## APPENDIX

### American Thyroid Association (ATA), British Thyroid Association (BTA) and Thyroid Imaging Reporting and Data System (TIRADS) ultrasonography sonographic patterns

<table>
<thead>
<tr>
<th>ATA classification</th>
<th>BTA classification</th>
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</thead>
<tbody>
<tr>
<td><strong>Benign</strong></td>
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</tr>
<tr>
<td>Very low suspicion</td>
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<td>High suspicion</td>
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</tr>
</tbody>
</table>

**ATA classification**
- **Benign**
  - Purely cystic nodules (no solid component)
- **Very low suspicion**
  - Spongiform or partially cystic nodules without any of the sonographic features described in low, intermediate or high suspicion patterns
- **Low suspicion**
  - Isoechoic or hyperechoic solid nodule or partially cystic nodule with eccentric solid areas, without microcalcification, irregular margin or extrathyroidal extension (ETE), or taller-than-wide shape
- **Intermediate suspicion**
  - Hypoechoic solid nodule with smooth margins without microcalcifications, ETE or taller-than-wide shape
- **High suspicion**
  - Solid hypoechoic nodule or solid hypoechoic component of a partially cystic nodule with one or more of the following features: irregular margins (infiltrative, microlobulated), microcalcifications, taller-than-wide shape, rim calcifications with small extrusive soft tissue component, evidence of ETE

**BTA classification**
- **U1 (normal)**
  - Normal thyroid gland
- **U2 (benign)**
  - Spongiform or honeycomb appearance
  - Purely cystic nodule and nodules with a cystic component containing colloid (hyperechoic foci with a ‘ring-down’ sign)
  - Egg-shell type calcification around the periphery of a nodule
  - Isoechoic or (mildly) hyperechoic nodule, typically with a surrounding hypoechoic halo
  - Peripheral vascularity on colour flow or power Doppler
- **U3 (intermediate/equivocal)**
  - Homogenous solid nodule with marked hyperechogenicity and halo
  - Possible hypoechoic nodule with presence of equivocal echogenic foci or cystic change, or presence of mixed or central vascularity
- **U4 (suspicious)**
  - Solid, hypoechoic or very hypoechoic nodule
  - Solid, hypoechoic nodule with disrupted peripheral calcification or lobulated outline
- **U5 (malignant)**
  - Solid, hypoechoic, lobulated/irregular outline with microcalcification, globular calcification, intranodular vascularity taller-than-wide shape or characteristics associated with lymphadenopathy

**TIRADS classification**
- **TIRADS 3**
  - No suspicious ultrasonography feature*
- **TIRADS 4A**
  - One suspicious ultrasonography feature
- **TIRADS 4B**
  - Two suspicious ultrasonography features
- **TIRADS 4C**
  - Three or four suspicious ultrasonography features
- **TIRADS 5**
  - Five suspicious ultrasonography features

*Suspicious features are solid nodule, hypoechoigenicity or marked hypoechoigenicity, microlobulated or irregular margins, microcalcifications or mixed calcifications and a taller-than-wide shape.