carcinomatous proliferation with anaplastic prophyll. Positive immunochemical staining for cytokeratin AE1/AE3, CK7 and negative CK20, AFP, CD15, CD30, CD5, TTF1 and thyroglobulin directed the possible diagnosis toward a secondary thyroid tumor from a peripheral cholangiocarcinoma. A CT-guided percutaneous hepatic puncture biopsy was planned but the patient presented an ischemic stroke with fatal outcome. In conclusion, in spite of surgical treatment the rapid recurrent thyroid cancer either primary or metastatic had a poor prognosis with fatal outcome mainly in the presence liver cirrhosis and cardio-vascular co-morbidities.

Keywords: Thyroid; Anaplastic carcinoma; Metastasis; Cholangiocarcinoma; Surgery

Introduction

Metastatic tumors in the thyroid gland occur in as many as 24% of subjects when examined at autopsy and most commonly primary tumors are located in the kidney, breast, lung, and malignant melanoma of the skin. Generally, a metastatic tumor in the thyroid gland presents as a solitary nodule that may be the initial evidence of disease or the first presentation of recurrent disease but more often there is a widespread metastatic disease present and the manifestations in the thyroid gland are clinically unimportant. Anaplastic carcinoma describes an undifferentiated malignancy derived from more well-differentiated thyroid follicular epithelium. In contrast to the generally indolent nature of differentiated thyroid carcinoma, anaplastic carcinoma represents one of the most aggressive human neoplasms, with a disease-specific mortality of at least 90%. Occasionally, it may be difficult to determine if the specimen represents metastatic disease or if it is originating from the thyroid gland, such as an anaplastic thyroid carcinoma [1].

We present a case illustrating the difficulties of differential diagnosis between an anaplastic thyroid carcinoma with liver metastases and a thyroid metastasis of a peripheral cholangiocarcinoma in a cirrhotic patient diagnosed and operated for a locally advanced thyroid tumor.

Case Report

A 74-year old male patient was referred to surgery from the endocrinology department for a thyroid tumor with compression signs. The patient was previously diagnosed with C virus liver cirrhosis, type 2 diabetes mellitus, arterial hypertension, ischemic heart disease and anemia. The patient reported a 4 month history of fatigue and weight

loss and more recently (2 weeks) neck pain and enlargement of the anterior cervical region with dyspnoea and dysphagia. A cervical lymph node biopsy previously performed in the ENT department revealed just a chronic nonspecific lymphadenitis. The physical examination showed a large, irregular, hard and fixed tumor of the right thyroid lobe with multiple laterocervical lymphadenopathies. The lab tests showed a normal thyroid function and calcitonine level, AFP, CEA and CA19-9 within normal range. Ultrasound of the thyroid described an extensive tumor of the right lobe with bilateral cervical lymphadenopathies. Thyroid scintigraphy revealed multiple areas of hypo and affixation of 99m Tc in both lobes. Computer tomography (CT) of the neck revealed the thyroid gland almost completely replaced by a 64/89/85 mm solid, inhomogeneous tumor, predominantly developed in the right lobe and deviating trachea, larynx and hypopharynx to the left. Right internal jugular vein was thrombosed without demarcation limit from the tumor and multiple laterocervical and superior mediastinum lymphadenopathies were present (Figure 1).

FNAC (fine needle aspiration cytology) showed a suspicious cytology-Bethesda V. Routine preoperative laryngoscopy was normal.

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Under the suspicion of thyroid malignancy the patient was operated and a total thyroidectomy with lymphadenectomy of the central and lateral compartments of the neck was performed. The frozen section exam revealed a massive malignant infiltration with marked pleomorphism. The final pathology described a massive malignant infiltration with marked pleomorphism and large areas of necrosis (Figure 2).

Immunohistochemical tests were performed but could not distinct between an anaplastic carcinoma with lymphoepithelial aspect and a metastatic carcinoma from a cholangiocarcinoma (Table I).

After 2 months he was readmitted with signs of local recurrence. CT showed a 90/86/82 mm tumor mass in right thyroid space with necrotic areas which compressed the carotid sheath, larynx, and esophagus. CT of the abdomen showed multiple nodules in the VI, VII, VIII segments of the liver, suggestive for liver metastases or peripheral cholangiocarcinoma. An exploratory laparoscopy with liver biopsy was intended but the patient suffered an ischemic stroke with grade II coma (extensive subarahnoidian hemorrhage.) and deceased 10 ten days later in the intensive care unit.

Discussion

The biological behaviour, clinical and imagistical features should normally allow an obvious distinction between an undifferentiated primary thyroid carcinoma and a secondary tumor in the gland. Whereas anaplastic thyroid carcinoma presents as an extremely locally invasive neck mass, metastases in the thyroid are most commonly described as small, indolent, solitary nodules. In a large series from the Mayo Clinic, the average size of the thyroid metastatic nodules was 3 cm [2]. The incidence of thyroid metastases secondary to any type of primary tumor is reported between 1.9-9.5% and surgical resection of the thyroid metastasis ranges between 0.02 and 1.4% [3-8]. The survival is poor, ranging between 1 and 12 months [9-12]. Most frequently the primary tumor is renal and only two cases of thyroid metastases secondary to cholangiocarcinoma were reported on Pubmed database [3,4].

In our case, the history, clinical and imagistical features strongly pleaded for the diagnosis of anaplastic thyroid carcinoma presumably with liver metastases, also supported by the rapid recurrence following total thyroidectomy. Immunohistochemical tests showed a malignant carcinomatous proliferation with anaplastic prophile. Positive immunochemical staining for cytokeratin AE1/AE3, CK7 and negative CK20, AFP, CD15, CD30, CD5, TTF1 and thyroglobulin raised the suspicion of a secondary thyroid tumor from a peripheral cholangiocarcinoma. This hypothesis was also supported by the diagnosis of macronodular liver cirrhosis and presumably a neoplasm in the segment VII. Although the tumoral markers

Figure 2: The Microscopic Examination (HE 100x): Pleomorphic Massive Malignant Infiltration.

Table I: Immune Histochemistry Tests.

Citokeratin CK AE1/AE3, CK7	Intense Positive
Citokeratin CK20	Negative
Thyroglobulin (TG), TTF1	Negative
AFP	Negative
Chromogranin, synaptophysin	Negative
LCA	Intense Positive in peritumoral lymphoid tissue but negative in the tumoral cells
CD15, CD30	Negative
S100	Negative

for hepatoma or cholangiocarcinoma were within normal limits, immunohistochemistry tests raised the possibility of a metastatic thyroid tumor from a cholangiocarcinoma. Unfortunately, the patient presented a fatal stroke in the day when he was listed for a CT-guided percutaneous hepatic puncture biopsy. This exploration would have enabled us to delineate with accuracy the relationship between the thyroid tumor and the liver nodules.

Conclusion

In conclusion, despite of surgical treatment the rapid recurrent thyroid cancer either primary or metastatic had a poor prognosis with fatal outcome mainly in the presence liver cirrhosis and cardio-vascular co-morbidities.

Conflict of interests

Authors have no conflict of interests to disclose

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Figure 1: CT scan: Thyroid Gland Tumor with Internal Jugular Vein Invasion.

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