

CASE REPORT

OPEN ACCESS

Uncommon metastasis to thyroid gland presenting as a thyroid nodule

Somnath Gooptu, Surendra Sharma, Gurjit Singh, Iqbal Ali

ABSTRACT

Introduction: Metastatic spread to the thyroid is not common in spite of the fact that it has a high vascularity. It is a rare situation especially in an individual without a prior history of malignancy. Thyroid gland is not the common site of metastasis in case of an esophageal malignancy. **Case Report:** A 60-year-old female was presented to our hospital with a solitary thyroid nodule involving the left lobe with cervical lymphadenopathy. There were no clinical features of hypothyroidism or hyperthyroidism. However, laboratory investigations revealed hypothyroid state. Patient was started on thyroxine 100 mg daily. Fine needle aspiration cytology (FNAC) revealed the presence of squamous cell deposits. On further investigating by upper gastrointestinal endoscopy, an ulcerative growth was detected 20 cm from the incisors. Biopsy from the growth confirmed the diagnosis of squamous cell carcinoma of the esophagus. Patient was treated with chemoradiation. **Conclusion:** All atypical neck masses have to be thoroughly investigated

as all neck masses may not be related to primary thyroid conditions. This will result in avoiding unnecessary thyroidectomies instead of treating primary pathology.

Keywords: Thyroid metastasis, Esophagus, Fine needle aspiration cytology (FNAC), Squamous cell, Thyroid nodule, Hypothyroidism, Hyperthyroidism

Gooptu S, Sharma S, Singh G, Ali I. Uncommon metastasis to thyroid gland presenting as a thyroid nodule. International Journal of Case Reports and Images 2013;4(11):615–618.

doi:10.5348/ijcri-2013-11-393-CR-7

Somnath Gooptu¹, Surendra Sharma¹, Gurjit Singh², Iqbal Ali³
Affiliations: ¹Resident, Department of Gen. Surgery, Padm. Dr. D. Y. Patil Medical College, Pimpri, Pune, Maharashtra, India; ²Professor, Department of Gen. Surgery, Padm. Dr. D. Y. Patil Medical College, Pimpri, Pune, Maharashtra, India; ³Associate Professor, Department of Gen. Surgery, Padm. Dr. D. Y. Patil Medical College, Pimpri, Pune, Maharashtra, India.

Corresponding Author: Dr. Somnath Gooptu, Dept. of General Surgery, Padm. Dr. D.Y. Patil Medical College, Sant Tukaram Nagar, Pimpri, Pune-18, Pune, Maharashtra, India. 411044; Ph: +91-9970799514; Email: somnathgooptu@yahoo.co.in

Received: 14 June 2013
Accepted: 25 July 2013
Published: 01 November 2013

INTRODUCTION

The thyroid gland is not an usual site for metastasis despite, being second to the adrenal gland in terms of relative vascular perfusion. The most common cause of metastasis to the thyroid gland is the renal cell carcinoma [1]. The thyroid gland is not the most common site of metastasis in case of an esophageal malignancy.

CASE REPORT

A 60-year-old Indian female was presented with complaints of swelling in the neck for last one month which increased in size rapidly during this period. Two weeks later, she developed dysphagia for solids. Her voice was normal and she had no difficulty in breathing. There were no clinical features of hypothyroidism or hyperthyroidism. On examination, left lobe of the

thyroid gland was enlarged measuring 6x4 cm, hard in consistency and having restricted mobility. Carotid pulsations were felt on both the sides. Hard single, Level II and III, cervical lymph nodes were palpable on the left side (Figure 1). She was found to be in hypothyroid state on biochemical tests hence started on 100 mg of thyroxine daily.

Ultrasound scan of the thyroid gland revealed heterogeneous thyroid gland with enlarged isthmus and left lobe with a heterogeneous nodule in the left lobe of the gland. Enlarged lymph nodes were present at IB, II, III and IV levels. Fine needle aspiration cytology (FNAC) from the thyroid gland and cervical lymph nodes showed the presence of poorly differentiated squamous cell carcinoma with possibility of metastatic deposits in view of associated features of thyroiditis (Figures 2

and 3). Possible primary sites were considered and in view of history of dysphagia. Barium swallow and upper gastrointestinal endoscopy was done. Barium studies revealed asymmetric, concentric luminal narrowing in mid-esophagus level at the level of carina with mucosal irregularity and apple core appearance (Figure 4A–B). Upper gastrointestinal endoscopy revealed the presence of ulcerative growth involving the full circumference of the mucosa 20 cm from the incisors and biopsy from this site showed infiltrating squamous cell carcinoma (Figure 5). It was decided to treat the patient with chemoradiation.



Figure 1: Enlarged left lobe of thyroid gland.

