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Thyroid

THYROID CANCER CASE REPORTS

Coexistence of Pituitary Adenoma Causing Acromegaly and Medullary Thyroid Cancer

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Background: We present a case of coexisting acromegaly and medullary thyroid cancer. As both conditions are rare, the association raises the possibility of causality (non-genomic) as opposed to pure coincidence.
Clinical Lesson: A 73 year-old man presented to our clinic with an incidental finding of a left thyroid nodule. The patient underwent an ultrasound-guided fine needle aspiration biopsy which revealed medullary thyroid carcinoma. Shortly afterward, the patient underwent a total thyroidectomy with bilateral cervical lymph node dissection. The patient tested negative for mutations involving RET exons 8, 10, 11, 13, 14, 15, and 16.
On initial presentation, the patient was also noticed to have an appearance typical of acromegaly, with spade-like hands and characteristic acromegalic facial features, including prognathism and macroglossia. These findings were long-standing. He was found to have elevated IGF-1 (121.4 nmol/L, reference range 6.1 - 26.9 nmol/L) and hyperprolactinemia (78.2 mcg/L, reference range 2.7 - 16.9 mcg/L). His growth hormone (GH) levels did not suppress following a 75 g oral glucose tolerance test. Magnetic resonance imaging of the sella turcica revealed a prominent pituitary gland and stalk with a rightward deviated infundibulum, with a suspected 1.1 cm left-sided pituitary macroadenoma. The patient declined surgical management, and he was instead managed medically with octreotide.
Conclusion: Coexistance of GH-producing pituitary adenoma and medullary thyroid cancer is a rare occurrence. We identified ten cases previously described in the literature. Specifically, this is the second reported case of a patient presenting with both medullary thyroid cancer and pituitary adenoma causing acromegaly.
The advanced acromegalic phenotype suggested long standing disease and therefore prolonged tissue exposure to elevated levels of IGF-I. Although acromegaly is more commonly associated with nodular goiter of follicular-cell origin, the possibility of a thyroidal C-cell neoplasm must be entertained especially if GLP-1 agonist therapy is being considered for the treatment of hyperglycemia.

Thyroid

THYROID CANCER CASE REPORTS

Coexisting Metastatic Papillary Carcinoma Thyroid and Clear Cell Neuroendocrine Tumour in Thyroid- A Rare Case Report

