Journal of Thyroid Disorders & Therapy

Nawarathna et al., Thyroid Disorders Ther 2015, 4:1
DOI: 10.4172/2167-7948.1000168

Case report Open Access

Thoracic Wall Metastasis from an Occult Thyroid Follicular Carcinoma

Nadeesha Jeewan Nawarathna[1*], Nawam R Kumarasinghe[2], Deepthika Chandrasekara[1], Rasika Shamalie Balasooriya[3], Palitha Rathnayake[4], Aruna A Shaminda[2], Maujud M Rizmy[1] and Ranjith JK Senevirathne[5]

[1]*Registrar in Surgery, Teaching Hospital, Kandy, Mawanella, Sri Lanka*

[2]*Senior Registrar in Surgery, Teaching Hospital, Kandy, Mawanella, Sri Lanka*

[3]*University of peradeniya, Galaha Road, Peradeniya, Sri Lanka*

[4]*Consultant Pathologist, Teaching Hospital, Kandy, Mawanella, Sri Lanka*

[5]*Consultant Surgeon, Teaching Hospital, Kandy, Mawanella, Sri Lanka*

[*]**Corresponding author**: Nadeesha Jeewan Nawarathna, MBBS, Teaching Hospital, Kandy, Mawanella, Sri Lanka, Tel: 94 812 222261; E-mail: nadeeshanawarathna@yahoo.com

Rec date: Oct 12 2014; **Acc date:** Dec 22 2014; **Pub date:** Jan 7 2015

Abstract

Occult thyroid carcinoma presenting with clinically apparent metastasis is rare and is a diagnostic challenge. Here we report a 68 year old male who presented with a left side chest wall mass of one year duration. The mass showed rapid enlargement at the latter end of its course, following an initial asymptomatic period. Imaging studies showed a soft tissue mass eroding into several ribs.Wide local excision with primary reconstruction was performed. Histological studies and immune staining revealed metastasis from a follicular thyroid carcinoma. Total thyroidectomy followed, confirming the diagnosis. Post-operatively radio isotope ablation (I131) was done.A suppression dose of thyroxin was continued with regular thyroglobulin assays. Painful bone metastasis responded well to analgesics, bisphosphonates and external beam radiotherapy. Follicular carcinoma comprise 10-15% of thyroid malignancies. Localized thyroid carcinoma has a very good prognosis, ten year survival rates reducing by 50% with metastatic disease. Commonly thyroid cancer presents as detectable thyroid nodules, 25% having metastasis. In contrast metastatic manifestations are reported in less than 5% of occult thyroid cancers.

Keywords: Follicular carcinoma; Occult thyroid carcinoma; Thoracic wall metastasis

Introduction

Manifestation of secondary deposits from a silent thyroid cancer is one presentation of the condition defined as occult thyroid carcinoma [1]. Approximately 25% of metastatic [2] spread from differentiated thyroid cancer (DTC) is to bone. Secondary deposit from occult thyroid cancer is rare [3] and presents a challenge to the clinician in its diagnosis. The presence of distant metastasis is reported todecrease 10year survival rate by 50% [4]. In this paper we present a middle aged male who presented with a thoracic wall mass suggestive of a soft tissue tumor. Histological analysis revealed a metastatic deposit of an occult follicular thyroid cancer.

Case History

A 67 year old male, presented with a lump on the left side of his chest for duration of 8 months. Initial gradual enlargement was noted with rapid enlargement over the preceding two months associated with intermittent pain. He was a known diabetic on oral hypoglycaemics.

Clinical examination revealed a painless mass of 10 cm x 15 cm on the left side posterolateral chest. Further examination suggested attachment to the thoracic wall (Figure 1). Regional lymphadenopathy was not present and organ system evaluation was unremarkable.

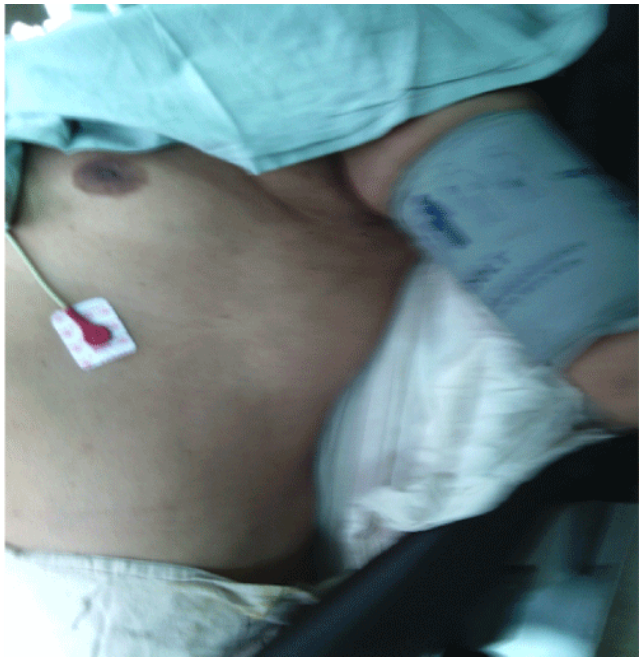

Figure 1: Thoracic Wall Metastasis

Contrast enhanced computerized tomography scan revealed a mixed density mass (cystic and solid areas) within the chest wall

eroding into the 9th, 10thand 11th ribs (Figure 2). Its deep surface was seen to protrude into the pleural space, yet the pleura were intact. Mediastinal node enlargement as well as pulmonary or liver secondaries was not seen.

