# A guide to Parathyroid & Atypical Neoplasms Histopathology Reporting

Includes the International Collaboration on Cancer reporting dataset denoted by *

## Clinical details

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1.02</td>
<td>Clinical info. on request form</td>
<td>Text OR Information not provided*</td>
</tr>
<tr>
<td>S1.03</td>
<td>Pathology accession number</td>
<td>Text</td>
</tr>
<tr>
<td>S1.04</td>
<td>Principal clinician</td>
<td>Text</td>
</tr>
<tr>
<td>G1.01</td>
<td>Copy to doctor</td>
<td>Text</td>
</tr>
<tr>
<td>S1.05</td>
<td>Previous parathyroid surgery</td>
<td>Text</td>
</tr>
<tr>
<td>S1.06</td>
<td>Relevant familial history</td>
<td>Text</td>
</tr>
<tr>
<td>S1.07</td>
<td>Presence of a clinical syndrome</td>
<td>Text</td>
</tr>
</tbody>
</table>

## Macroscopic findings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Format</th>
</tr>
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<tbody>
<tr>
<td>S2.01</td>
<td>Specimen labelled as</td>
<td>Text</td>
</tr>
<tr>
<td>S2.02</td>
<td>Clinical information</td>
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<tr>
<td>S2.03</td>
<td>Pre-operative biochemical information</td>
<td>Information not provided* OR</td>
</tr>
<tr>
<td>S2.04</td>
<td>Operative procedure</td>
<td>See p2</td>
</tr>
<tr>
<td>S2.05</td>
<td>Specimen(s) submitted</td>
<td>See p2</td>
</tr>
<tr>
<td>S2.06</td>
<td>Tumour site(s)</td>
<td>See p2</td>
</tr>
<tr>
<td>S2.07</td>
<td>Specimen weight</td>
<td>Can't be assess'd, specify OR</td>
</tr>
<tr>
<td>S2.08</td>
<td>Tumour dimensions</td>
<td>__ mm</td>
</tr>
<tr>
<td>S2.09</td>
<td>Block identification key</td>
<td>Text</td>
</tr>
<tr>
<td>G2.02</td>
<td>Other macroscopic comment</td>
<td>Text</td>
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## Microscopic findings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>S3.01</td>
<td>Histological tumour type</td>
<td>See p2</td>
</tr>
<tr>
<td>S3.02</td>
<td>Histological tumour grade</td>
<td>See p2</td>
</tr>
<tr>
<td>S3.03</td>
<td>Extent of invasion</td>
<td>See p2</td>
</tr>
<tr>
<td>S3.04</td>
<td>Lymphovascular invasion</td>
<td>Not identified OR Select all that apply Present (vascular invasion, lymphatic invasion)</td>
</tr>
<tr>
<td>S3.05</td>
<td>Perineural invasion</td>
<td>Not identified Present</td>
</tr>
<tr>
<td>S3.06</td>
<td>Necrosis</td>
<td>Not identified Present</td>
</tr>
<tr>
<td>S3.07</td>
<td>Mitotic count</td>
<td>__ mitotic figures/2 mm²**</td>
</tr>
<tr>
<td>S3.08</td>
<td>Margin status</td>
<td>Not involved (R0), specify distance to closest margin Involved (abutting tissue edge [R1 resection]; Transected, fragmented or ruptured [possible R2 resection]) Cannot be assessed, specify</td>
</tr>
<tr>
<td>S3.09</td>
<td>Lymph node status</td>
<td>No nodes submitted or found Not involved Involved</td>
</tr>
<tr>
<td>S3.10</td>
<td>Distant metastases</td>
<td>Not identified Info not available Present, specify site(s)</td>
</tr>
<tr>
<td>G3.01</td>
<td>Coexistent findings</td>
<td>See p2</td>
</tr>
</tbody>
</table>

## Ancillary findings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>G4.01</td>
<td>Ancillary studies</td>
<td>See p2</td>
</tr>
</tbody>
</table>

## Synthesis and overview

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Format</th>
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<tbody>
<tr>
<td>S5.01</td>
<td>PATHOLOGICAL STAGING</td>
<td>See p3</td>
</tr>
<tr>
<td>S5.02</td>
<td>Year and edition of staging system</td>
<td>Text</td>
</tr>
<tr>
<td>G5.01</td>
<td>Diagnostic summary</td>
<td>Include: Specimen submitted; Histological tumour type; Diameter of largest tumour; Completeness of excision; Tumour stage. Text</td>
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<tr>
<td>S5.03</td>
<td>Overarching comment</td>
<td>Text</td>
</tr>
<tr>
<td>G5.02</td>
<td>Edition/version of RCPA protocol</td>
<td>Text</td>
</tr>
</tbody>
</table>

**Note: A diagnosis of parathyroid carcinoma or atypical parathyroid neoplasm requires information regarding intra-operative findings, serum PTH and calcium levels, comorbidities such as chronic renal failure etc. Thus, this option should only be used after all efforts to obtain this information, including MDT discussion, have been exhausted.**
**S2.02 Operative procedure**

Not specified

**OR (Select all that apply)**

- Side
  - Right
  - Left
  - Not specified

- Location
  - Superior
  - Inferior
  - Not specified

- Tissue nature
  - Parathyroidectomy, single gland
  - Parathyroidectomy, en block with thyroid lobe
  - Other parathyroid gland(s) sampling
    - Unilateral
    - Bilateral
  - Lymph node sampling, specify
  - Soft tissue of neck, specify
  - Other, specify