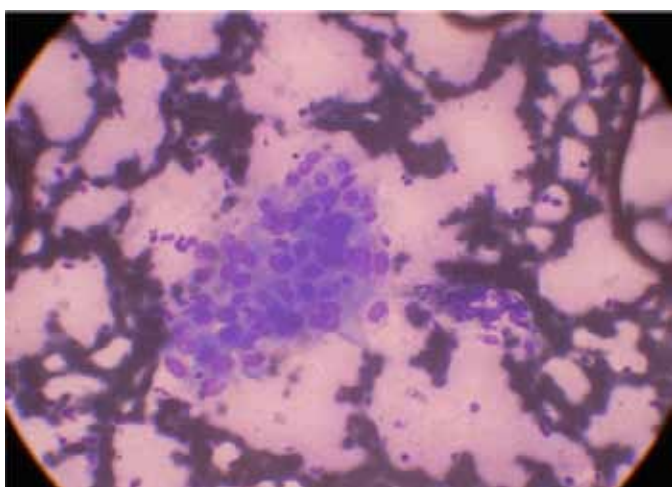


Figure 2: Fine needle aspiration cytology from thyroid gland showing squamous cell carcinoma (H&E stain, x400).

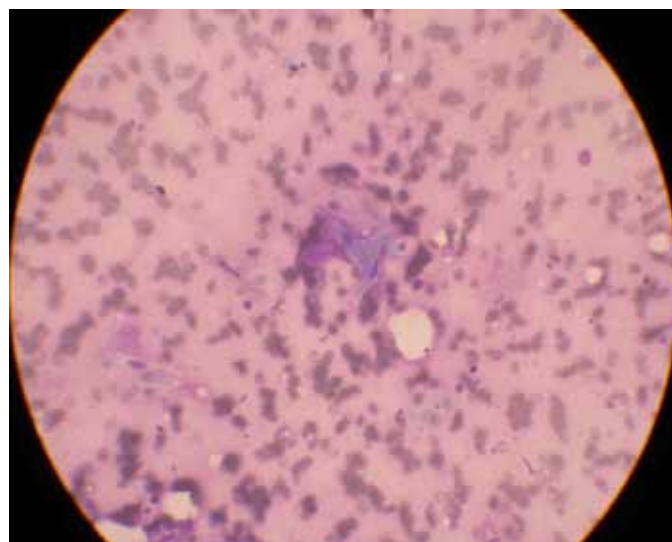


Figure 3: Fine needle aspiration cytology from cervical lymph node depicting squamous cell deposits (H&E stain, x400).



Figure 4: (A) Barium studies revealed asymmetric, concentric luminal narrowing in mid-esophagus level at the level of carina, (B) Mucosal irregularity and apple core appearance.

DISCUSSION

Squamous cell carcinoma of the thyroid is an extremely rare entity with an incidence of 1.4–2.5% of the thyroid malignancies [2]. Normally, in a thyroid gland squamous epithelium is not present but as a result of long standing inflammation intra thyroid squamous cells may be associated with embryonic remnants or result

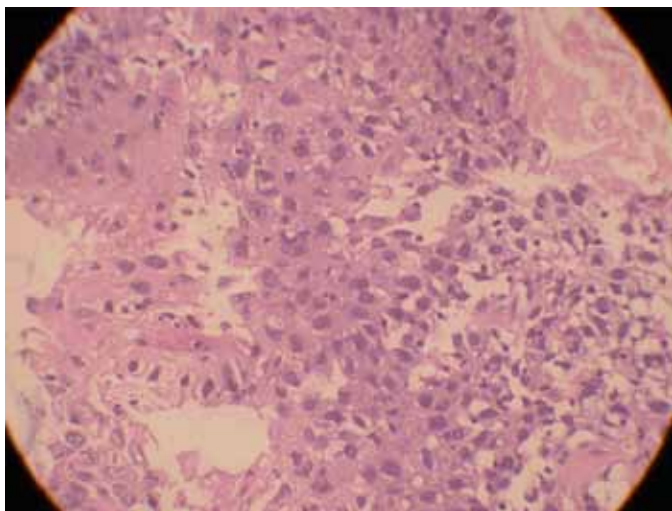


Figure 5: Biopsy from esophageal growth depicting infiltrating squamous cell carcinoma (H&E stain, x400).

from metaplastic transformation of native follicular epithelia [3]. The exact etiology for primary thyroid malignancy is not known. However, the proposed theory includes metaplasia theory (squamous metaplasia of the underlying thyroid disease) and embryonic rest theory (squamous cells originating from the remnant of the ultimobranchial duct or the thyroglossal duct).

Metastatic squamous cell carcinoma of the thyroid is more common. The most common sites of metastasis to the thyroid gland originate from the lungs, breast and kidneys [4]. Most of the series report carcinoma of kidney, colon and melanoma as the frequent primaries from which metastasize to thyroid [5]. Thyroid gland is an unusual site of metastasis from esophageal carcinoma. The etiopathogenesis of secondary metastatic squamous cell carcinoma (SCC) of the thyroid can be divided into three groups:

(i) Direct extension from adjacent primaries like esophageal or laryngeal carcinoma.

(ii) Hematogenous spread from the lungs or other primary sites.

(iii) Retrograde lymphatic spread is rare [6].

