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Hurthle Cell Tumour - A case of delayed metastatic disease causing abnormal thyroid function, acromegaly & hypercalcaemia

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Introduction

- Hurthle Cell Tumours are rare & constitute about 5 % of thyroid neoplasms.
- Mean age at diagnosis is 50 year with female to male ratio 2:1
- Distant metastatic disease is seen in 1/3rd of the patients and frequent sites of metastasis are bone and lungs.
- 5 year mortality rate is up to 80% .
- Surgery is the only cure.
- Metastatic disease - Majority(75%) are non iodine avid , chemotherapy is ineffective; some role of palliative radiotherapy.
- ^{111} In Octreotide scintigraphy has role in diagnosing & monitoring of metastatic disease in Non –iodine avid metastasis.
- A critical pathological review of Hurthle cell cancers resulted in diagnostic revision in 28% of the cases.

Case Presentation

- **Referral:** 69 year old male patient referred with abnormal thyroid function tests particularly low thyroxine. Clinically euthyroid.
- **Background**: Right hemithyroidectomy in 2001 – Hurthle cell adenoma, hypertension, Barrets oesophagus, diverticular disease.
- **Medications**: PPI, mebeverine, solifenacin, perindropril & bisoprolol.
- **Examination**: a few marfanoid features i.e. long arms and fingers, skin folds due to weight loss, no features of acromegaly or Cushing's disease

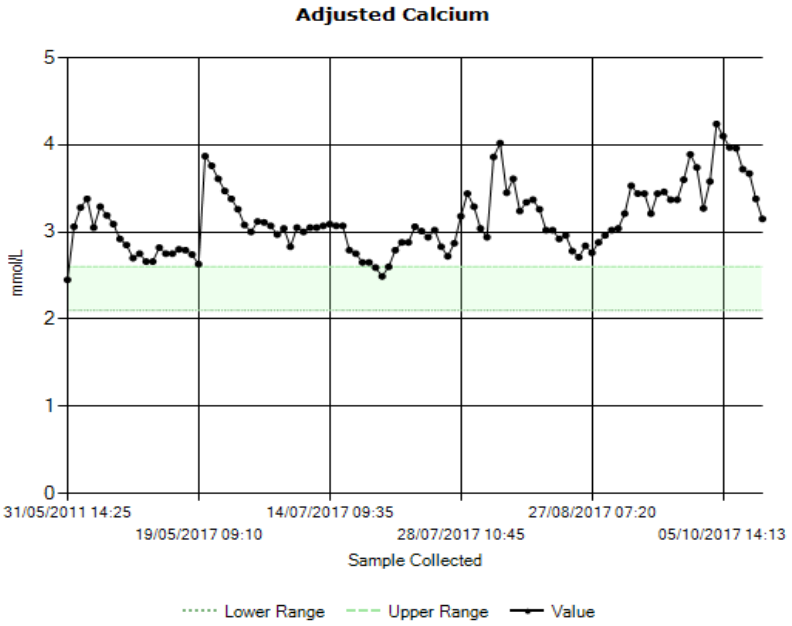
Investigations

Thyroid Profile	Dec 2012	Dec 2016	Jan 2017	May 2017
TSH (0.35-3.5mU/L)	1.71	1.82	1.22	0.59
FT3 (3.8-6pmol/L)			5.9	6.7
FT4 (8-21pmol/L)	6	< 5	<5	6
Total T4 (mass spec)			10.5	

Growth Hormone Suppression Test

Time ,minutes	Glucose, mmol/L	Growth hormone, ug/l	IGF-1, nmol/l
-30	5.8	2.80	
-10	5.6	2.51	
0	5.6	2.77	29
30	6.8	1.95	
60	8.5	2.52	
90	8.7	2.46	
120	9.1	1.82	
150	7.0	0.92	
Reference range	0 mins <7.0 120 mins <11.1	nadir < 0.4	6-30

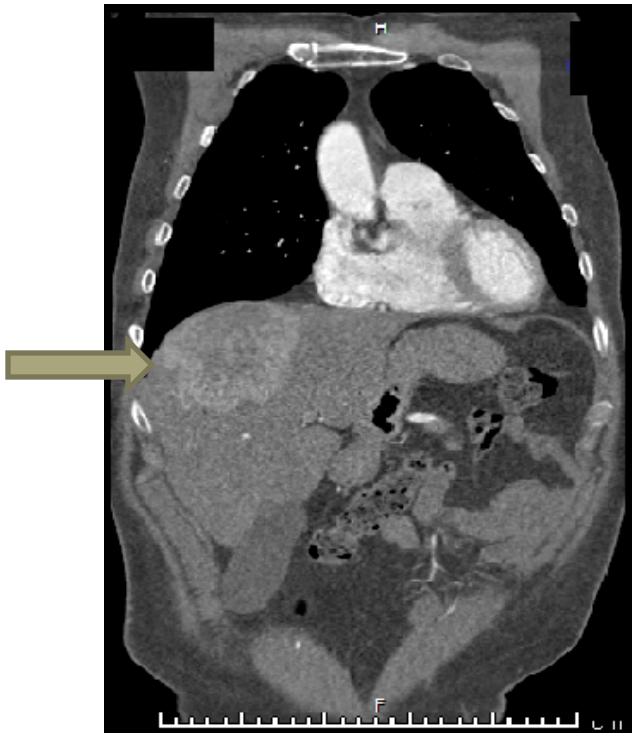
➡ Low FT4 on multiple assays including Abbot, Centuar & DELFIA