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Background: Papillary Carcinoma Thyroid is the most common form of differentiated thyroid cancer. Its coexistence with a Clear cell Neuro endocrine tumor (NET) has not been reported yet. Clear cell carcinoma is an epithelial derived tumor, characterised by the presence of clear cells. It may arise in multiple tissues including kidneys, uterus, GIT and ovary. Though these tumours may metastasize in thyroid rarely, they have not been reported to be originating primarily in thyroid gland and metastasising elsewhere. Also calcitonin negative NET of thyroid Gland are extremely rare. In our case, clear cell tumour was an aggressive one with widespread metastasis. It was Calcitonin negative and expressing other NET markers.
Clinical Case: 40 year old male, presented to endocrine OPD in September 2018, with complaints of right sided neck swelling of 4 months duration. He gave a history of similar swelling on the right side of neck 2 years ago for which he had undergone right Hemi- thyroidectomy at an outside hospital. The HPE report had mentioned the possibility of clear cell NET. Tumour cells expressed Cytokeratin(CK),Epithelial membrane antigen(EMA), CD 56,c-kit,synaptophysin. There was no expression of TTF-1,Tg,PAX 8,Chromogranin A,calcitonin,CD 5,S-100&P 63. FDG PET scan done in 2018 showed FDG avid 8 x 6.1cm soft tissue mass in the right paratracheal region along with FDG avid nodules in the left lobe. FNAC from the mass showed recurrent carcinoma with extensive hemorrhagic cystic changes. In view of the above mentioned findings, he underwent completion thyroidectomy along with bilateral modified neck dissection(MND) and central compartment clearance(FIGURE 1). HPE report mentioned left thyroid having differentiated papillary carcinoma (pT1a pN1a) with positive lymph node in lateral and central compartment. Microscopic findings of the Tissue specimen from the right modified neck dissection(MND) showed tumor cells in groups and sheets,with clear cytoplasm and fairly uniform nucleus appearance. No papillary or follicular cells, no obvious lymphovascular invasion was seen(FIGURE 2A 2B) Frequent areas of necrosis and loose fibrinous tissue were seen amidst the tumor. Mitotic count was approximately 4-5 /hpf. Immuno histochemistry (IHC)done on the specimen from right MND- patchy Epithelial membrane antigen(EMA) expression, CD 10 weakly expressed, rest markers like TTF-1/ PAX8/ RCC antigen /CEA/ Calcitonin /P 63/High molecular weight cytokeratin (HMWCK)/ CK(MNF)/ CK7/ CK20/ CK 19 were negative(figure 2C). Based on the above findings, it was reported first as CASTLE(Carcinoma with thymus like elements) tumour. Tissue specimen was sent to TATA memorial hospital, Mumbai for review. Extensive IHC profile and molecular studies were done, they suggested that it is more likely to be Ewings sarcoma with epithelial differentiation (IHC - positivity for membranous mic2, EMA, CD56 and c Kit, and presence of EWSR1 rearrangements on molecular testing). Still there was no definite consensus regarding the final diagnosis. Tissue slides were sent abroad to Professor Dr Christopher D.M Fletcher at Harvard Medical School. He termed it as unclassified clear cell malignant neoplasm.
Figure 1- GROSS SPECIMEN RIGHT NECK MASS
Figure 2AFigure 2BFigure 2A-MICROSCOPY FROM LEFT HEMI THYROID SHOWING DIFFERENTIATED PAPILLARY THYROID CARCINOMA

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Figure 2B-MICROSCOPY FROM RIGHT MND SHOWING CLEAR CELLS MORPHOLOGY
Figure 2C- IHC PANEL ON TISSUE SPECIMEN FROM RIGHT NECK MASS
Post surgery, he was put on suppressive doses of levothyroxine and calcium and vitamin D supplements, and advised to follow up regularly. But he was lost to follow up for a year. When he followed up a year later, we did a whole body iodine scan(3mCi- I 131) which showed focal increased tracer uptake in anterior neck region on right of midline with a small mild focus on left, without any uptake elsewhere. His thyroglobulin levels were 0.68 ng/ml (normal range 0- 52) and ATA levels were 48.4 IU/ ml (normal range 0-40). Radioiodine ablation therapy (120 mCi) was given.
He remained asymptomatic till feb 2020, when he noticed a painful, rapidly enlarging swelling over the right parieto-occipital region of scalp, which was an osteolytic lesion. MRI brain showed a 3.8x 3.5x 3.1 cm focal lobulated mass in the right parietal region with adjacent bony destruction with dural involvement.(**figure 6**) and PET scan showed hyper metabolic expansile lesion. He underwent embolization followed by excision of the mass in August 2020. Biopsy from the tumour involving right parietal bone showed metastatic poorly differentiated carcinoma with IHC showing immune reactivity for EMA, Vimentin (focal), CK(MNF -116), and CK - 7, and negative for CK 20/ TTF 1/CK 19/ PAX 8 / CD 45/ CD 99/ CD 117/ Thyroglobulin. His general condition started deterioratingIn November 2020,he presented with enlarging right sided swelling(around 15x 10 cm) over the scalp, at the same location Also,there were multiple,darkly pigmented,nodular, discrete swellings over neck, upper chest, along the surgical scar on skull, all over a span of 25-30 days,(**figure 3 and 4**). In view of his widespread disease and generalised poor health, he was admitted and PET scan was done which showed metastatic disease with high grade activity in following regions-Lobulated soft tissue scalp lesions with intracranial extension, multiple nodal lesion in bilateral neck, parotids, mediastinal and axillary nodes,multiple liver lesions, marrow lesions and multiple nodular lesions involving both lungs. (**Figure 5**).
Figure 3 Figure 4Figure 5- PET SCAN
Fig 6.-FLAIR MRI BRAIN SHOWING METASTASIS
Liver biopsy showed tumour cells arranged in solid nests,perivascularly and in pseudo papillae without features suggestive of thyroid cancer. He had persistently low calcium levels during the hospital stay despite adequate calcium and active vitamin D supplementation. He was started on Etoposide-Carboplatin based chemotherapy. Recently admitted for a third cycle of chemotherapy but his chest and scalp lesions have worsened.
Conclusion: This is a case report of a clear cell NET along with papillary carcinoma both coexisting in the thyroid gland. Primary Clear cell carcinoma of thyroid is extremely rare. Literature reviewed so far does not show any similar case reported. The possibility of metastasis of clear cell carcinoma from other sites has been excluded based on clinical and IHC findings. This would possibly be the first reported case of Primary clear cell carcinoma of thyroid and also its co-existence with papillary carcinoma.

