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Thyroid Gland Tumours (with comments on parathyroid)

1. GROSS DESCRIPTION

Specimen

— fine needle aspirate/partial or (sub)total thyroidectomy/left or right lobectomy/isthmusectomy/parathyroidectomy/selective neck dissection.
— size (cm) and weight (g).
— thyroid gland tumours usually present with enlargement due to a solitary "cold" nodule with euthyroid function. Differentiated (papillary, follicular) cancer may present with cervical lymph node or sclerotic bone metastases. Undifferentiated cancers are often of rapid onset with symptoms due to infiltration or compression of local structures, e.g. hoarseness, dysphagia or respiratory stridor. FNA is the investigation of choice, either of a clinically palpable lesion or under ultrasound guidance with follow-up for benign cytology and surgery for a suspicious or malignant aspirate. Core needle biopsy may be used to distinguish between anaplastic carcinoma and malignant lymphoma. The extent of operative resection depends on the patient's age, gender, tumour type and stage.

Tumour

Site
— left/right lobe, isthmus, multifocal.

Size
— length × width × depth (cm) or maximum dimension (cm).

Appearance
— solid/cystic/calcified/haemorrhagic/pale/tan/ papillary.

Edge
— circumscribed/irregular (encapsulated/non-encapsulated).

Gland
— uniform, nodular, atrophic, pale in colour.

2. HISTOLOGICAL TYPE

Follicular adenoma

— usual type: macrofollicular; microfollicular; embryonal/fetal.
— variants: hyalinizing trabecular (HTA); oxyphil (Hürthle). Most HTAs (organoid trabecular/nested pattern of spindle cells and collagen) are benign but a minority show overlap features with papillary carcinoma and/or capsular/vascular invasion and are regarded as hyalinizing trabecular carcinoma. Thyroglobulin and NSE positive ± CK19.

Papillary carcinoma

— usual type: psammomatous.
— variants with worse prognosis:
diffuse sclerosing.
tall cell.
columnar cell.
solid.
trabecular.
diffuse follicular.
— variants with better prognosis:
encapsulated.
papillary microcarcinoma (≤1 cm).
— variants with usual prognosis:
follicular/oxyphil (Hürthle).

Follicular carcinoma

— widely invasive:
grossly apparent invasion of thyroid and/or soft tissue.
follicular/trabecular/solid patterns and vascular invasion.
cytological features of malignancy, e.g. atypia/mitoses/necrosis.
— minimally invasive:
encapsulated—angioinvasive with potential for metastases or capsular invasion with equivocal potential for metastases.
— variants: oxyphil (Hürthle)/clear cell.

Undifferentiated (anaplastic) carcinoma

— old age; 5–10% of cases. Rapid growth with involvement of vital neck structures and death in 6 months. Treatment (surgery, radiotherapy) is usually palliative.
— spindle/squamoid/giant cells ± cartilage/osseous metaplasia ± a differentiated component, i.e. evidence of origin from a more usual thyroid carcinoma, e.g. papillary carcinoma. Cytokeratin positive.

Poorly differentiated carcinoma

— "insular" carcinoma: large solid nests of small to medium sized round uniform tumour cells (medullary-like); thyroglobulin/TTF-1 positive,