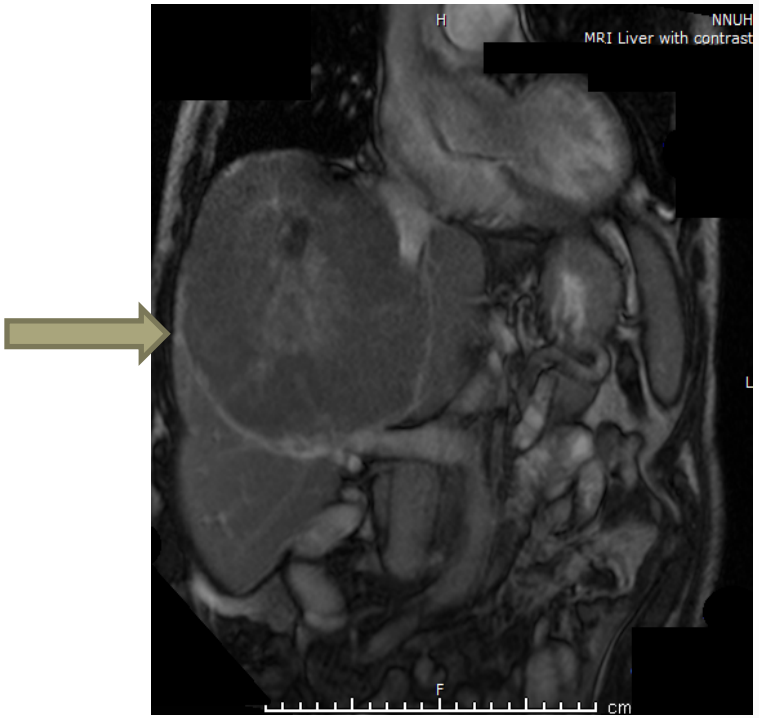
Short Synacthen Test

Time, Min	Cortisol, nmol/L	ACTH, ng/L
0	331	72
30	552	
60	676	
normal response	peak >450	basal 7-51

Incidentaloma



CT aorta liver mass - 9cm Focal nodular hyperplasia (2011)



MRI Liver –Liver Mass 20cm (2017)
Initial biopsy HCC
Immunochemistry for TTF1+,
Thyroglobulin >30000ng/ml
Metastatic Hurthle cell carcinoma

- MRI Pituitary – Normal

Complications

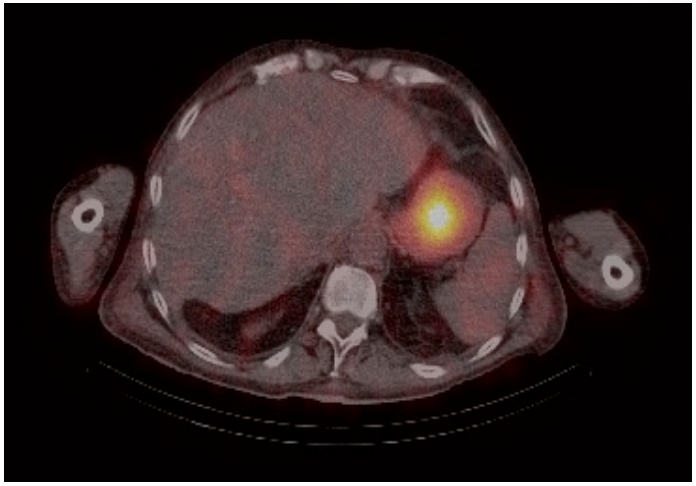
Malignant Hypercalcemia

Bone Workup	Value	Range
Adjusted Calcium	3.0-4.2 mmol/L	2.1-2.6(mmol/L)
25-OH Vitamin D	42 nmol/L	50-120(nmol/L)
1,25 OH Vitamin D	258 pmol/L	55-139 (pmol/L)
PTH	1.5 pmol/L	1.6-6.9 (pmol/L)
PTHrP	<1.0 pmol/L	<1.8 (pmol/L)
CTX	0.86 ug/L	0.1-0.5 (ug/L)
Phosphate	1.1 mmol/L	0.8-1.4 (mmol/L)

Refractory to

- IV fluids
- Steroids
- Bisphosphonates
- Denosumab
- Calcitonin
- Cinacalcet

Unresectable Tumour



- Radioactive iodine scan -no uptake from the dedifferentiated tumour
- Completion thyroidectomy- negative for neoplasia
- Tumour size precluded resection/embolization

Discussion

- This is a rare case of delayed metastatic disease due to Hurthle cell adenoma .
- It was associated with ectopic growth hormone production and refractory hypercalcemia.
- Liver mass labelled as focal nodular hyperplasia few years ago on morphological basis was proven to be metastatic deposit immunocytochemistry.
- The review of thyroid biopsy showed there was evidence of capsular invasion hence initial biopsy results should be interpreted with caution and revisited if metastatic disease is suspected.
- Its recommended that high risk patients should be monitored with regular TFTs and thyroglobulin levels.
- Early intervention in metastatic disease is recommended as delay culminates in increased mortality rate.

References

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