British Thoracic Oncology Group

Anterior mediastinal (suspected thymic) lesion diagnostic pathway

1. If the diagnosis is **thymic remnant** (young age, triangular, straight or concave margins) – **discharge with no further action**. If not thymic remnant continue to step 2.
2. **Review all previous thoracic imaging**
3. If not yet performed, **consider contrast-enhanced portal venous/delayed phase (65 sec) CT thorax and upper abdomen** for optimal evaluation or MR thymus (see below). Try to avoid making a diagnosis on a low-dose CT/ CTPA (arterial phase) imaging alone.
4. Recommend clinical history (explore symptoms & signs of myasthenia gravis, MG) plus routine bloods immunoglobulins & anti-acetylcholine receptor Ab.

Suspected thymic hyperplasia

Often seen in the context of an acute illness, cancer treatment, connective tissue disease

- *Larger than thymic remnant*
- *Triangular, convex margins*
- *Draping around the heart*
- *Fat Nodularity*
- *Prolonged stability on imaging*
- *Keeps to the anterior junctional line*

Consider the level of confidence of diagnosis and local expertise/ resources in MR imaging when deciding on the options below

Confident diagnosis of thymic hyperplasia:

Discharge
No follow-up

(unless MG present where thymectomy can be offered)

Further diagnostic clarity required:

Contrast enhanced MRI with chemical shift

(Lesion should be >2cm for adequate image resolution)

Surveillance imaging deemed appropriate:

Repeat contrast-enhanced portal venous phase CT or contrast enhanced MRI with chemical shift 6-12 months

(Dependent on local resources and expertise as well as gender/age – MR favoured in women of child-bearing age)

Suspected thymic cyst

- *Low attenuation*
- *No solid component*
- *Fluid filled*
- *Non-enhancing*

Consider the level of confidence of diagnosis and local expertise/ resources in MR imaging when deciding on the options below

Confident diagnosis of thymic cyst:

Contrast enhanced MRI Surveillance 1 and 2 years Discharge 2 years if stable.

Consider the local expertise/ resources in MR imaging, contrast-enhanced CT is an alternative

Further diagnostic clarity required:

Contrast enhanced MR

(lesion should be >2cm for adequate image resolution)

If any concern raised, at any point, for a low-grade thymoma or high-grade malignancy then follow the appropriate algorithm

Suspected low-grade thymoma

- *Round (loss of normal triangular shape)*
- *Smooth, well-defined margins*
- *Fat plane preservation*
- *Non-calcified*
- *Enhancing*
- *Solid or mixed cystic with solid components*

Offer minimally invasive thymectomy*- RATS/VATS (without pre-operative histology)

*Discussion at monthly thymoma MDT where available

If patient/clinicians opt for surveillance: Contrast enhanced portal venous phase CT Surveillance at 1, 2 and 4 years. Discharge at 4 years if stable & surgery still declined.

If female of child-bearing age: MR surveillance

Suspected high-grade malignancy

- *Irregular, blurred margin*
- *Loss of fat plane*
- *Calcification*
- *Pleural nodules*
- *B-symptoms in history*

Differential diagnosis

- Lymphoma
- Thymic carcinoma
- Sarcoma
- High-grade thymoma
- Germ cell tumour

PET-CT and biopsy (e.g. percutaneous image-guided biopsy) recommended

Weekly thoracic oncology MDT