

Clinical Images

Thyroid follicular carcinoma presenting as intraorbital, intracranial, and subcutaneous metastasis

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Abstract. Follicular carcinoma of the thyroid usually metastasizes through a hematogenous route to the bone, lung, and central nervous system. Metastasis to subcutaneous tissues and retro-orbital region is unusual. We report an unusual case of follicular thyroid carcinoma with metastasis to subcutaneous tissues in the right temporal region with invasion of bone and intraorbital and intracranial tissues that was diagnosed by a computed tomography scan and biopsy. The patient was managed by total thyroidectomy followed by radiotherapy.

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Metastasis from follicular thyroid carcinoma occurs through a hematogenous route, and the common sites of involvement are bone, the lung, and the central nervous system. Metastatic deposition in subcutaneous tissues and retro-orbital region is rare. Unilateral proptosis as an initial manifestation of follicular carcinoma thyroid is unusual, and only a few cases have been reported in the literature.^{1,2} We report a case of thyroid follicular carcinoma that presented with metastasis to intraorbital, intracranial, and extracranial subcutaneous tissues at the time of diagnosis.

A 63-year-old woman was admitted for evaluation of a slowly progressive painless subcutaneous swelling over the right temporal region and unilateral proptosis of 8-month duration. She had a multinodular goiter of 20-year duration. She did not have a history of diplopia, visual impairment, or auditory symptoms.

Physical examination revealed a large multinodular goiter and proptosis on the right side. A subcutaneous swelling of 5 cm × 5 cm was noticed in the right temporal region

(Fig. 1A). There were no features suggestive of hypo/hyperthyroidism.

An assay of thyroid hormones, thyroglobulin, and thyrotrophin was reported to be normal. A computed tomography scan of the head (Fig. 1B) showed an isodense-enhancing mass lesion in the right temporal region with erosion of the temporal bone and greater and lesser wing of sphenoid. It showed intraorbital, intracranial, extracranial, and subcutaneous extension. Fine-needle aspiration cytology from the subcutaneous swelling of the temporal region revealed a follicular neoplasm (Fig. 1C) suggestive of metastatic follicular carcinoma from the thyroid. An excision biopsy of the multinodular goiter showed infiltrating follicular neoplasm composed of cells arranged in a follicular, trabecular, and insular pattern separated by thin fibrovascular space. Foci of capsular and vascular invasion were suggestive of poorly differentiated follicular thyroid carcinoma (Fig. 1D).

The patient was managed by total thyroidectomy, post-operative therapy with Iodine-131, and palliative local external irradiation to the skull. The unilateral proptosis and the size of the subcutaneous swelling on the right temporal region were reduced at the 3-month follow-up. She is under regular follow up in the oncology clinic.

