



# Orbital Metastasis as a Primary Clinical Manifestation of Papillary Thyroid Carcinoma - Case Report

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## Abstract

Papillary Thyroid Carcinoma (PTC) is the frequent type of neoplasm touching the thyroid gland. It grows gradually and has a clinically drony course. While rare, its aggressive forms with local invasion or distant metastases may occur in <10% of the low-risk and up to 33% of the high-risk cases. Metastatic thyroid carcinoma rarely involves the orbit. Herein we report the case of a 61-year-old woman presenting with proptosis of the left eye as a primary manifestation orbital PTC metastasis. Sporadically, the distant metastasis is culpable for the primary clinical evidence of the disease in such typical cases.

**Keywords:** Papillary thyroid carcinoma; Orbital metastasis; Proptosis

## Introduction

Papillary Thyroid Carcinoma (PTC) is the much trivial neoplasm of the thyroid and also the most prevailing type of Differentiated Thyroid Carcinoma (DTC) far-reaching 85% of all cases. Since 1975, the prevalence of PTC has roughly tripled, from 4.9 to 14.3 per 100,000 [1]. Follicular Variety Papillary Thyroid Carcinoma (FVPTC), even if invasive or not, acts like conventional PTC with numerous tumor foci in the gland in many cases. It is believed to behave similar in clinical manner, indolent course and survival rates [2]. There have been lean mentions of "aggressive" FVPTC where follicular patterned tumors with nuclear features of papillary carcinoma have metastasized hematogenously; these neoplasms have been diversely nosy or multicentric in the thyroid. The orbit is seldom involved in metastatic thyroid carcinoma [3]. Infrequently thyroid carcinoma has been treated as a possible primary tumor in a patient with an orbital metastasis. Recently we evaluated a female patient in whom we discovered a metastatic lesion in the orbit from a primary thyroid carcinoma (FVPTC).

## Case Presentation

A 61-year-old female reported to hospital with a history of unilateral proptosis (Figure 1) after experiencing diminution of vision of the left eye for a period of 1 month. Upon physical examination, we noticed that the left eye was proposed inferiorly and laterally with visual acuity reduced to Perception of Light (PL) only. Projection of Rays (PR) was accurate. Further examination revealed a long-standing swelling involving both the lobes of the thyroid that was present for approximately 20 years. Fine Needle Aspiration Cytology (FNAC) was used to examine the swelling in the thyroid and orbital mass and it suggested a case of metastatic PTC (Figure 2). A plain X-ray posteroanterior view of the chest showed the typical cannon ball appearance of metastatic PTC (Figure 3). A Computed Tomography (CT) scan of the orbit (Figure 4) and brain clearly delineated the large homogenous soft tissue mass behind the left globe that compressed the optic nerve and provided an explanation for the marked reduction in visual acuity. CT spine showed bony destruction of the vertebrae owing to metastatic secondary lesions. The final histopathological examination suggested multicentric FVPTC with extra thyroidal extension. The patient declined any further investigations or treatment from our hospital and was referred to a higher centre on her own will.

## Discussion

Orbital metastasis of systemic cancer is rare and has fascinated the attention of both oncologists and ophthalmologists. Thyroid gland neoplasms account for only 1% of all current malignancies. Recently in two years surveys were done, one in 244 Japanese patients with orbital tumors and other in 1,264 patients at oncology referral centre in the USA with orbital tumors and simulating lesions. Here metastatic tumors represented 2% and 7% of cases, respectively; none came from a thyroid carcinoma [4]. Even though orbital metastases of thyroid carcinomas are bizarre, thyroid carcinoma

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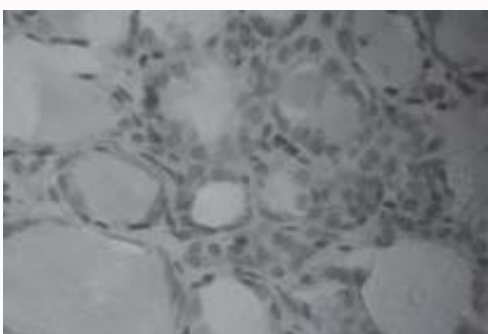
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**Figure 1:** Proptosis at presentation in a case of FVPTC.



**Figure 2:** Fine needle aspiration cytology of the thyroid mass.



**Figure 3:** X-ray of the chest showing cannon ball metastasis.

has to be deliberated as a probable primary tumour in a patient with orbital metastasis.

