Iodophilic Synchronous Phalangeal and Choroidal Metastasis from Follicular Thyroid Carcinoma: A Case Report and Review

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What Is Known About It?

- Follicular cancer of the thyroid is known to metastasize to unusual sites by hematogenous spread.

What Does the Report Add?

- This report highlights the rarity of synchronous digital and choroidal metastasis from the follicular carcinoma of the thyroid.

Key Words

Follicular thyroid cancer · Choroid · Phalanx · Metastasis · Radioiodine

Abstract

Background: Follicular thyroid cancers constitute 15–20% of all thyroid tumors. The usual mode of dissemination is via the hematogenous route. The most common sites of distant metastasis are to the lungs and bones. **Objective:** A case is presented to demonstrate the unusual presentation of follicular cancer with synchronous digital (distal phalanx of the little finger) and choroidal metastasis that was responsive to radioiodine treatment. **Case Report:** A 54-year-old female presented with swelling over the terminal part of the left little finger with thyromegaly. Investigations revealed metastasis from follicular thyroid cancer to the little finger along with pulmonary metastases. She underwent total thyroidec-

tomy with central compartment clearance followed by ^{131}I therapy. Subsequent follow-up demonstrated complete regression of the digital metastasis and partial regression of the choroidal metastasis which was evaluated after the radioiodine scan that picked up the choroidal metastasis. **Conclusion:** Follicular thyroid cancers can rarely spread to unusual sites like the digits and choroid. This report highlights the synchronous presentation of digital and choroidal metastasis which responded to ^{131}I therapy.

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Introduction

Well-differentiated thyroid cancers include both the papillary and follicular varieties. Follicular thyroid cancers are more aggressive than their papillary counter-

Fig. 1. **a** Clinical photograph showing thyromegaly. **b** Proliferative growth over the terminal phalanx of the left little finger. **c** X-ray of the digit showing lytic lesion. **d** Chest X-ray showing coin-shaped opacities in both the lower zones. **e** Histomicrograph of FNAC of thyroid ($\times 40$) showing follicular cells. **f** Histomicrograph of FNAC of digit ($\times 40$) showing tumor cells arranged in follicles. **g** Direct ophthalmoscopy showing retinal detachment. **h** USG B scan showing choroidal tumor with retinal detachment. **i** Fundus fluorescein angiography with tumor deposit and surrounding hyperfluorescence. **j** Radioiodine scan showing uptake in the digit and choroid with pulmonary metastasis. **k** USG B scan with tumor regression after ^{131}I treatment. **l** Complete regression of the digital metastasis after ^{131}I treatment.

parts with hematogenous spread as their metastatic signature. After lung, bone is the second most common site of systemic metastasis from thyroid carcinoma, the incidence ranging from 1 to >40% [1]. In a series of 1,038 consecutive cases with differentiated thyroid cancers [2], 44 patients (4%) presented with distant metastasis. In these 44 patients, 11% with follicular thyroid carcinoma presented with distant metastases. However, metastases to organs such as the brain, eye, breast, liver, kidney, muscle and skin are rare and often occur in patients with advanced disease portending a poor prognosis (fig. 1).

Case Details

A 54-year-old female presented with a swelling of the terminal part of the little finger of the left hand since 2 months. There was no history of trauma or itching. She also gave a history of thyroid enlargement since 6 months. On examination, there was a small proliferative growth involving the terminal phalanx of the little

finger of the left hand. The overlying nail was dystrophic and loose from the nail bed. The growth was firm in consistency, but did not bleed on touch. Clinical examination revealed thyromegaly with multiple nodules in both the lobes. She was clinically euthyroid.

X-ray of the left digit showed multiple lytic lesions in the terminal phalanx. Fine-needle aspiration cytology (FNAC) of the thyroid revealed follicular carcinoma. Biopsy from the growth in the little finger revealed metastasis from the follicular carcinoma thyroid. Chest X-ray and CT scans revealed multiple pulmonary nodules with retrosternal extension of the thyroid. Serum thyroglobulin was 28,320 ng/ml.

The patient underwent total thyroidectomy through the cervical approach. Later, she underwent a radioiodine ^{131}I scan which showed residual thyroid uptake in the neck, mediastinal nodes, bilateral lung metastasis and multiple skeletal metastasis (including occipital bone, D3/D4 vertebrae, sacrum, left scapula, mid-shaft of the right humerus, proximal ends of the bilateral femora, distal shaft of the right femur and distal phalanx of the left 5th digit). Uptake was also seen in the choroid of the left eye. On retrospective history the patient mentioned diminution of vision in the left eye that transiently improved after radioiodine therapy. She was later referred to an ophthalmologist for the visual impairment who diagnosed retinal detachment.