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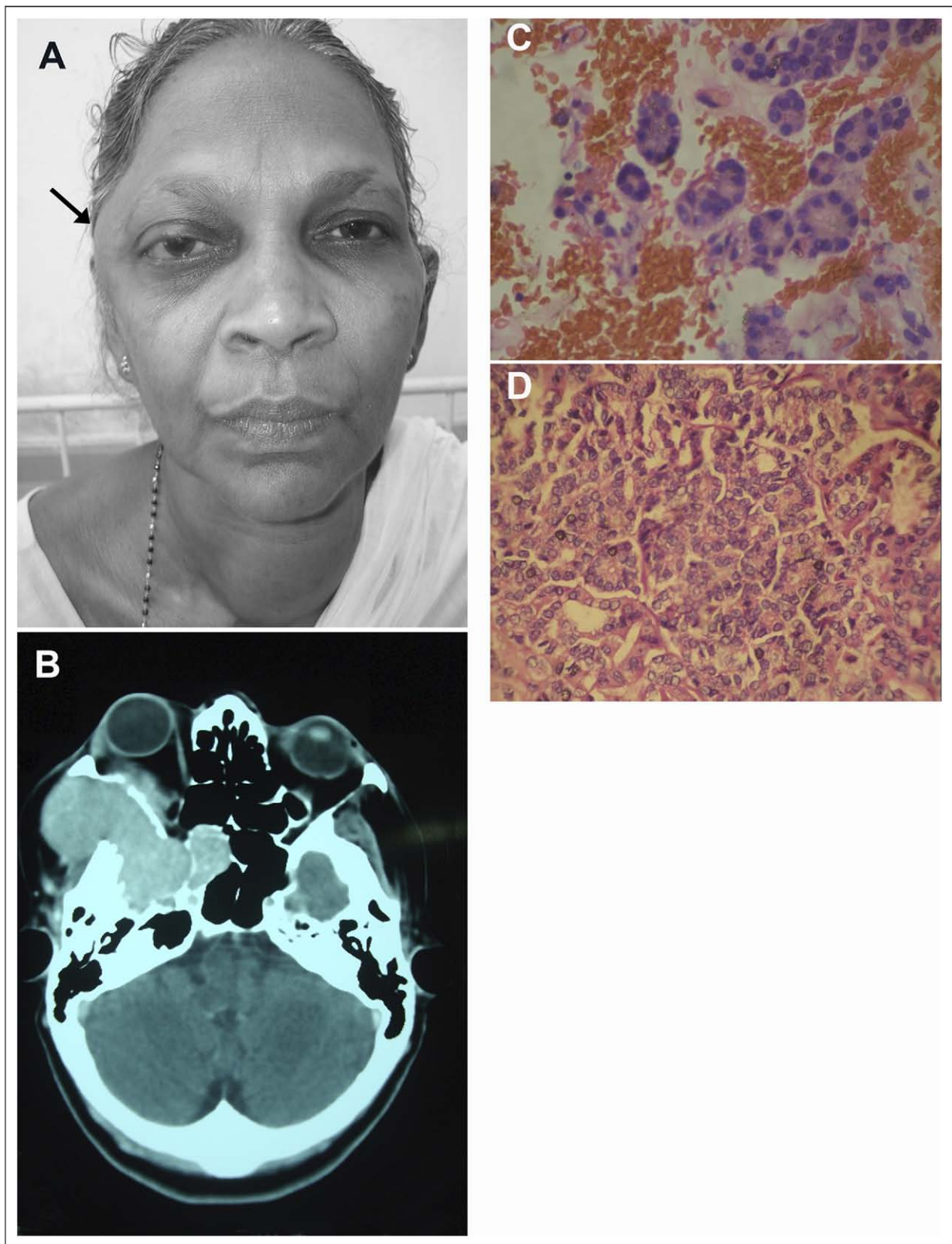


Figure 1 (A) A subcutaneous swelling of 5 cm × 5 cm in the right temporal region. (B) A computed tomography scan of the head showing an isodense-enhancing lesion in the right temporal region with erosion of the temporal bone and greater and lesser wing of sphenoid and intraorbital, intracranial, and subcutaneous extension. (C) Fine-needle aspiration cytology from the subcutaneous swelling on the right temporal region showing follicular neoplasm suggestive of metastatic follicular carcinoma from the thyroid. (D) An excision biopsy of the multinodular goiter showing infiltrating follicular neoplasm composed of cells arranged in follicular, trabecular, and insular pattern separated by thin fibrovascular space. Foci of capsular and vascular invasion are suggestive of poorly differentiated follicular thyroid carcinoma.

Comments

Follicular thyroid carcinoma comprises 15% of all thyroid cancers.³ Differentiated thyroid carcinomas of follicular origin usually metastasize to the lymph nodes, lungs, and bone.⁴ Brain metastases are rare, occurring only in .15% to 1.3% of all cases of thyroid carcinoma.⁵ Follicular thyroid carcinomas are known to produce distant metastases without a clinical thyroid lesion.³

Unilateral proptosis always needs proper evaluation, especially in elderly patients, to search for an occult malignancy. Unilateral proptosis as a manifestation of orbital metastasis from follicular thyroid cancer is rarely reported.^{1,2} Other rare sites of metastases are the brain,⁵ pituitary,⁶ skin,⁷ maxilla,⁸ larynx,⁹ and thymus.¹⁰ Our case is unique in the presence of metastases in intraorbital, intracranial, and extracranial sites at the time of diagnosis.

Brain metastasis from thyroid carcinoma usually carries a poor prognosis although surgery may improve survival. In a case series of 16 patients with metastatic thyroid carcinoma to the brain, surgical resection of brain metastases was associated with a longer survival (20.8 months) compared with no surgical intervention in selected patients (2.7 months).⁵

The treatment options for follicular thyroid carcinomas are surgical resection of both primary and secondary, radioactive iodine therapy, Thyroid Stimulating Hormone (TSH) suppression therapy, chemotherapy, and external radiotherapy.⁵ Gamma knife radiosurgery and radioactive iodine

therapy may play a role in the management of brain metastases.⁵

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