**Report template:**

**CT neck with contrast:**

**(4D CT FOR LOCALISATION OF PARATHYROID ADENOMA )**

Technique: I note that though clinical team has requested a 4D CT, however single phase scan has been performed.In particular no pre contrast and arterial phase scan have been performed. This is reduces the sensitivity and specificity of this exam and limits interpretability.

Clinical Information: Primary hyperparathyroidism but NM scan show no convincing parathyroid adenoma.

Comparison: None.

**Findings:**

* **Thyroid:**
* The thyroid gland is normal in size and morphology with homogeneous attenuation.
* **PARATHYROID:**
* Total number of candidate parathyroid lesions: A total of 5 candidate lesions demonstrated as detailed below-:
* *Candidate lesion # 1 : Slice 73/96 (series CT#2). Seen inferior to the cricoid, and located on left side in relation to the posterior inferior margin of the left lobe of thyroid, partially within the suprasternal notch. Measures -* (CC) 22 mm X (AP) 21mm X (Tr) 16mm. It is clearly anterior to the tracheoesophageal groove. It shows heterogenous attenuation but appears predominantly lower in attenuation relative to thyroid, indicating wash out. Unfortunately no precontrast and arterial phase available, limiting the assessment. However, overall, this is concerning for left inferior parathyroid adenoma.***Level of confidence: High****.* Ultrasound correlation can help to further strengthen the diagnostic confidence.
* Candidate lesion #2 : Slice 74/96, series CT#2. Oval lesion in right paratracheal region in superior mediastinum, anterior to the tracheoesophageal grove. Appears to have central lucency and appears quiet hyperdense - again, no pre contrast and arterial phase available limiting assessment- but overall more likely to be node than ectopic right inferior parathyroid gland***. Level of confidence: low (d/d is node).***
* *Candidate lesion #3 and 4* : Two lesions , each located anterior to the trachea in superior mediastinum (slice 93/96 Series CT#2). These may represent ectopic inferior prethyroids glands , in that case, the left lesion will represent supra numerary ectopic gland. Both measure 8X 9 mm.***Level of confidence: Low (d/d is nodes).***
* *Candidate # 5:* 4 mm lesion in posterior to the right tracheoesophageal grove, at the level of cricoid cartilage- may represent right eutopic superior parathyroid gland. It measures 4mm. ***level of confidence: Moderate.***
* Aortic arch: There is no aortic arch anomaly associated with a nonrecurrent laryngeal nerve.
* Other findings :Paranasal sinuses show mild mucosal thickening.

**Conclusions:**

This is not a 4D CT scan - suboptimal study for the purpose of parathyroid localisation.Within these limitations, following conclusions can be made:

1. **27mm lesion in relation to the inferior pole of the left lobe of thyroid as described-** favours parathyroid adenoma. Ultrasound correlation can help in further strengthening the diagnostic confidence.
2. Possibility of 4mm eutopic right superior parathyroid gland as described.
3. Three more lesions noted in superior mediastinum - may represent either node (more likely) or ectopic parathyroid glands.
4. No vascular anomaly is demonstrated to suggest likelihood of non recurrent laryngeal nerve.

**Note:** Please do not hesitate to reach out in case you will like to discuss this case.

Electronically signed by:

Dr Gaurav G

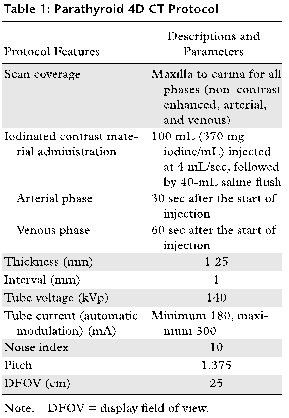
Consultant Radiologist

GMC: 7579033

Everlight Radiology

**4D CT FOR LOCALISATION OF PARAHTRYOID ADENOMA**

**Protocol:**



**Procedure Information:**

Exam: CT neck without and with contrast.

Technique: CT images of the neck were obtained without and with intravenous contrast. Clinical Information: Indication Primary hyperparathyroidism

Comparison: None.

**Findings:**

* **Thyroid:**
* The thyroid gland is normal in size and morphology with homogeneous attenuation.
* **PARATHYROID:**
* Total number of candidate parathyroid lesions:
* Ectopic parathyroid tissue: present absent
* Supernumerary parathyroid tissue: present absent
* LESION DESCRIPTION: (Repeat below steps as needed for number of candidate lesions described. Provide applicable measurements.)
* *Candidate lesion number :*
* Candidate lesion size largest dimension mm
* Candidate lesion size height mm
* Candidate lesion size length mm
* Candidate lesion size width mm
* Laterality : right left midline
* Location: neck mediastinum
* Anterior posterior (AP) position relative to the tracheoesophageal groove :
* anterior to
* posterior to
* within
* Superior inferior (SI) position relative to the cricoid cartilage:
* above
* below
* at
* Additional location : description Optional additional location description (e.g. along the inferior aspect of the right thyroid lobe)
* Morphology
* ATTENUATION RELATIVE TO NORMAL THYROID PARENCHYMA:
* Noncontrast density:
* hypodense
* isodense
* hyperdense
* Arterial phase density:
* hypodense
* isodense
* hyperdense
* Venous phase density:
* hypodense
* isodense
* hyperdense
* Additional lesion characteristics: Optional additional lesion characteristics (e.g., polar vessel, cystic/fatty foci, calcification)
* Candidate lesion most likely represents: Parathyroid adenoma.
* **ADDITIONAL:**
* Aortic arch: There is no aortic arch anomaly associated with a nonrecurrent laryngeal nerve. Other findings

**Impression:**

Single lesion > 13 mm strongly favours parathyroid adenoma (Minimally invasive parathyroidectomy surgery (MIP) candidate).

Multiple lesion or no lesion favours multi glandular disease (MGD) and often requires Bilateral neck exploration (BNE).

Single lesion < 7mm also suggest possibility of MGD.

**No vascular anomaly is demonstrated to suggest likelihood of non recurrent laryngeal nerve.**

**Note: Please discuss the results of this report in your local parathyroid MDT.**