Secondary lesions that occur in the thyroid gland are usually solitary [7]. In certain cases, it can also present as a solitary thyroid nodule instead of a diffuse enlargement of the thyroid gland [6]. In our case too, it was solitary enlargement of the left lobe of thyroid. The usual presentation is the rapid enlargement of a neck mass (hard in consistency) with or without cervical lymphadenopathy. It may be associated with other symptoms such as dyspnea, dysphagia and hoarseness of voice. This usually occurs due to secondary infiltration to the adjacent structures. Our patient also presented with dysphagia and a rapidly developing midline neck mass with the presence of cervical lymphadenopathy. Metastatic carcinoma to the thyroid gland from the esophagus is a very rare occurrence [6]. Large autopsy

series very rarely demonstrated esophageal metastasis to the thyroid (<1%) [8]. In these patients thyroid function tests are usually within normal limits and hypothyroidism or hyperthyroidism are infrequent findings [9]. Our patient was diagnosed with hypothyroidism and was started on thyroxine 100 mg once daily on empty stomach. Thyroid function tests returned to normal limits within one month of initiation of the therapy and the patient was advised to continue with the same treatment.

The FNAC is usually an important tool for the diagnosis as it helps to know the nature of neoplasm with accuracy in most of the cases [10]. In our case, FNAC from the thyroid gland and cervical lymph nodes showed the presence of poorly differentiated squamous cell carcinoma with possibility of metastatic deposits. However, the limitation of FNAC is that differentiation between anaplastic thyroid carcinoma and metastatic lesions are difficult [4]. SCC of the thyroid immunohistochemically stains for cytokeratin but not for Thyroid Transcription Factor I and thyroglobulin, which are considered to be markers for follicular and papillary carcinoma. The differential diagnosis may also include tumors showing thymic or branchial pouch differentiation as it occurs in the neck in close proximity to the thyroid gland and has a squamous or mucinous differentiation [10]. These have recently been named spindle epithelial tumor with thymus like differentiation (SETTLE) or carcinoma showing thymus like differentiation (CASTLE) [7]. The most unusual feature about the case was that it presented as a thyroid nodule with malignant cervical lymphadenopathy, but finally led to the diagnosis of secondary deposits from esophageal malignancy rather than a primary thyroid malignancy.

CONCLUSION

All uncommon thyroid malignancies and atypical neck masses must be thoroughly investigated as all neck masses are not related to primary thyroid conditions. This is important to avoid unnecessary thyroidectomies in patients having already widespread metastasis and poor prognosis.

Author Contributions

Somnath Gooptu – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Surendra Sharma – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Gurjit Singh – Acquisition of data, Analysis and interpretation of data, Drafting the article. Final approval of the version to be published

Iqbal Ali – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© Somnath Gooptu et al. 2013; This article is distributed under the terms of Creative Commons attribution 3.0 License which permits unrestricted use, distribution and reproduction in any means provided the original authors and original publisher are properly credited. (Please see www.ijcasereportsandimages.com/copyright-policy.php for more information.)

REFERENCES

1. Chen H, Nicol TL, Udelsman R. Clinically significant, isolated metastatic disease to the thyroid gland. *World J Surg* 1999 Feb;23(2):177–80.
2. Menegaux F, Chigot JP. Thyroid metastases. *Ann Chir* 2001 Dec;126(10):981–4. [Article in French].
3. Sahoo M, Bal CS, Bhatnagar D. Primary squamous-cell carcinoma of the thyroid gland: New evidence in support of follicular epithelial cell origin. *Diagn Cytopathol* 2002 Oct;27(4):227–31.
4. Nakhjavani NK, Gharib H, Goellner JR, van Heerden JA. Metastasis to the thyroid gland. A report of 43 cases. *Cancer* 1997 Feb 1;79(3):574–8.
5. Ivy HK. Cancer metastatic to thyroid: A diagnostic problem. *Mayo Clin Proc* 1984 Dec;59(12):856–9.
6. Moulick A, Guha P, Das A, Das AK. Squamous Cell Carcinoma of Proximal Esophagus with Simultaneous Metastasis to Thyroid & Sternum: A Case Report with Review of the Literature. *Tannaffos* 2012;11(1):67–70.
7. Basu S, Nair N, Borges AM. Squamous cell carcinoma of esophagus masquerading as solitary thyroid nodule. *Indian Journal Of Cancer* 2005 Oct-Dec;42(4):205–7.
8. Meissner W, Warren S 1971. Distribution of metastases in 4012 cancer autopsies. In: Anderson WAD (ed) *Pathology*. Vol 1,6 ed. Mosby, St. Louis, MO, pp 538
9. Bandyopadhyay SK, Bandyopadhyay R, Dutta A. Isolated massive thyroid metastasis in lung cancer. *Singapore Med J* 2006 Apr;47(4):324–6.
10. Bae WK, Shim HJ, Choi YD, et al. Severe hypothyroidism induced by thyroid metastasis of cholangiocarcinoma. *Cancer Res Treat* 2009 Mar;41(1):56–8.

Access full text article on
other devices



Access PDF of article on
other devices