Thyroid

THYROID CANCER CASE REPORTS

Coincidence? - Graves' Disease & Thyroid Cancer

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Background: DG coincidently with thyroid carcinoma has been reported as a rare phenomenon. It was thought that DG would be a protective condition in the development of cancer. However, published studies indicate the opposite, reporting an increased prevalence of differentiated thyroid cancer in DG compared to the general population. Some authors even report greater aggressiveness of this type of cancer in the presence of DG, with higher rates of, multifocality, metastatic disease and with a higher risk of recurrence. **Clinical Case:** Female, 46 years old, smoker 10 U.M.A., sent to the Endocrinology consultation due to symptomatic hyperthyroidism. No history of exposure to cervical radiotherapy, contact with iodinated products or cervical pain. Analytically, TSH <0.008 uUI / mL (0.27-4.2), free T4 4.09 ng/dL(0.93-1.70), free T3>20 pg/mL(2.57-4, 43), high levels of anti-thyroid and anti-TSH receptors 11.4IU/L (N <1.75), diagnosing with Graves' disease. The thyroid ultrasound revealed a globose and hypervascularized thyroid. In the right hemithyroid, an echogenic nodular area of ill-defined limits of about 12mm was identified, associated with some hyperechogenic elements. Bilateral cervical and submandibular lymph nodes were visualized with a short 8 mm axis, highlighting a ganglion in the right jugular chain, questioning the presence of millimeter echogenic foci. She started metibasol, with improved thyroid function and opted for ultrasound surveillance. Four months later, she repeated the ultrasound of the thyroid, maintaining a hypercogenic area, with ill-defined limits in the right lobe, with a 13mm longest axis. She also maintained adenopathies in the right jugulo-carotid chain, rounded, without hilum, the largest one with 13x9x17mm, and it was performed a fine needle aspiration of the ganglion. There was no measurement of thyroglobulin in the wash. The morphological changes were compatible with ganglion metastasis due to papillary thyroid carcinoma with a predominantly follicular pattern. She started 5% lugol solute, 7 drops every 8 hours for 8 days before surgery and underwent total thyroidectomy and central and lateral lymphadenectomy, with the identification of a mixed, multifocal papillary carcinoma. in the right lobe and isthmus, the microscopic size of the largest focus was 40mm, without invasion of the capsule or vascular invasion, with ganglion metastases in the lateral (9/46) and central district (6/6) (pT2N1b). She underwent treatment with I131 at a dose of 120mCi. **Conclusion:** This clinical case stands out for its uniqueness, given the simultaneity of Graves' disease and thyroid cancer. The presence of cervical adenomegaly, which is rare in DG, increased clinical suspicion. Due to the

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