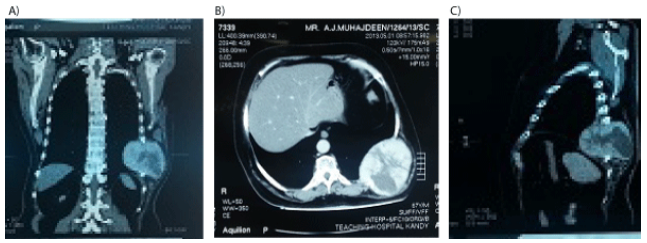

Figure 2(a, b and c): CT film of thoracic wall metastasis

A left sided thoracotomy was performed and the mass surgically excised with resection of the involved ribs.

Macroscopically it an encapsulated mass with solid and cystic areas was seen. Haematoxylin and eosin stain showed packed small follicles with empty lumina. The tumor infiltrated the capsule and skeletal muscle (Figure 3). Appearances were highly suggestive of a metastatic follicular carcinoma of the thyroid. Malignant neoplasms of renal and pulmonary origin were other differential diagnoses which were excluded by immunohistochemistry (Figures 4-6).

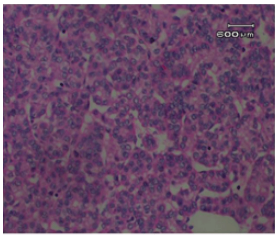

Figure 3: High power view of thoracic wall metastasis from the follicular carcinoma of the thyroid

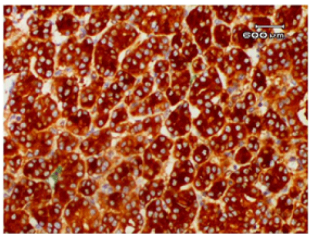

Figure 4: Metastasis was Immunopositive for thyroglobulin

Further radiological imaging was performed on the thyroid and abdomen. Imaging of the thyroid gland revealed a multinodular goiter with a suspicious nodule of the right lobe. Abdominal imaging studies were normal. Radioisotope scanning with Tc99m methylene diphosphonate showed significant tracer uptake of multiple ribs on both sides, compatible with bone metastasis.

The patient underwent total thyroidectomy. Histology confirmed a follicular carcinoma of the thyroid. Suppression doses of thyroxin were prescribed in the postoperative period followed by I131 ablation. Pain from metastatic bone lesions were managed with analgesics, bisphosphonates and physiotherapy.

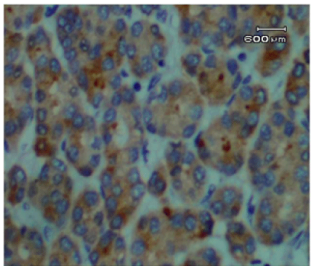

Figure 5: Metastasis was immunonegative for Epithelial Membrane Antigen(EMA)

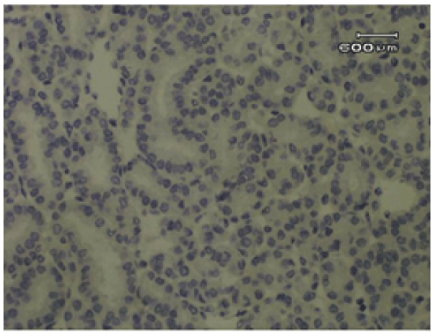

Figure 6: Metastasis was immunonegative for Carcinoembroyonic Antigen (CEA)

Discussion

Differentiated thyroid carcinoma is the commonest endocrine malignancy [5,6]. Papillary carcinoma comprises the majority whilst 10% are follicular carcinomas. The overall survival from localized thyroid carcinoma is 85-90% at 10 years but reduces by 50% in metastatic disease. About 25% of follicular carcinomas eventually develop metastasis, with increasing age being a significant risk factor.

Reports of metastatic disease as the initial presentation of occult thyroid follicular carcinoma are limited, with an incidence of about 3-4% according to previous studies [7,8].

Occult thyroid carcinoma can be categorized as; incidentally found thyroid carcinoma or microcarcinoma in thyroidectomised specimens for benign disease or at autopsy, incidentally detected papillary thyroid microcarcinoma on imaging studies, clinically apparent metastasis from a clinically undectable thyroid malignancy and thyroid cancer localized in ectopic thyroid tissue [1].