Discussion

Follicular thyroid cancer accounts for 15–20% of all thyroid cancers. It commonly occurs in the 5th and 6th decade of life with a female preponderance. The common route of metastasis is via the hematogenous route. Lung and the skeletal system are the usual sites of metastasis.

Bone metastases from follicular thyroid carcinomas often show a better differentiation pattern than the primary; this unique feature has been named as metastasizing adenoma, benign metastasizing thyroid tumor or malignant adenoma [1]. A study of 123 cases with hand metastases demonstrated that the most common site of hand metastases were the phalanges (51%), carpal (29.5%) and metacarpal bones (27.6%) [3, 4]. Hand metastasis may develop from lung, breast, kidney, and gastrointestinal cancers [5]. Symptoms commonly include swelling and pain of the affected digit. On examination, erythema and tenderness is seen mimicking infection, osteomyelitis, rheumatoid arthritis and gout. Other conditions such as tinea, scabies, lichen planus, connective tissue disorders, and glomus tumors can be considered as differential diagnosis.

In most cases, the development of hand metastasis harbingers the late stage in the natural history of cancers and survival is usually less than 6 months, hence in most cases the treatment is usually palliative. Both chemo- and radiotherapy can occasionally reduce tumor mass and relieve pain in patients with multiple or inoperable lesions [5]. Surgical treatment depends on the site of the lesion and includes excision, amputation, ray resection or curettage [5].

Choroidal metastases are among the commonest tumors involving the choroid. Ferry and Font [7] reported 1 case of uveal metastasis from thyroid cancer in their se-

ries of 227 cases. In a study of 420 patients with uveal metastasis, thyroid cancer was demonstrated in 2 cases [8]. Two other studies also found 15 cases of metastatic thyroid carcinoma to the eye, follicular thyroid carcinomas being the most common cause [9, 10]. Clinically, patients generally present with symptoms of pain and impairment of vision. Ophthalmoscopic examination generally shows an orange-yellow lesion [11]. Diagnosis is established by imaging modalities like fluorescein angiography, B-mode ultrasonography and MRI. However, the gold standard for diagnosis is transretinal choroidal biopsy of the tumor [6]. The differential diagnosis of thyroidal choroid metastasis includes intraocular tumors or local pathologies [6].

Radioactive iodine ablation forms the mainstay of treatment of metastatic thyroid cancer. In our case both the digital and the choroidal metastatic deposits regressed considerably in size after radioiodine treatment, confirming the iodophilic nature of these metastases. This article highlights the rarity of spread to the digits and choroid and their response to treatment.

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Disclosure Statement

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References

- 1 Tickoo SK, Pittas AG, Adler M, Fazzari M, Larson SM, Robbins RJ, et al: Bone metastases from thyroid carcinoma: a histopathologic study with clinical correlates. *Arch Pathol Lab Med* 2000;124:1440–1447.
- 2 Singh U, Kaushik S, Pandav SS, Dogra MR, Powari M, Das A, et al: Papillary carcinoma thyroid presenting as a choroidal metastasis: report of a case and brief review of literature. *Indian J Ophthalmol* 2003;51:81–83.
- 3 Krishnamurthy A, Ramshankar V: Metastatic iodophilic follicular carcinoma of thyroid to a hand bone. *Thyroid Res Pract* 2013;10:36–37.
- 4 Kerin R: Metastatic tumors of the hand: a review of the literature. *J Bone Joint Surg Am* 1983;65:1331–1335.
- 5 Huri G: An atypical metastasis of follicular-type adenocarcinoma of the thyroid gland to thumb. *Case Rep Orthop* 2011;2011:735789.
- 6 Munteanu M, Giuri S, Roæca C, Boruga O, Creàu O: Multifocal choroidal metastases from thyroid carcinoma: a case report. *Chirurgia* 2013;108:268–272.
- 7 Ferry AP, Font RL: Carcinoma metastatic to the eye and orbit: a clinic-pathological study of 227 cases. *Arch Ophthalmol* 1974;92:276–286.
- 8 Shields CL, Shields JA, Gross NE, et al: Survey of 520 eyes with uveal metastases. *Ophthalmology* 1997;104:1265–1276.
- 9 Arat YO, Boniuk M: Red lesions of the iris, choroid and skin secondary to metastatic carcinoma of the thyroid: a review. *Surv Ophthalmol* 2007;52:523–528.
- 10 Bucerius J, Meyka S, Michael B, et al: Papillary thyroid carcinoma with an uncommon spread of hematogenous metastases to the choroid and the skin. *J Natl Med Assoc* 2008;100:104–107.
- 11 Yunta Abarca PJ, Ponce JL, Prieto M, et al: Papillary thyroid carcinoma that metastasized to the choroid. *Eur J Surg* 1999;165:998–999.