Literature reports thirteen cases of DTC with orbital metastasis; four with FTC, four with FVPTC, three with PTC, one with Hurthle

cell thyroid carcinoma, and one disclosed to be sweeping. Among these mentioned cases, 10 presented initially with orbital metastasis, akin to our case. This discovery collars the notion that orbital metastasis, when raised, are frequently the presenting feature instead of a later expression of thyroid carcinoma. Mostly, disclosed cases have either a goiter or palpable nodule/s on physical examination. Existence of this vital physical examination discovery may aid in deciding the origin of the metastasis. Amid onset of ocular symptoms, the majority of patients had a long history of thyroid malignancy and clue of widely disseminated metastatic disease. The case is decisive because of its noteworthy presentation, which crops up as a primary clinical manifestation. Our patient had palpable thyroid gland which was identified upon examination of the neck. The origin of the metastatic tumor was confirmed after the FNAC results. It's dated that there is a greater leaning for thyroid carcinoma to metastasize to the orbit than to the globe, contradicting with other malignancies metastasizing in this region. Perhaps it is cognate to lymphatic channel connections between the thyroid gland and the orbit, as concluded by a study using radioisotope thyroidolymphography and orbit lymphography [5].

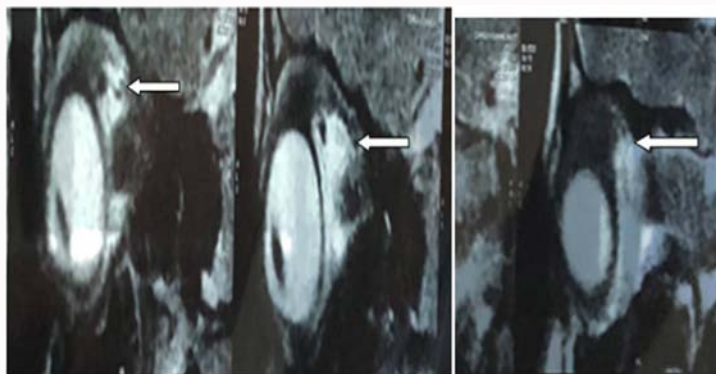
Besic and Luznik [6] reviewed nine patients with thyroid carcinoma who had orbital metastasis, proptosis (56%) and diplopia (44%) as the most common presentation. These disclosures were in contrast to primary orbital tumors [7] and choroidal metastasis from thyroid carcinomas, where weakened vision is the most trivial symptom [8]. Our patient presented with symptoms of proptosis, marked diminution of vision and marked limitation of extra ocular movements.

Contrast-enhanced CT (CECT) is best for imaging [7], and the diagnosis can be entrenched through biopsy and same was true in our case, as the diagnosis of metastatic thyroid carcinoma was inferred after an incision biopsy.

There is lack of specific guidelines for the treatment of DTC with orbital metastasis aside from surgical eradication of the primary tumour followed by RAI (Radioactive Iodine) therapy ablation. Mass regression and normalization of thyroglobulin levels may take 1 to 2 years to occur [8,9]. Second line of treatment, External Beam Radiation Therapy (EBRT) can be given to patients especially with a solitary orbital metastasis.

## Conclusion

Overall PTC usually has a good prognosis, indeed its metastasis to loco regional lymph nodes. Sporadically, the distant metastasis is culpable for the primary clinical evidence of the disease in such



**Figure 4:** Computed tomography scan of the orbit showing secondaries.

typical cases. Orbital metastatic lesions are comparatively rare, and such tumor usually emanate from the breast or lung when they occur. However, metastasis from the thyroid to the orbit is plainly rare.

## References

1. Shaha AR, Ferlito A, Rinaldo A. Distant metastases from thyroid and parathyroid cancer. *ORL*. 2001;63:243-9.
2. Rocha Filho FD, Gurgel Lima G, Almeida Ferreira F, Gurgel Lima M, Hissa MN. Orbital metastasis as primary clinical manifestation of thyroid carcinoma: Case report and literature review. *Arq Bras Endocrinol Metab*. 2008;52(9):1497-500.
3. Davies L, Welch HG. Current thyroid cancer trends in the United States. *JAMA Otolaryngol Head Neck Surg*. 2014;140(4):317-22.
4. Betharia SM. Metastatic orbital carcinoma of thyroid. *Indian J Ophthalmol*. 1985;33(3):191-3.
5. Henderson JW. *Orbital tumors*. 3<sup>rd</sup> Ed. New York: Raven Press, 1994:361-76.
6. Besic N, Luznik Z. Choroidal and orbital metastases from thyroid cancer. *Thyroid*. 2013;23(5):543-51.
7. Yethadka R, Vijayakumar A, Kumar KLS. Proptosis from metastatic thyroid carcinoma: Case report and review. *Ophthalmol Res*. 2014;2(1):18-23.
8. Howden JO, Kean AM, Ghabrial R. Oral radioactive iodine for the treatment of orbital metastasis of carcinoma of the thyroid. *Asian J Ophthalmol*. 2006;8(5):205-7.
9. Tran K, Bigby KJ, Hughes BG, Lee L, Allison R. Clinicopathological report: Bilateral choroidal metastases from papillary thyroid cancer. *Asia Pac J Clin Oncol*. 2011;7(1):11-4.