In this case our patient presented with clinically apparent metastatic deposits. Skeletal metastases of carcinoma of the thyroid normally present with pain but maybe clinically silent. Pain maybe due to release of cytokines from the tumour or maybe due to pressure or

mass effect within the bone. Additionally patients may present with fractures in some situations of skeletal metastasis.

The main mode for spread of follicular thyroid carcinoma is the haematogenous route. The commonest site of metastasis being, the lung followed by bone [9,10]. More than 80% of bone metastasis is to the axial skeleton, commonly the vertebrae, ribs and pelvis. The excised soft tissue mass in this patient was well encapsulated and attached to ribs.

Haematoxylin and eosin staining of the excised tumor showed cells arranged in small follicles, which were empty. Thyroid follicular carcinoma could not be confirmed by light microscopy. Differential diagnoses included renal and lung malignancy. A positive thyroglobulin test andepithelial membrane antigen (EMA) as well as negative carcinoembryonic antigen (CEA) in immunohistochemistry studies confirmed the origin of the tumor.

Ultrasonic imaging of the neck showed a multinodular goiter with a suspicious nodule on its right side. Lung and renal malignancies were excluded. The patient underwent total thyroidectomy and the histology confirmed a follicular carcinoma of the thyroid gland. Post operatively he was started on suppression thyroxin doses. Subsequently a methylene diphosphonate Tc 99m bone scan was performed as a staging investigation. Multiple hot areas of the axial skeleton were compatible with bone metastasis from a thyroid follicular carcinoma.

Surgery is the main form of treatment for resectable metastatic differentiated thyroid carcinoma [11,12], followed by I131 ablation. Since our patient had multiple painful bone deposits we started him on analgesics andbisphosphonates [13] to which he responded. Skeletal metastasis haveosteolytic effects on bone thus the anti osteoclastic activity of bisphosphonates are known to have a beneficial effect on such patients [11]. However when surgery is an impractical option, other modalities need to be considered. External beam radiotherapy [12] is an alternative for iodine unresponsive metastatic lesions.

References

1. Boucek J, Kastner J, Skrivan J, Grosso E, Gibelli B, et al. (2009) Occult thyroid carcinoma. ActaOtorhinolaryngolItal 29: 296-304.
2. Kelessis NG, Prassas EP, Dascalopoulou DV, Apostolikas NA, Tavernaraki AP, et al. (2005) Unusual metastatic spread of follicular thyroid carcinoma: report of a case. Surg Today 35: 300-303.
3. Sevinc A, Buyukberber S, Sari R, Baysal T, Mizrak B (2000) Follicular thyroid cancer presenting initially with soft tissue metastasis. Jpn J ClinOncol 30: 27-29.
4. Cooper DS, Doherty GM, Haugen BR, Kloos RT, Lee SL, et al. (2009) Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. Thyroid 19: 1167-214.
5. Ozdemir N, Senoaylu M, Acar UD, Canda MS (2004) Skull metastasis of follicular thyroid carcinoma. ActaNeurochir (Wien) 146: 1155-1158.
6. Emerick GT, Duh QY, Siperstein AE, Burrow GN, Clark OH (1993) Diagnosis, treatment, and outcome of follicular thyroid carcinoma. Cancer 72: 3287-3295.
7. Shaha AR, Shah JP, Loree TR (1997) Differentiated thyroid cancer presenting initially with distant metastasis. Am J Surg 174: 474-476.
8. Sevinc A, Buyukberber S, Sari R, Baysal T, Mizrak B (2000) Follicular thyroid cancer presenting initially with soft tissue metastasis. Jpn J ClinOncol 30: 27-29.
9. Parlea L, Fahim L, Munoz D, Hanna A, Anderson J, et al. (2006) Follicular carcinoma of the thyroid with aggressive metastatic behavior in a pregnant woman: report of a case and review of the literature. Hormones 5: 295–302.
10. Wexler JA (2011) Approach to the thyroid cancer patient with bone metastases. J ClinEndocrinolMetab 96: 2296-2307.
11. Orita Y, Sugitani I, Matsuura M, Ushijima M, Tsukahara K, et al. (2010) Prognostic factors and the therapeutic strategy for patients with bone metastasis from differentiated thyroid carcinoma. Surgery 147: 424-431.
12. Lutz S, Berk L, Chang E, Chow E, Hahn C, et al. (2011) Palliative radiotherapy for bone metastases: an ASTRO evidence-based guideline. Int J RadiatOncolBiolPhys 79: 965-976.
13. Henry DH, Costa L, Goldwasser F, Hirsh V, Hungria V, et al. (2011) Randomized, double-blind study of denosumab versus zoledronic acid in the treatment of bone metastases in patients with advanced cancer (excluding breast and prostate cancer) or multiple myeloma. J ClinOncol 29: 1125-1132.