**G2.01 Intra-operative findings**

Not specified

**OR (Select all that apply)**

- Non-adherent to surrounding structures
- Adherent to structure(s)
  - Thyroid
  - Recurrent laryngeal nerve
  - Oesophagus
  - Skeletal muscle
  - Other, specify
- Other, specify

**S2.05 Specimen(s) submitted**

Not specified*

**OR (Select all that apply)**

- Parathyroid
  - Left
    - Superior
    - Inferior
    - Not specified
  - Right
    - Superior
    - Inferior
    - Not specified
  - Other, specify
- Thyroid gland
  - Left
  - Right
  - Isthmus
- Lymph nodes, specify site(s) and laterality
- Other, specify site(s) and laterality

**S2.06 Specimen site(s)**

Not specified*

**OR (Select all that apply)**

- Parathyroid
  - Left
    - Superior
    - Inferior
    - Not specified
  - Right
    - Superior
    - Inferior
    - Not specified
  - Mediastinal
  - Intrathyroidal, specify lobe
- Soft tissue or muscle, specify site(s) and laterality
- Lymph nodes, specify site(s) and laterality
- Other, specify site(s) and laterality

**S3.01 Histological tumour type**

- Atypical parathyroid neoplasm (atypical parathyroid adenoma)/neoplasm of uncertain malignant potential (UMP)*
- Parathyroid carcinoma

*Note: Defined as tumours that are histologically or clinically worrisome but do not fulfil the more robust criteria (i.e. invasion, metastasis) for carcinoma. They generally include tumours that have two or more concerning features, such as fibrous bands, mitotic figures necrosis, trabecular growth, or adherence to surrounding tissues intraoperatively. Atypical parathyroid neoplasms usually have a smaller dimension, weight, and volume than carcinomas and are less likely to have coagulative tumour necrosis.

**S3.01 Histological tumour type**

- Low grade
- High grade
- Not determined
- Not applicable (i.e. atypical neoplasm/adenoma, UMP*)

*Note: Defined as tumours that are histologically or clinically worrisome but do not fulfil the more robust criteria (i.e. invasion, metastasis) for carcinoma. They generally include tumours that have two or more concerning features, such as fibrous bands, mitotic figures necrosis, trabecular growth, or adherence to surrounding tissues intraoperatively. Atypical parathyroid neoplasms usually have a smaller dimension, weight, and volume than carcinomas and are less likely to have coagulative tumour necrosis.

**S3.03 Extent of invasion**

- Cannot be assessed, specify
- Confined to parathyroid without invasion through tumour capsule

**OR**

Select all that apply:

- Invasion through tumour capsule
- Invasion into extra-parathyroid soft tissue
- Invasion into adjacent structures, specify
  - Thyroid
  - Recurrent laryngeal nerve
  - Oesophagus
  - Skeletal muscle
  - Other, specify

**G3.01 Coexistent findings**

Select all that apply:

- None identified
- Present
  - Other finding(s) in same parathyroid gland as neoplasm
  - Other, specify
- Tissue from another submitted parathyroid gland, specify
  - Normal
  - Hypercellular, specify
  - Other, specify

**G4.01 Ancillary studies**

Not performed

**OR**

Select all that apply:

- Immunohistochemistry performed
  - Ki-67, specify results and method __%
  - Parafibromin (CDC73), specify results
  - PGP9.5, specify results
  - Other immunohistochemistry, specify
- Molecular testing performed
  - CDC73 (parafibromin gene)
    - Germline testing, specify results
    - Tumour (somatic) testing, specify results
  - Other molecular test(s), specify
  - Other, specify
### S5.01 Stage & stage group##

**Suffixes**
- m - multiple primary tumours; y - post therapy; r - recurrent

**Primary Tumour (T)**
- TX Primary tumour cannot be assessed
- T0 No evidence of primary tumour
- Tis Atypical parathyroid neoplasm (neoplasm of uncertain malignant potential)*
- T1 Localised to the parathyroid gland with extension limited to soft tissue
- T2 Direct invasion into the thyroid gland
- T3 Direct invasion into recurrent laryngeal nerve, oesophagus, trachea, skeletal muscle, adjacent lymph nodes, or thymus
- T4 Direct invasion into major blood vessel or spine

*Note: Defined as tumours that are histologically or clinically worrisome but do not fulfill the more robust criteria (i.e. invasion, metastasis) for carcinoma. They generally include tumours that have two or more concerning features, such as fibrous bands, mitotic figures, necrosis, trabecular growth, or adherence to surrounding tissues intraoperatively. Atypical parathyroid neoplasms usually have a smaller dimension, weight, and volume than carcinomas and are less likely to have coagulative tumour necrosis.

**Regional lymph node (N)**
- NX Regional lymph nodes cannot be assessed
- N0 No regional lymph node metastasis
- N1 Regional lymph node metastasis
  - N1a Metastasis to level VI (pretracheal, paratracheal, and prelaryngeal/Delphian lymph nodes) or superior mediastinal lymph nodes (level VII)
  - N1b Metastasis to unilateral, bilateral, or contralateral cervical (level I, II, III, IV, or V) or retropharyngeal nodes

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